THRITHALA BLOCK PANCHAYATH

INTEGRATED WATERSHED MANAGEMENT PROGRAMME- PROJECTVIII

Detailed Project Report

THRITHALA BLOCK PANCHAYATH

INTEGRATED WATERSHED MANAGEMENT PROGRAMME

Submitted to:

Thrithala Block Panchayath

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Detailed Project Report

TSO: CENTRE FOR SOCIAL AND RESOURCE DEVELOPMENT, PULICKAN HYPER BAZAR, PUDUKAD THRISSUR -680301, Ph 9048435153, 0480-2756221 Email: csrdtcr@gmail.com

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PART I

ABBREVIATIONS

AAP	ANNUAL ACTION PLAN
APL	ABOVE POVERTY LINE
BP	BLOCK PANCHAYAT
BLCC	BLOCK LEVEL COORDINATION COMMITTEE
BRGF	BACKWARD REGIONS GRANT FUND
DLCC	DISTRICT LEVEL COORDINATION COMMITTEE
DPC	DISTRICT PLANNING COMMITTEE
DPR	DETAILED PROJECT REPORT
EC	ENERGY CONSERVATION
EPA	ENTRY POINT ACTIVITES
FGD	FOCUS GROUP DISCUSSION
GIS	GEOGRAPHIC INFORMATION SYSTEM
GP	GRAMAPANCHAYAT
GW	GROUND WATER
IEC	INFORMATION, EDUCATION, COMMUNICATION
IT	INFORMATION TECHNOLOGY
IWMP	INTEGRETED WATERSHED MANAGEMENT PROGRAMME

LHA	LIVELIHOOD ACTIVITIES
LSGD	LOCAL SELF GOVERNMENT DEPARTMENT
LSGI	LOCAL SELF GOVERNMENT INSTITUTIONS
MCM	MILLION CUBIC METRES
MGNREGS	MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT
MLA LAD	MEMBER OF LEGISLATIVE ASSEMBLY LOCAL AREA DEVELOPMENT SCHEME
MLO	MICRO LEVEL ORGANISATION
MPLAD	MEMBER OF PARLIAMENT LOCAL AREA DEVELOPMENT
MSL	MEAN SEA LEVEL
NABARD	NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT
NGO	NON GOVERNMENTAL ORGANISATION
NRAA	NATIONAL RAINFED AREAS AUTHORITY
NRHM	NATIONAL RURAL HEALTH MISSION
NRM	NATURAL RESOURCE MANAGEMENT
OBC	OTHER BACKWARD COMMUNITY
PAU	POVERTY ALLEVIATION UNIT
PIA	PROJECT IMPLEMENTATION AGENCY
SB A/C	SAVING BANK ACCOUNT

SC/ST	SCHEDULED CASTE/SCHEDULED TRIBE
SHGs	SELF HELP GROUPS
SLNA	STATE LEVEL NODAL AGENCY
TSO	TECHNICAL SUPPORT ORGANISATION
UGs	USER GROUPS
WC	WATERSHED COMMITTEE
WCDC	WATERSHED CELL CUM DATA CENTRE
WDF	WATERSHED DEVELOPMENT FUND
WDT	WATERSHED DEVELOPMENT TEAM

I.1 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

I.2 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 activitiesfor 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 inspiretheir 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.

I.3 DETAILS ABOUT MICRO WATERSHED

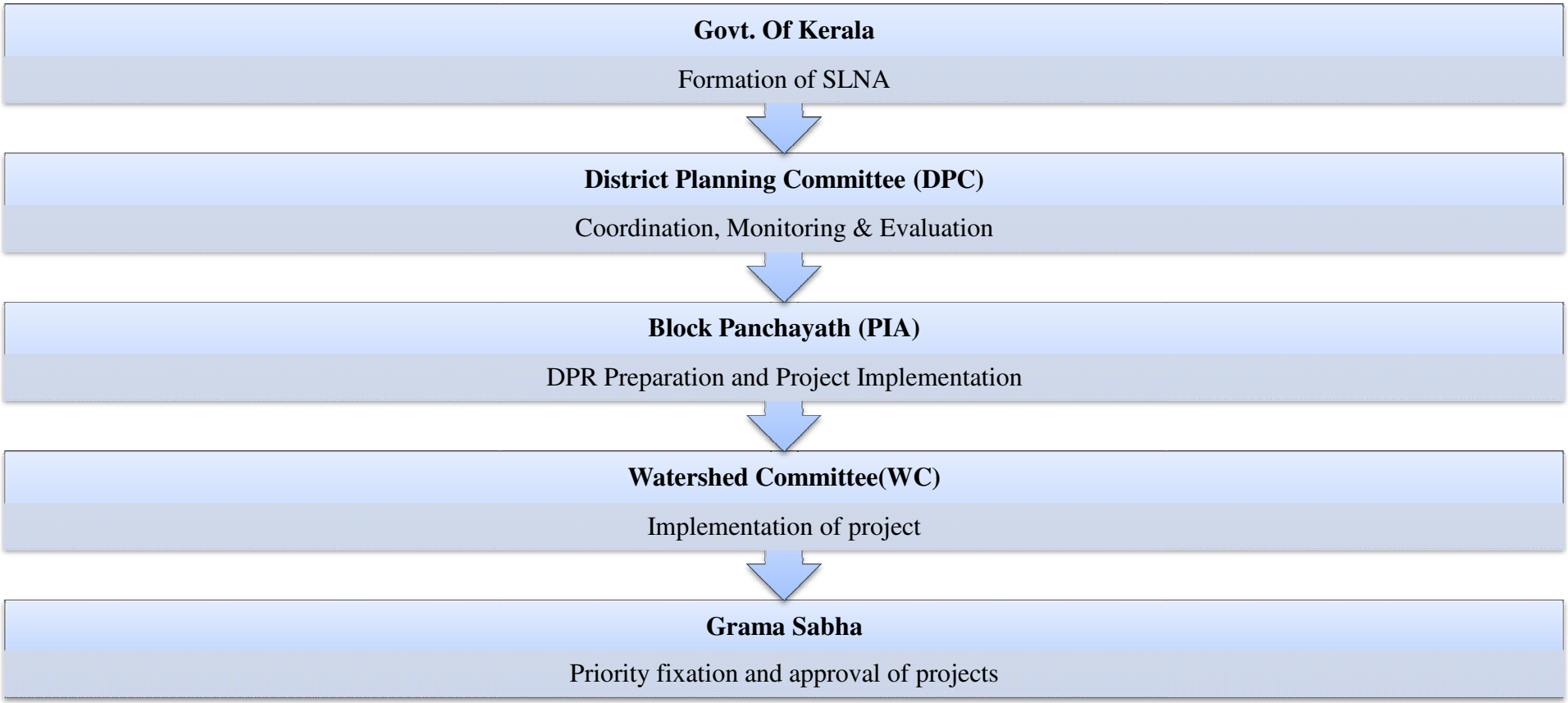
Table 1 Project Background

State	District	Taluk	Block	Project	Micro Watershed				Grama Panchayath	Wards		Total area	Treatable area	Project amount
					Name	Code	Area (Ha)	Coordinates		Full	Partial			
Kerala	Palakkad	Ottapalam	Thrithala	IWMP VIII	Muthalangathode	20B44g	1048.4	76°8'41.935"E 10°43'58.573"N, 76°10'27.687"E 10°47'1.904"N	Thirumittakode	17,18	1,15,16	5084 Ha	5084 Ha	7,62,60,000
									Nagalassery		3,4,5			
									Thrithala		10			
					Akilanam	19K8c	973.52	76°6'59.521"E 10°42'39.758"N, 76°9'54.184"E 10°44'48.913"N	Nagalassery	10,11	8,9,12,15,16			
									Thirumittakode		12,13,14,15			
					Cheenikazhaya	20B44a	677.57	76°10'21.626"E 10°44'59.749"N, 76°12'22.546"E 10°47'12.371"N	Thirumittakode	3,4,5	2,6,8			
					Ittonam	20B44f	637.61	76°9'32.651"E 10°43'17.898"N, 76°11'8.433"E 10°45'52.624"N	Thirumittakode	9,10	7,8,11,13,16			
					Njangattiri	20B44h	476.15	76°9'29.617"E 10°46'19.495"N, 76°11'12.334"E 10°48'6.547"N	Thrithala	7,8,9	6,10,11			
									Thirumittakode		1			

					Pathiyanthode	19K8b	391.25	76°8'3.802"E 10°44'5.573"N, 76°9'27.883"E 10°45'23.586"N	Nagalassery		7,8				
									Thirumittakode		14,15				
					Verumpilavu	19K9a	336.47	76°6'10.25"E 10°42'42.359"N, 76°7'29.563"E 10°44'12.507"N	Nagalassery	13,14	12,15				
									Chalissery		8				
					Pottikathode	20B44b	159.7	76°10'21.842"E 10°45'0.789"N, 76°11'30.754"E 10°46'24.87"N	Thirumittakode		2,6,8				
					Pallipadam	18K14b	133.39	76°9'45.869"E 10°42'40.798"N, 76°10'31.811"E 10°43'37.141"N	Thirumittakode		11				
					Peringannur	20B44e	86.25	76°10'54.255"E 10°44'1"N, 76°11'39.763"E 10°45'12.187"N	Thirumittakode		7,8				
					Mooliparambu	18K12b	89.1	76°7'9.057"E 10°42'35.251"N, 76°7'58.14"E 10°43'21.734"N	Nagalassery		12				
					Malayakam	18K14a	74.59	76°7'58.14"E 10°43'21.734"N, 76°9'57.913"E 10°43'2.932"N	Thirumittakode		11,12				

I.4 ORGANIZATIONAL SET UP

GOVERNANCE LEVEL



EXECUTIVE LEVEL

State Level Nodal Agency (SLNA)

Administration & Preparation of State Perspective and Strategic Plan.

District Level Coordination Committee (DLCC)

Technical Approval For Projects

Block Level Coordination Committee (BLCC)

Supervision and monitoring of DPR Preparation and project implementation

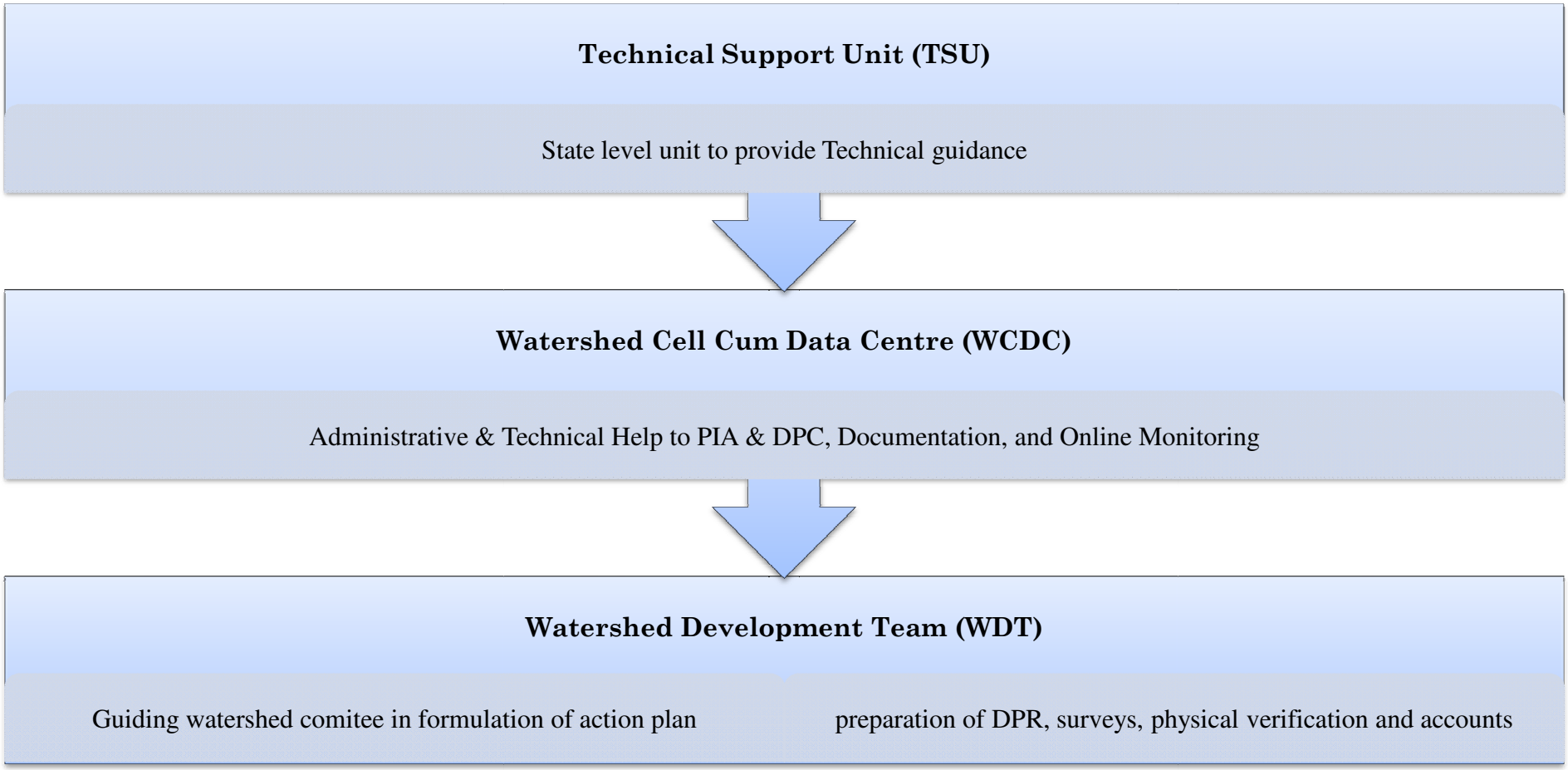
Watershed Coordination Committee (WCC)

Implementation of Watershed Works With MGNREGS Labour Groups & User Groups

User Groups (UG) /SHGs

To Undertake Watershed Development Works

TECHNICAL SUPPORT LEVEL



I.5 BUDGET ALLOCATION

Table 2 Funding pattern

IWMP Project VIII – Thrithala Watershed		
Treatable Area – 5084 (Ha)		
Total Amount – 7,62,60,000 (Rs)		
BUDGET ALLOCATION	**% OF THE BUDGET**	**FUND ALLOCATION (In Rs.)**
Administration Cost	10%	76,26,000
Monitoring	1%	7,62,600
Evaluation	1%	7,62,600
FIRST PHASE		
Entry Point Activities	4%	30,50,400
Institutional and Capacity Building	5%	38,13,000
Detail Project Report (DPR)	1%	7,62,600
WATERSHED WORK PHASE		
Watershed Development work	56%	4,27,05,600
Livelihood Activities	9%	68,63,400
Production system and Micro enterprises	10%	76,26,000
Consolidation Phase	3%	22,87,800
TOTAL	**100**	**7,62,60,000**

PART II

II.1 GENERAL DESCRIPTION OF PROJECT AREA

Brief history

The watershed area under reference consists of Grama panchayaths namely Nagalassery, Thirumittakode, Thrithala, and Chalissery located in Thrithala Block of Palakkad District. The watershed area has an elevation from 20 to 140 msl. The entire area has an undulating topography featured with hills and deep valleys. The 5084 ha of land has been selected as treatable area for IWMP Project VIII. The watershed is drained by different perennial streams which merge itself into Bharathapuzha River. Majority of the population depend on agriculture and allied activities for their livelihood.

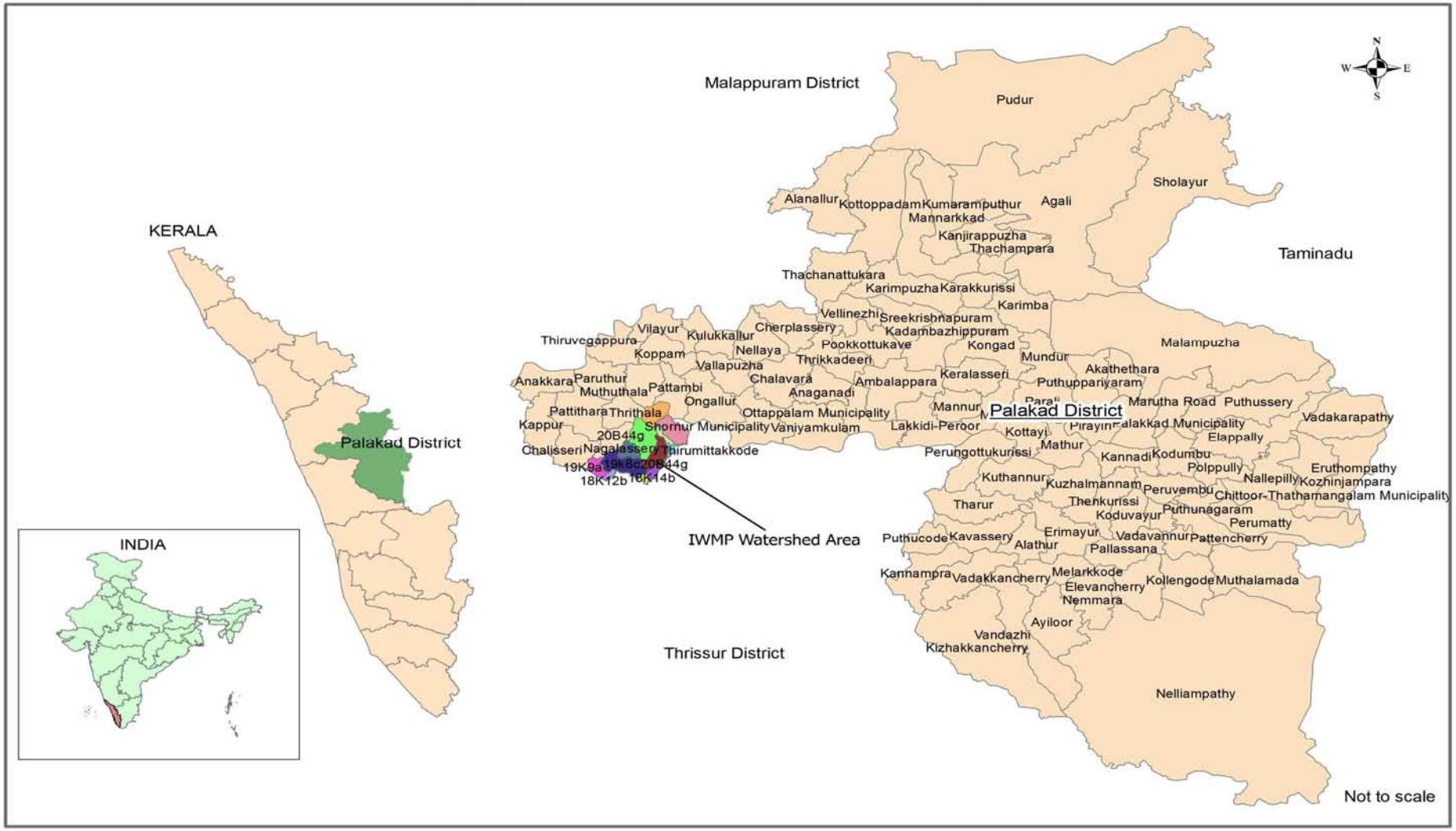
Table 3 Profile of the area

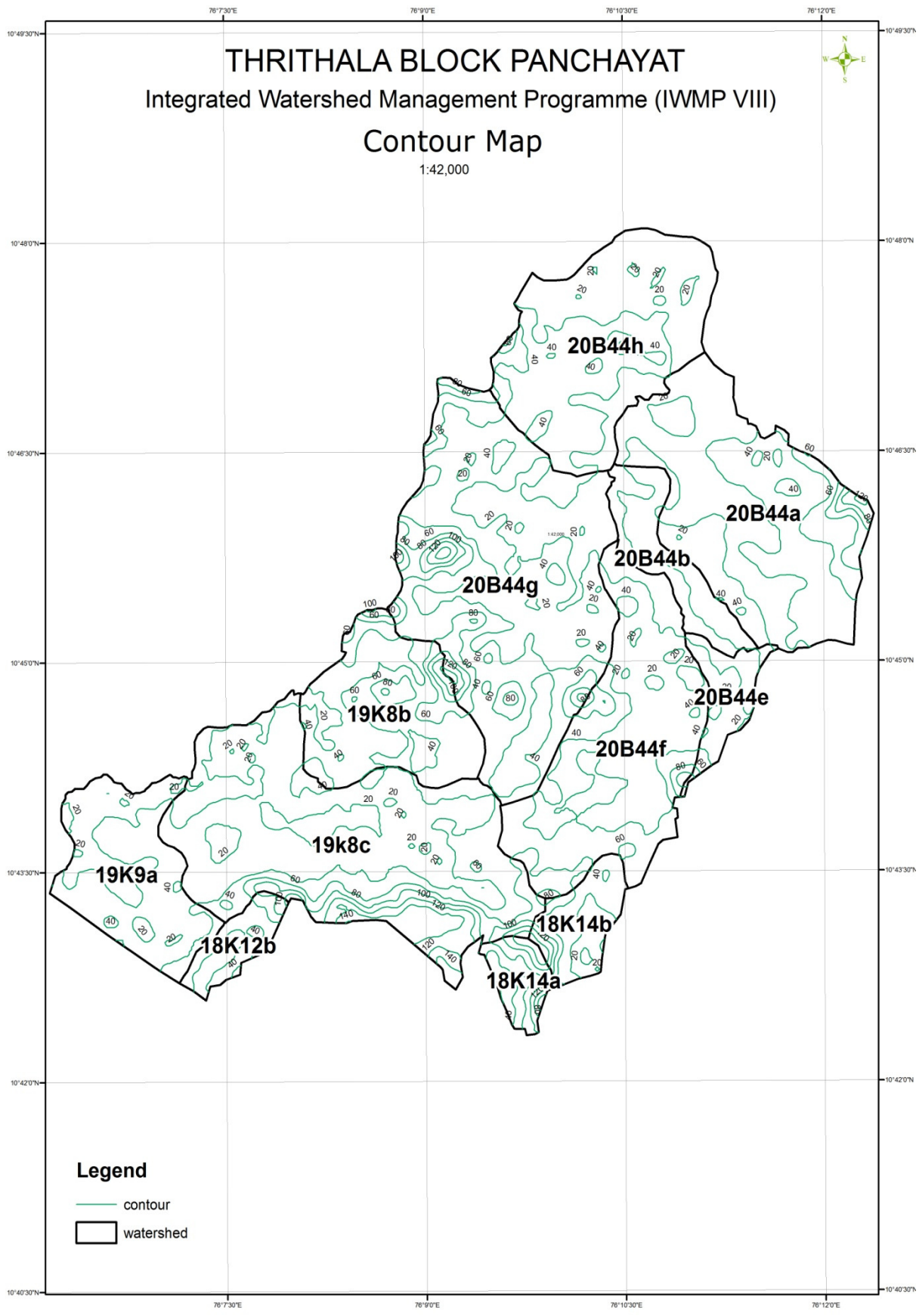
1	District	Palakkad
2	Block Panchayath	Thrithala
3	Taluk	Ottapalam
4	Grama Panchayaths	Thirumittakode, Nagalassery, Thrithala, Chalissery

5	Latitude/Logitude	76°6'8.494"E 10°48'8.478"N, 76°6'8.494"E 10°42'19.703"N 76°12'21.956"E 10°48'8.478"N, 76°12'21.956"E 10°42'19.703"N
6	Treatable Area	5084 Ha
7	Nearby place	Perumbilavu - Pattambi
8	Distance from District Head quarters	65 km from Palakkad Collectorate
9	Watershed Code	Muthalangathode - 20B44g Akilanam - 19K8c Cheenikazhaya - 20B44a Ittonam- 20B44f Njangattiri - 20B44h Pathiyanthode - 19K8b

		Verumpilavu - 19K9a Pottikathode - 20B44b Pallipadam - 18K14b Perinkannur - 20B44e Mooliparambu - 18K12b Malayakam - 18K14a
10	Major river flowing through watershed	Bharathapuzha
11	Livelihood options	Agriculture, animal husbandry, daily labour, govt.service
12	Name of catchment	Bharathapuzha

Location Map of Thrithala IWMP -VIII of Palakad District




THRITHALA BLOCK PANCHAYAT
Integrated Watershed Management Programme (IWMP VIII)
Contour Map
1:42,000
20B44h
20B44a
20B44b
20B44g
20B44e
20B44f
19K8b
19k8c
19K9a
18K12b
18K14b
18K14a
Legend
contour
watershed

II.2 PHYSIOGRAPHY AND RELIEF

Physiographycally the area falls undermidland to midup land region. Lowest elevation is 20 m MSL and is at Njangattiri and the highest elevation is140m at Malayakam Kunnu. The relief is subnormal to excessive.

II.3 DRAINAGE

Bharatha Puzha River is associated with this area. Watershed is drained by 12 perennial streams. The details of main drainages in each micro watershed are given below:

Table 4 Drainages in watershed

Sr No	Watershed	Main Drainage	Perennial/Seasonal	Total Length (m)
1	Muthalangathode	Kadachira thode	Perennial	1365m
2	Akilanam	Manjapatta thode	Perennial	2354m
3	Cheenikazhaya	Kodalur kavu thode	Perennial	2648m
4	Ittonam	Parempadam thode	Perennial	1532m
5	Njangattiri	Mattaya thode	Perennial	2369m
6	Pathiyanthode	Eriyedam – Koonangad thode	Perennial	1236m
7	Verumpilavu	Kothakulam thode	Perennial	1478m
8	Pottikathode	Thachapalam thode	Perennial	2144m
9	Pallipadam	Pallipadam thode	Perennial	1569m
10	Peringannur	Kizhakke thode	Perennial	1689m
11	Mooliparambu	Narikuzhi thode	Perennial	2014m
12	Malayakam	Malayakam thode	Perennial	1961m

THRITHALA BLOCK PANCHAYAT

Integrated Watershed Management Programme (IWMP VIII)

Watershed Map

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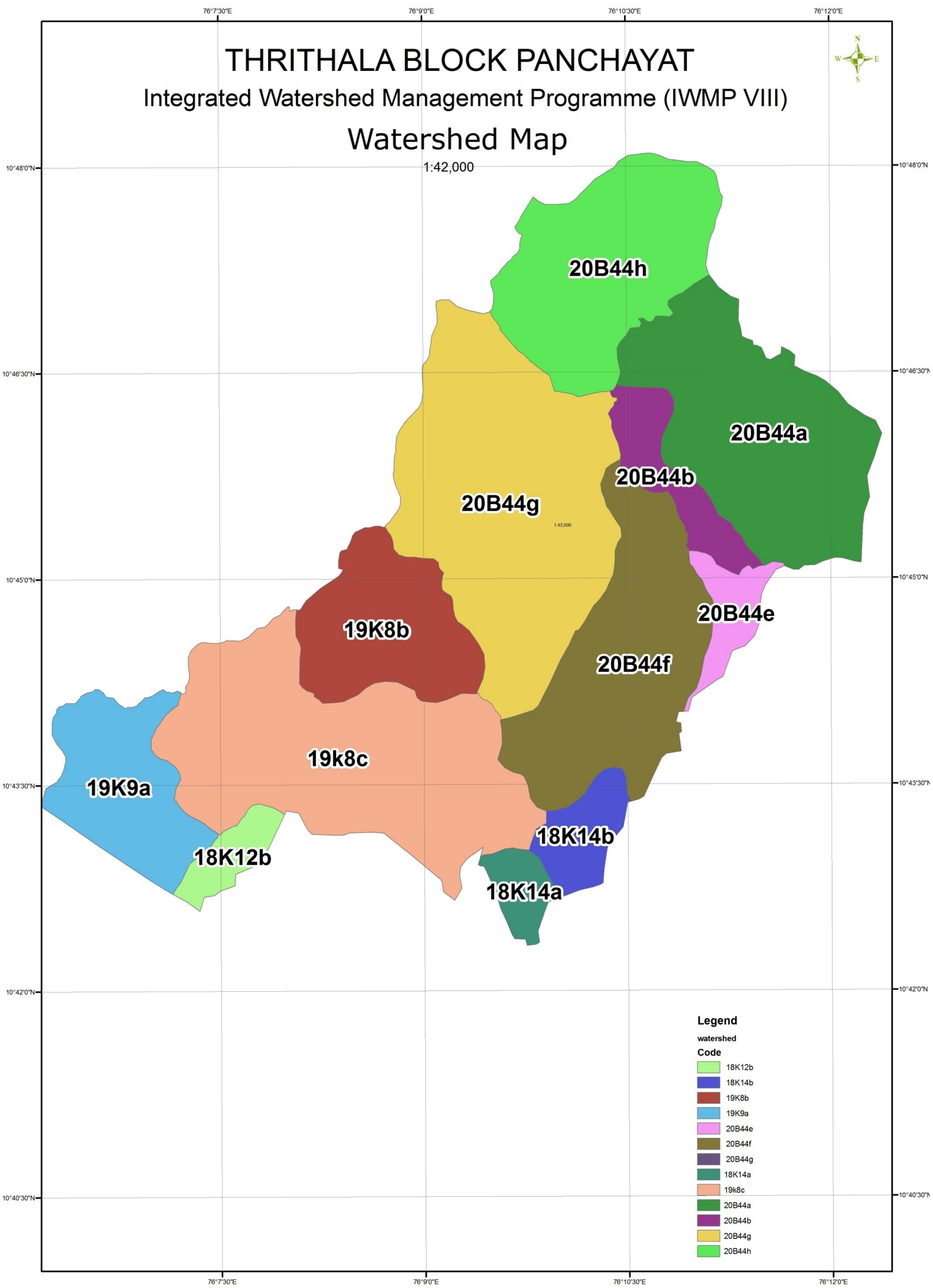


II.4 CRITERIA FOR SELECTION

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

Table 5 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 (o)		
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)	
	DPAP/DDP Block		DDP Block	DPAP Block	Non DPAP /DDP Block	Above &70 %(Reject)
7	Area under rain-fed agriculture	15	More than 90%(15)	80 to 90%(10)	70 to 80%(5)	Fully covered (0)
8	Drinking Water	10	No source (10)	Problematic village(7.5)	Partially covered(5)	
9	Degraded land	15	High- above 20%(15)	Medium- 10 to 20% (10)	Low less than 10% of TGA(5)	
10	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts.(10)	Lands with high production& where productivity can be marginally enhanced with reasonable efforts(5)	
11	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)	
12	Cluster approach in the plains (more than one contiguous micro watersheds	15	Above 6 micro-watersheds in cluster(15)	4 to 6 micro watersheds in cluster(10)	2 to 4 micro watersheds in cluster (5)	

	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)	
	Cluster approach in the hills(more than one contiguous micro watersheds in the project)					

Weightage criteria

No	District	Name of Project	No of micro watershed to be covered	Proosed project area (Ha)	Type of Project (Hilly/Desert/ Others)	Proposed cost (Rs. in lakh)	Weightage under the criteria#												
							1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1	Palakkad	IWMP 8	12	5084	Hilly	762.60	7.5	5	0	10	3	0	15	7.5	15	10	10	0	15	98

II.5 CLIMATE

The district experiences humid type of climate. The district receives maximum rainfall during the south west monsoon followed by the north east monsoon. The other months considerably receives less rainfall. Major rainfall is received during June to September in the southwest monsoon.

Table 6 Average Rainfall

Rainfall data for the last 10 years (in mm)														
Year	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Rainfall**	**Average**
2004	0.0	0.0	4.1	105.0	463.3	729.7	347.1	486.7	122.2	305.2	42.8	0.0	2606.1	217.2
2005	21.0	45.0	0.0	238.3	101.4	567.6	736.6	271.8	453.7	121.1	126.2	112.9	2795.6	233.0
2006	0.0	0.0	36.1	16.7	396.6	688.4	470.4	426.7	500.6	352.9	133.9	0.0	3022.3	251.9
2007	0.0	0.0	0.0	53.9	184.8	728.4	1307.5	483.0	629.0	297.4	34.4	6.0	3724.4	310.4
2008	0.0	46.9	117.5	13.6	73.2	535.1	322.7	175.1	302.0	345.7	7.6	0.0	1939.4	161.6
2009	0.0	0.0	141.9	52.5	158.6	378.9	1076.2	295.5	294.8	160.0	262.8	28.8	2850.0	237.5
2010	0.0	0.0	0.0	114.5	130.5	681.2	572.5	273.4	174.1	430.9	245.1	10.5	2632.7	219.4
2011	0.0	20.0	21.0	172.2	108.4	759.0	456.9	452.1	388.6	229.7	147.0	0.0	2754.9	229.6
2012	0.0	0.0	0.3	104.4	42.5	459.7	297.8	489.3	220.2	234.9	74.6	6.2	1929.9	160.8
2013	0.0	79.5	55.2	0.0	89.7	873.3	1061.6	88.1	242.2	186.2	73.8	0.0	2749.6	229.1

(Source: RARS Pattambi)

Temperature

The maximum temperature ranges from 34.1 to 35.8 C where as the minimum temperature ranges from 20.6 to 25.7C. The average annual maximum temperature is 32.40 C and the average annual minimum temperature is 23.4 C. Generally March and April months are the hottest and November, December, January and February months are the coldest.

Table 7 Maximum Temperature

MONTHLY AVERAGE OF MAXIMUM TEMPERATURE (^{0}C)												
YEAR/MONTH	**JAN.**	**FEB.**	**MAR.**	**APR.**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**
2004	33.6	35.5	36.6	34.8	30.5	29.7	29.5	29.5	30.9	31.3	32.0	32.9
2005	33.9	35.1	36.3	34.0	34.1	30.6	29.0	30.0	29.8	31.3	31.5	32.2
2006	33.5	34.8	35.3	35.2	33.4	30.3	29.5	30.1	30.0	31.0	31.4	32.1

2007	33.1	34.5	36.5	36.4	34.0	30.3	28.5	29.6	29.4	30.5	32.1	32.1
2008	32.7	33.9	33.9	34.1	33.9	30.3	29.6	30.1	30.4	31.8	32.5	32.3
2009	33.3	35.7	35.6	34.6	33.4	31.0	28.9	30.7	30.4	32.2	32.1	32.8
2010	33.7	35.8	37.1	35.7	33.9	30.8	29.5	29.4	30.7	30.5	30.7	31.0
2011	33.1	34.3	35.6	34.5	33.7	29.8	29.4	29.6	30.2	32.1	31.5	32.4
2012	32.9	35.4	35.6	35.3	33.5	30.6	29.9	29.3	30.6	32.4	32.0	33.2
2013	34.4	35.5	35.8	35.8	34.1	28.9	28.6	30.4	30.1	31.3	32.2	31.8

(Source: RARS Pattambi)

Table 8 Minimum Temperature

MONTHLY AVERAGE OF MINIMUM TEMPERATURE (^{0}C)												
YEAR/MONTH	**JAN.**	**FEB.**	**MAR.**	**APR.**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**
2004	20.8	21.3	23.7	25.1	24.2	23.5	23.5	23.2	23.5	23.2	22.3	20.9
2005	20.7	20.9	23.7	24.3	24.6	23.7	23.3	23.1	23.4	23.5	22.5	20.9
2006	21.0	20.5	23.3	24.5	24.8	24.0	23.5	23.5	23.4	23.5	23.2	21.3
2007	20.2	20.8	23.8	24.7	24.7	24.1	23.4	23.4	23.6	23.2	21.6	21.1
2008	19.6	21.6	22.1	24.8	24.9	23.8	23.7	23.9	23.3	23.4	22.8	20.5
2009	19.9	20.8	23.7	24.8	24.5	23.7	22.9	23.7	23.8	23.8	23.4	22.7
2010	21.4	22.9	24.2	25.3	25.7	24.2	23.5	23.6	23.6	23.4	23.1	21.1
2011	20.8	19.8	23.2	24.3	24.7	23.8	23.3	23.5	23.3	23.6	22.0	21.0
2012	20.0	21.1	23.9	25.0	25.5	24.1	23.9	23.8	23.7	23.7	22.3	21.7
2013	20.6	22.7	24.6	25.7	25.4	23.5	23.2	24.0	23.7	23.4	23.4	20.7

(Source: RARS Pattambi)

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.

Table 9 Relative Humidity

MONTHLY AVERAGE OF RELATIVE HUMIDITY (%)												
YEAR/MONTH	**JAN.**	**FEB.**	**MAR.**	**APR.**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**
2004	80	80	89	90	94	95	94	94	94	92	87	81
2005	83	88	89	91	92	95	95	95	95	94	92	92
2006	83	80	90	89	89	95	95	95	95	94	90	81
2007	82	87	90	88	89	93	96	95	95	94	90	83
2008	87	90	87	86	87	93	93	93	93	92	92	83
2009	80	87	90	90	90	93	96	94	94	94	92	83
2010	79	79	87	86	89	93	95	93	93	94	93	90
2011	88	87	88	88	89	96	94	95	93	93	89	86
2012	83	86	89	87	89	93	94	95	94	92	93	85
2013	84	83	86	84	86	95	95	93	93	93	90	85

(Source: RARS Pattambi)

Evaporation

Table 10 Evaporation Data

MONTHLY AVERAGE OF EVAPORATION (In mms).												
YEAR/MONTH	**JAN.**	**FEB.**	**MAR.**	**APR.**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**
2004	5.1	6.1	5.9	5.6	3.3	3.2	2.6	3.2	3.3	3.1	3.4	4.3
2005	4.8	5.5	6.3	4.3	4.6	2.3	2.4	3.2	3.3	2.9	2.9	3.3
2006	4.9	6.5	5.6	5.3	5.5	3.3	3.0	3.6	2.9	2.9	3.1	5.2
2007	5.4	6.0	5.8	5.0	4.9	3.1	2.0	2.6	2.4	2.9	3.5	4.4
2008	5.2	4.8	4.7	4.6	5.0	2.5	2.3	3.1	3.0	3.2	2.9	4.6

2009	5.8	5.7	5.0	4.0	3.6	2.7	2.0	3.0	2.5	3.2	3.1	4.1
2010	4.6	5.6	5.5	4.6	3.8	2.6	1.9	2.2	2.6	2.1	2.1	3.3
2011	4.7	5.6	5.7	4.8	4.3	1.9	2.0	2.0	2.5	3.0	3.5	4.3
2012	4.8	5.9	5.4	4.8	4.6	2.6	2.3	2.3	3.1	3.4	2.8	4.5
2013	5.4	5.6	5.3	5.7	4.7	1.9	1.4	3.0	2.6	2.8	3.1	4.1

(Source: RARS Pattambi)

Wind

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

Table 11 Windspeed

MONTHLY AVERAGE OF WINDSPEED (In Km/hour)												
YEAR/ MONTH	**JAN.**	**FEB.**	**MAR.**	**APR.**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**
2004	5.8	4.6	4.5	4.0	3.9	4.2	3.7	5.2	3.5	3.1	4.7	6.1
2005	4.8	4.8	4.4	3.5	3.6	3.0	3.8	3.6	3.2	2.1	3.0	3.4
2006	6.7	6.5	4.4	4.6	5.1	3.3	4.2	3.8	3.2	2.9	3.8	8.5
2007	7.2	5.6	4.5	4.5	4.3	3.8	3.3	3.8	3.0	3.1	3.3	6.4
2008	6.2	4.3	4.8	3.9	4.7	3.4	3.9	4.1	3.2	3.2	2.9	6.3
2009	7.1	4.8	4.4	3.0	3.8	2.8	2.4	2.2	2.2	2.4	3.3	6.1
2010	5.5	5.0	4.1	3.5	3.2	2.6	2.5	3.6	2.9	2.0	2.7	4.0
2011	4.9	4.3	4.3	3.6	3.4	2.3	1.9	2.1	1.6	1.7	2.6	3.4
2012	4.4	4.4	3.5	3.4	3.4	1.9	2.8	2.1	1.7	2.0	2.0	4.6
2013	4.2	4.8	3.6	3.4	3.9	2.7	2.5	3.8	2.7	2.2	2.8	4.1

(Source: RARS Pattambi)

Geology

The area comprises massive charnockite/gneissic, charnockite, pyroxene granulite, pyroxenite, norite, and magnetite quartzite amongst which massive charnockite/gneissic charnockite is the most widely distributed.Pyroxene granulite andmagnetite quartzite occur as narrow bands.

Geomorphology

The geomorphology of the area can be divided into three parts viz, the low land, mid land and mid upland. 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. The watershed elevation range is 20m MSL to 120m MSL which means it lies in between midland and mid upland.

II.6 GROUND WATER

Depth to water table	Pre monsoon – 1 to 6 mbgl
	Post monsoon - 2 to 12.0 mbgl

II.7 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 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. There are 6544 wells in the watershed area.

Table 12 Existing water Supply Schemes

Sr No	Name of Water Supply Scheme	Watershed	Grama Panchayath
1	Manakkalath parambu	Pathiyamthode	Nagalassery
2	Pootheli parambu	Ittonam	Thirumittakode
3	Thottekkattun colony	Ittonam	Thirumittakode
4	Palakkaparamabu SC colony	Ittonam	Thirumittakode
5	Mini water supply scheme	Ittonam	Thirumittakode
6	Chathabery	Ittonam	Thirumittakode
7	Mini water supply scheme	Muthalangathode	Nagalassery
8	Block Panchayath	Muthalangathode	Thirumittakode
9	Kundu parambu	Muthalangathode	Thirumittakode
10	Jalanidhi	Muthalangathode	Thirumittakode

II.8 SOCIO ECONOMIC AND DEMOGRAPHIC PROFILE

Table 133 Major Assets

Sr No:	Assets	Nos	Sr No:	Assets	Nos
1	Krishi bhavan	1	12	VFPCK	2
2	Rice mill	6	13	School	16
3	Oil mill	4	14	Anganwadi	36
4	BSNL office	2	15	Library	7
5	SNDP office	2	16	PHC	12
6	Police station	2	17	Ayurveda Dispensary	3
7	Registrar office	2	18	Homeo dispensary	4
8	KSEB	3	19	Veterinary	2
9	Village Office	4	20	Masjid	14
10	ICDP	3	22	Temple	16
11	Bank	14	23	Milk co-operative society	2

Table 144 Holding Size

Sr No	Type of farmers	No of Families	No of BPL Families
I	**Above 500 cents**	150	0
	250-500 cents	775	55
	50-250 cents	2598	727
	0-50 cents	4659	2579
	Total	**8182**	**3361**

Table 155 Population Details

Population Details						
Watershed	**Male**	**Female**	**Boys**	**Girls**	**Total**	**Total Families**
Muthalangathode	1576	1519	856	705	4656	1017
Akilanam	1879	1997	1409	1614	6899	1572
Cheenikazhaya	1759	1923	1381	1514	6577	1573
Ittonam	1204	1284	605	671	3764	616
Njangattiri	1741	1808	1205	1181	5935	1414
Pathiyanthode	851	849	325	228	2253	466
Verumpilavu	1114	1276	721	784	3895	627
Pottikathode	981	1117	428	553	3079	347
Pallipadam	124	136	52	76	388	87
Peringannur	354	417	141	140	1052	252
Mooliparambu	324	389	104	112	929	192
Malayakam	34	42	14	19	109	19
Total	**11941**	**12757**	**7241**	**7597**	**39536**	**8182**

SC/ST Population Details						
Watershed	**Male**	**Female**	**Boys**	**Girls**	**Total**	**Total Families**
Muthalangathode	144	181	94	124	543	194
Akilanam	214	221	147	174	756	182
Cheenikazhaya	129	146	114	137	526	164
Ittonam	74	91	84	112	361	74
Njangattiri	104	114	82	76	376	72
Pathiyanthode	101	134	69	87	391	91
Verumpilavu	71	82	36	41	230	44
Pottikathode	61	84	78	44	267	47
Pallipadam	24	31	17	11	83	14
Peringannur	54	61	34	47	196	31
Mooliparambu	31	47	14	27	119	25
Malayakam	0	0	0	0	0	0
Total	**1007**	**1192**	**769**	**880**	**3848**	**938**

(Source: Baseline survey)

II.9 AGRICULTURE AND PRESENT LAND USE

Table 166 Agriculture and Present Land use

Sl No	Crop	Area (Ha)	Percentage
1	Paddy	2021.4	39.5
2	Coconut	1025.7	20.18
3	Mixed Trees	802.69	15.79
4	Mixed crops	620.61	12.26
5	Banana	471.05	9.27
6	Rubber	142.47	2.8
Total		**5084**	**100**

II.10 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 thetable 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 thewatershed areas. Proper recycling of organic manure in the area is of utmost importance for maintenance of soil fertility.

Table 177 Livestock Status

Waterhsed	Cow	Goat	Buffalo	Hen	Duck
Muthalangathode	224	54	4	991	84
Akilanam	194	120	14	744	38
Cheenikazhaya	182	154	7	814	72
Ittonam	104	134	9	1012	13
Njangattiri	231	204	24	946	0
Pathiyanthode	72	40	18	1086	114
Verumpilavu	54	144	7	1114	63
Pottikathode	36	73	17	710	21
Pallipadam	27	39	21	1311	126
Peringannur	73	91	19	923	54
Mooliparambu	90	104	11	704	31
Malayakam	0	0	0	204	0
Total	**1287**	**1157**	**151**	**10559**	**616**

(Source: Baseline survey - TSO)

II.11 SOIL

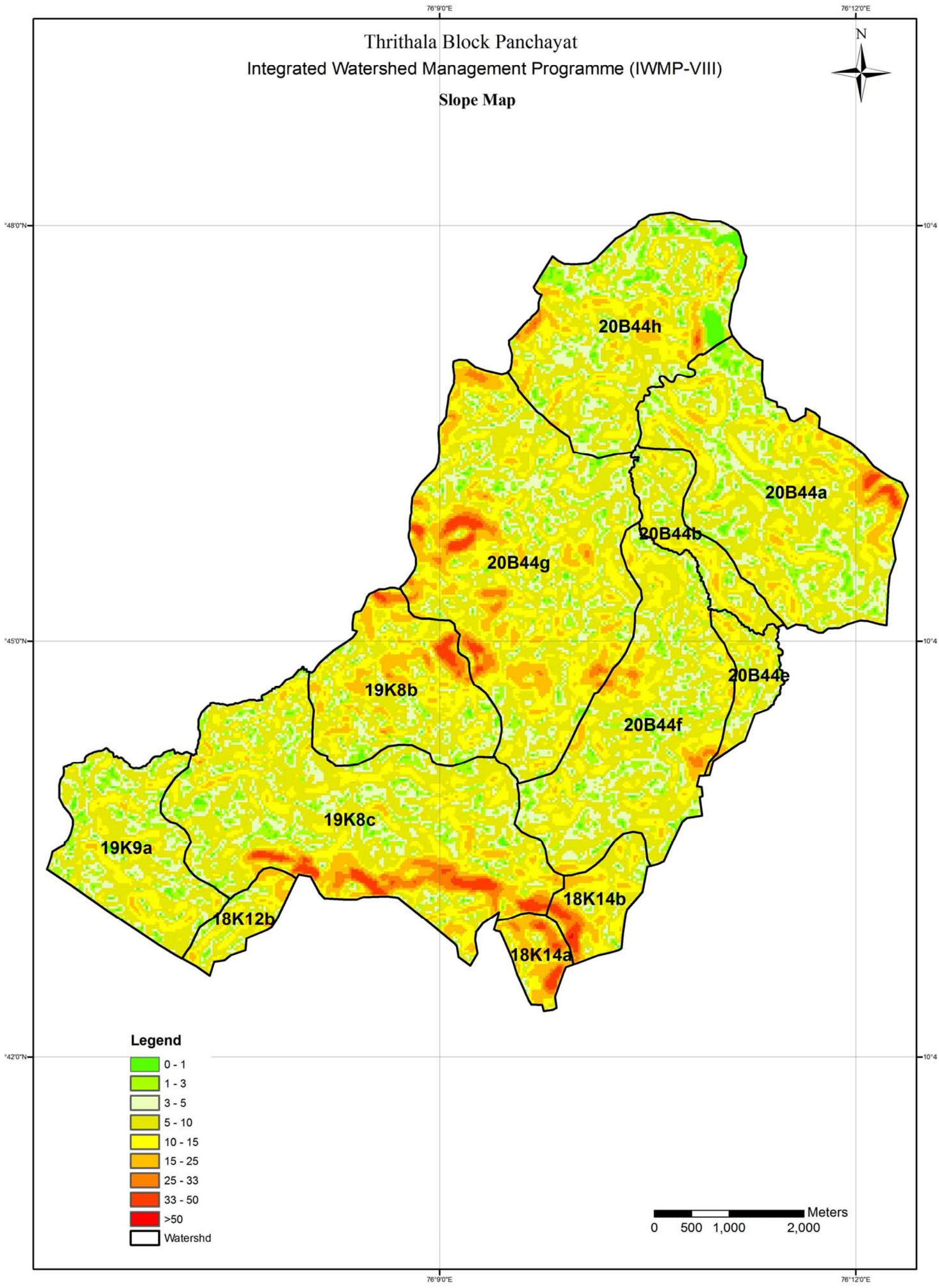
Table 188 Soil Description

Watershed	Soil type	Erosion	Slope	Relief
Muthalangathode	Clay loam, Gravelly clay loam	Severe	Gently slopping to steep	Subnormal to Excessive
Akilanam	Clay loam, Gravelly clay loam	Severe	Gently sloping to very steep	Subnormal to Excessive
Cheenikazhaya	Clay loam, Gravelly clay loam	Severe	Gently slopping to strongly slopping	Subnormal to Normal
Ittonam	Clay loam, Gravelly clay loam	Moderate	Moderately slopping	Subnormal to Normal
Njangattiri	Clay loam, Gravelly clay loam, Sandy clay loam	Severe	Gently slopping to strongly slopping	Subnormal to Normal
Pathiyanthode	Clay loam, Gravelly clay loam	Severe	Moderately steep to steep	Normal to Excessive
Verumpilavu	Clay loam, Gravelly clay loam	Moderate	Moderately slopping	Subnormal to Normal
Pottikathode	Clay loam, Gravelly clay loam	Moderate	Moderately slopping	Normal to Subnormal
Pallipadam	Clay loam, Gravelly clay loam	Severe	Moderately slopping to moderately steep to steep	Subnormal to Excessive
Peringannur	Clay loam, Gravelly clay loam	Moderate	Moderately slopping	Subnormal to Normal
Mooliparambu	Clay loam, Gravelly clay loam	Severe	Moderately slopping to strongly sloping	Normal to Excessive
Malayakam	Clay loam, Gravelly clay loam	Severe	Moderately steep to steep	Normal to Excessive

Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

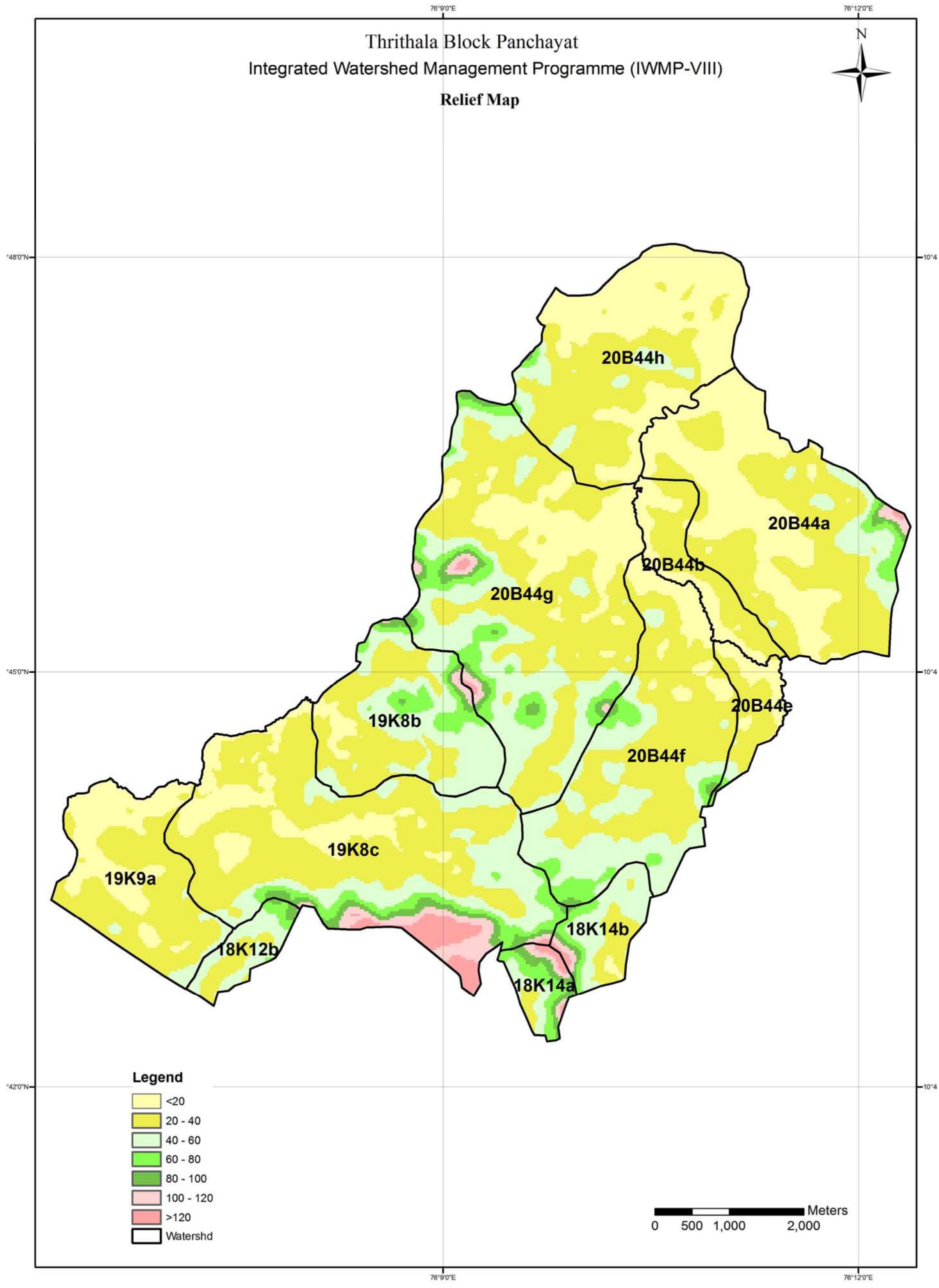
Slope Map



Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Relief Map



II.12 METHODOLOGY

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

Transect Walk

Transect walkswere 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 gullys, 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 withregard 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 draftt action plan thus prepared was placed before the concerned gram sabha for approval. After detailed discussions,the action plan was modified by incorporatingvalid and feasible suggestions from the gram sabha into it and the same was approved by the Gram Sabha.

II.13 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, Palakkadconsists 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, Thrithala.

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 19 Self Help Groups

Watershed	Muthalangathode	Akilanam	Cheenikazhaya	Ittonam	Njangattiri	Pathiyanthode	Verumpilavu	Pottikathode	Pallipadam	Peringannur	Mooliparambu	Malayakam
Nos	26	38	28	23	21	16	18	19	6	9	7	0

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.

II.14 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.

II.15 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:-

Table 20 Training Programme

Sr No	Title of training	No of trainers	No of participants	Batch	Cost / person	No of Days	1st year	2nd year	3rd year	4th year	Total Cost (Rs.)
1	Training for Trainers	3	50	4	200	1	•	•	•	•	40000
2	Skilled training for SHG's	3	50	36	200	2	••••••••••••	••••••••••••	••••••••••••	••••••••••••	720000
3	Training for micro watershed community	3	50	4	200	1	•	•	•	•	40000
4	User group Training	1	50	40	200	1	••••••••••••	••••••••••••	••••••••••••	••••••••••••	400000
5	Clarity Formulations training on the basis of findings from status study	0	50	12	200	1	•••	•••	•••	•••	120000
6	Woman empowerment of concerned watershed	2	50	28	200	1	•••••••	•••••••	•••••••	•••••••	280000
7	Training for PSM activities	2	50	28	200	1	•••••••	•••••••	•••••••	•••••••	280000
8	Training for LH activities	2	50	24	200	1	••••••	••••••	••••••	••••••	240000
9	Training for MGNREGS mate workers	2	50	24	200	1	••••••	••••••	••••••	••••••	240000
10	Training for animal husbandry farmers	2	50	24	200	1	••••••	••••••	••••••	••••••	240000
11	Training for horticulture farmers	2	50	8	200	1	••	••	••	••	80000
12	Field visit	0	50	4	570	1	•	•	•	•	114000
	Balance Amount (Rs.)										27620
Total Amount (Rs.)											**2821620**

II.16 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. Construction of RWHT tanks, new pond digging, drinking water supply scheme, community water tank isthe 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 21 Proposed Entry Point Activities

Sl no	Activities	Grama Panchayat	Watershed	Unit	Amount
1	Construction of Rain water Harvesting Tank at Chathannur High School	Thirumittakode	Pathiyamthode	1	161601
2	Construction of Rain water Harvesting Tank at Ittonam L.P. School	Thirumittakode	Ittonam	1	94528
3	Enakunnu drinking water supply scheme	Thirumittakode	Cheenikazhaya	1	747000
4	Akilanam thekkekkara drinking water supply scheme	Thirumittakode	Akilanam	1	602000
5	New pond construction – Madathil pond Aamakkavu padasekharam	Nagalassery	Verumpilavu	1	870000
6	Construction of Rain water Harvesting Tank at Njangattiri School	Thrithala	Njangattiri	1	110000
7	Ezhumangad drinking water supply scheme	Thirumittakode	Cheenikazhaya	1	453000
Total Amount				**7**	**3038129**

THRITHALA BLOCK PANCHAYATH (IWMP - VIII)

ENTRY POINT ACTIVITY MAP

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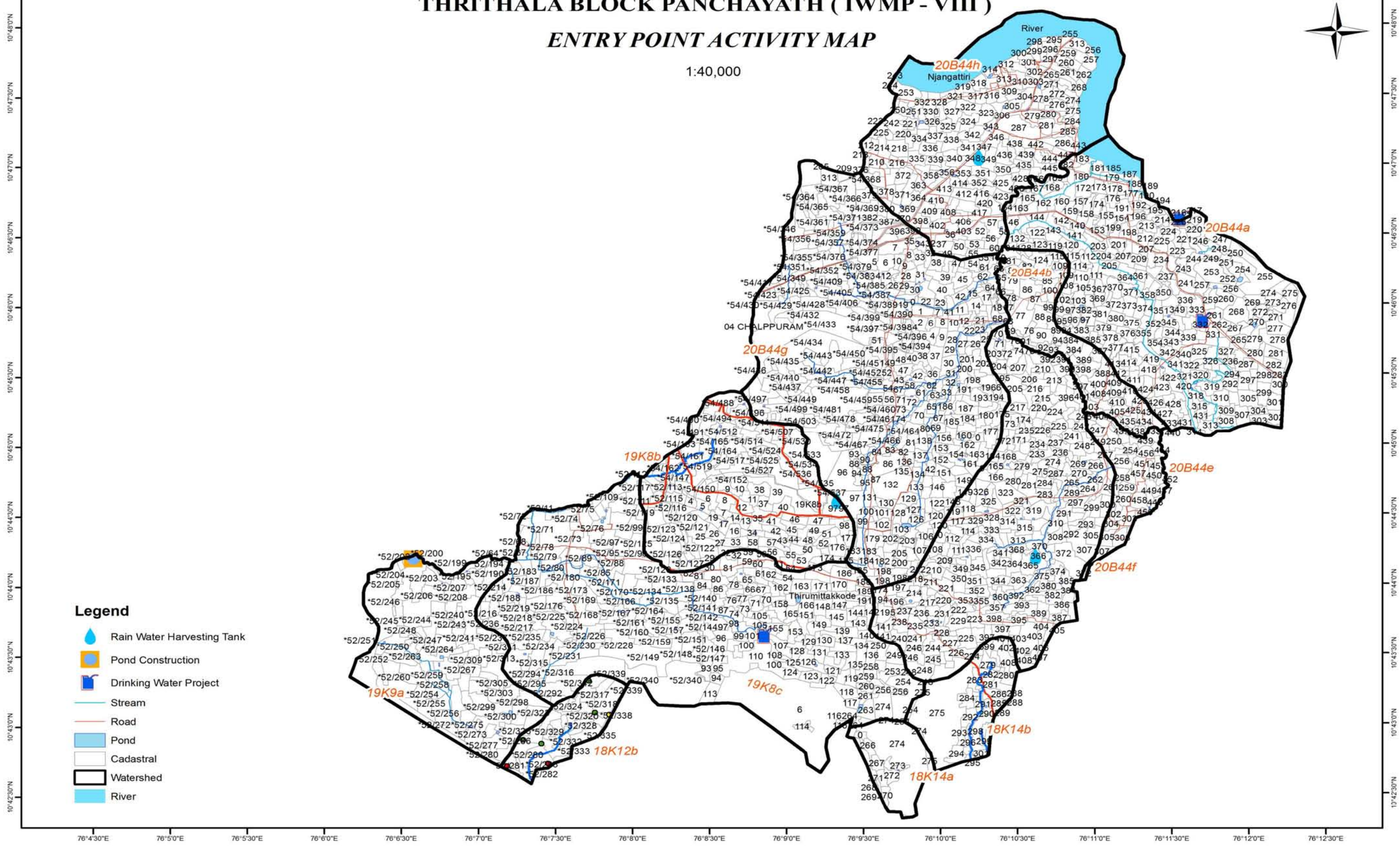


II.17 MAJOR PROBLEMS IN WATERSHED

Water problems

- Unavailability of water during summer season.
- Maintenance work required for streams and ponds at different places ion the watershed area.
- Bunds at different watershed area are old and destroyed as years pass by.
- Water slogan at different places makes it difficult for the people around the treatable area.
- Most of the streams and ponds are not cleaned.
- 75% of the people use own well for their day to day life but it gets dried up in extreme summer season.

Agriculture

- Diminishing agriculture production\
- Water scarcity
- Lack of marketing facilities
- Unavailability of labour
- Cropes damaged by wild animals.
- Harvested crops receive unreasonable money.
- Infertility of soil.

Animal Husbandry

- High price for cattle feed.
- Unavailability of fodder grass for cattle.
- Cattle are affected by mouth to feet disease.
- Unavailability of proper milk societies.

Marketing

- Lack in privilege of price fixation for their products
- Agriculture crops receives low price
- Farmers are exploited by middle men.
- No marketing facilities in the premises of watershed area.

Environmental problems

- Uncontrolled waste disposal from near by shops and hotels are dumped into streams and ponds.
- Emission of plastic wastes causes serious health issues to the inhabitants inthe watershed area.
- Lack of waste disposal methods in the watershed.

Social problems

- Lack of marketing facilities for the products produced by SHG.
- Unawareness regarding different schemes introduced by govt. for women.
- Families in the watershed area are financially unstable.

II.18 MAJOR CONSERVATION INTERVENTION PROPOSED

NATURAL RESOURCE MANAGEMENT

The following are some of the major interventions proposed in this watershed area with a view to

1. **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.

2. **Stream retaining walls**

The edges of the banks may be stabilized with vegetative hedges, whereas grass stabilization will be provided on the top and inner sides. Also stream bank erosion can be controlled.

3. **Earthen bunds**

It has some environmental benefits like noticeable technology, positive environmental impacts, leading to the rehabilitation of degraded lands and reducing soil erosion.

4. **Coconut trenching and mulching**

Proper Soil and moisture conservation measures are vital for better performance of coconut trees, especially in sleeps and undulated terrains. Coconut trenching will contribute to good soil moisture conservation, and it is best to be done before the onset of monsoon. It is low cost process and needs reduced labour requirement. Soil porosity and aeration are vastly improved through this.

Mulching is an important technique for moisture conservation. The basins of coconut trees are mulched with coir dust, coconut husks, green leaves dried leaves, organic wastes and dried coconut leaves. The mulching is best done before the end of the monsoon and before the topsoil dries up.

5. 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: removingof 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.

6. 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.

7. 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.

8. 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 ino the soil. The outcome of this activity is the increased ground water table level.

PRODUCTION SYSTEM AND MICRO ENTERPRISES

1. **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.

2. **Arbana (Single wheel barrow)**

   A wheel barrow is s small hand propelled vehicle, usually with just one wheel, designed to be pushed and guided buy a single person using two handles to the rear.

3. **Cow rearing**

   Cattle rearing involve the breedingand 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.

4. **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 fecesand kitchen waste can be converted into gaseous fuel called bio gas. Biogas originates from biogenic material and is a type of bio fuel.

5. **Electric Motor (1.5 hp)**

   Electric Motor is used for the purpose of supplying water to the agricultural fields. It is helpful for the farmers.

6. **Drip Irrigation**

   Drip irrigation system is adopted in the watershed area where water scarcity prevails. Through this method it requires less amount of water for cultivation.

7. **Horticulture**

   Horticulture plants are distributed to the farmers in the watershed area.

8. **Dwarf coconut seedlings**

   A dwarf coconut seedling is a variety of coconut plants disitributed to the farmers of the concerned watershed.

LIVELIHOOD ACTIVITIES

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 Thrithala 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.

Goat Rearing, BackyardPoultry Farm,Vegetable cultivation,Paddy cultivation, 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:

1. **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. Malabari 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.

2. Backyard 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.

3. Food processing unit

The popular kinds of food processing units are pickle manufacturing, pappadam manufacturing, chips making etc.

4. Paddy cultivation

Paddy cultivation in an acre is proposed as a group activity recommended for the SHG/JLG in the watershed area.

5. Banana cultivation

Banana cultivation is s seed money project in the watershed area included in the action plan of different watersheds. It is included in the livelihood activities as most of the individuals are farmers.

II.19 SCOPE FOR CONVERGENCE

Forest Department

IWMP

MGNREGS

Sujitwa mission

Horticulture Department

Animal Husbandary Department

The project activities of Integrated Watershed Programme Management Project in Thrithala 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 isgiven below:

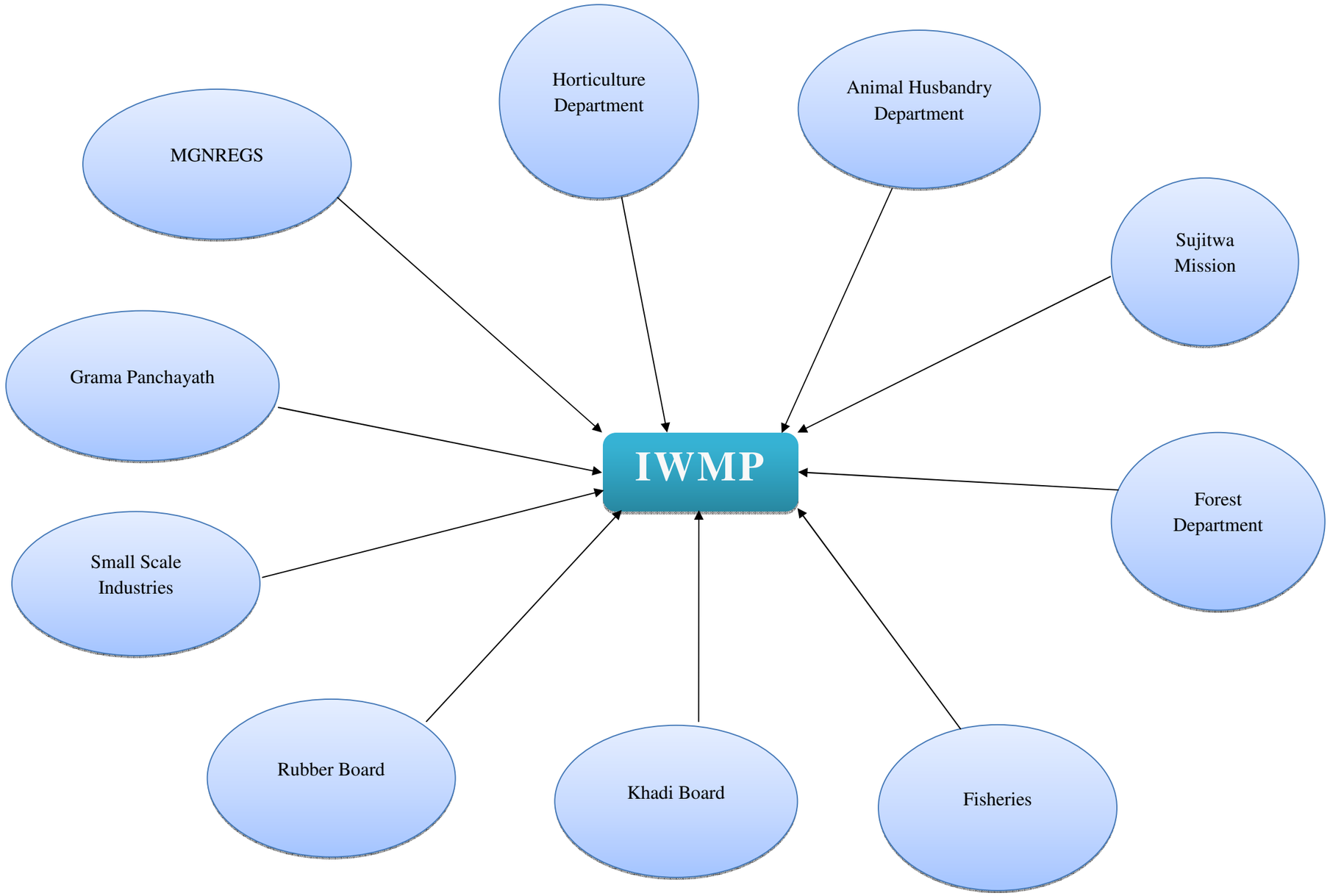


Table 22 Estimate of NRM Activities with Convergence

Integrated Watershed Management Programme										
Thrithala Block Panchayath										
Total NRM activities consolidation with convergence (2015-2018)										
I.W.M.P						Convergence				
Sr No.	Activities	Rate/ Unit	Unit	Total Nos	I.W.M.P Fund (in lakhs)	Rate/Unit	Unit	Total Nos	Convergence fund (in lakhs)	Convergence Agency
(NRM)										
1	Well recharging	7150	nos	1577	112.75	7150	nos	1635	116.9025	MGNREGS
2	Tree planting	9	nos	87950	7.9	9	nos	125360	11.2824	MGNREGS
3	Bio fencing	7	m	37615	2.63	7	m	45269	3.16883	MGNREGS
4	Coconut trenching and mulching	226	nos	12281	27.8	226	nos	24536	55.45136	MGNREGS
5	Contour earthen bunds	103	nos	37022	38.1	103	nos	53625	55.23375	MGNREGS
6	Mud bank on land	56	m	22435	12.6	56	m	32563	18.23528	MGNREGS
7	Percolation pit	178	nos	30256	53.9	178	nos	42536	75.71408	MGNREGS
8	Sluice construction		nos	7	25.73		nos	8	0.59	MGNREGS
9	Shutter constrution for sluice		nos	19	9.37		nos			MGNREGS
10	Well renovation (Public)		nos	19	3.3		nos	19	1.631	MGNREGS
11	Pond side protection		m	21	74.7		m	13	13.3	MGNREGS
12	Stream side protection		m	1205	49.7		m	1205	1.128	MGNREGS
13	Stream desilting		m	550	0.2		m	12375	71.02	MGNREGS
14	Pond desilting		nos	12	7.9		nos	20	20.99	MGNREGS
15	Pond maintenance		nos	2	0.7		nos		0	MGNREGS
Total					**427.2**				**444.65**	

Table 23 Estimate of PSM activities with Convergence.

Integrated Watershed Management Programme									
Thrithala Block Panchayath									
Total PSM activities consolidation with convergence (2015-2018)									
I.W.M.P							Convergence		
Sr No.	Activities	Rate/ Unit	Total No of units/ Beneficiaries	Unit	I.W.M.P Fund (in lakhs)	W.D.F (in lakhs)	Total No of units/ Beneficiaries	Fund from other agencies (in lakhs)	Convergence Agency
1	Vegetable cultivation	500	2791	nos	13.96	2.79	476	2.38	Krishibhavan
2	Arbana	3000	178	nos	5.34	1.07	136	4.08	
3	Motor 1.5 HP	9000	99	nos	8.91	1.78	149	13.41	
4	Drip irrigation	60000	53	Ha	15.90	15.90	68	40.8	
5	Horticulture	195	3170	nos	6.18	1.24	765	1.49	Horticulture dept.
6	Biogas	12500	118	nos	14.75	2.95	198	24.75	Sujitwa mission
7a	Cow rearing	40000	30	nos	9.0	3.0	86	22.4	Animal husbandry dept.
7b	Cattle shed construction	100000		nos			125	125	MGNREGS
8	Dwarf coconut seedlings	65	3395	nos	2.21	0.44	1063	0.69	Agriculture dept.
9	Marketing Society	100000		Nos			8	8.0	
10	Fodder cultivation	5000		10 cent			830	41.5	
Total					**76.24**	**29.17**		**284.5027**	

Table 24 Estimate of Livelihood Activities with Convergence

Integrated Watershed Management Programme									
Thrithala Block Panchayath									
Total LH activities consolidation with convergence (2015-2018)									
I.W.M.P						Convergence			
Sr No	Activities	Rate	Group	I.W.M.P Fund (in lakhs)	Beneficiary contribution (in lakhs)	Total nos	Beneficiary contribution (in lakhs)	Fund from other Agencies (in lakhs)	Convergence Agency
Livelihood Activities									
1. Seed money project									
1a	Goat rearing	25000	55	13.75		118	14.75	14.75	Animal husbandry dept.
1b	Insurance, fodder grass (for 6 months), vessels, transportation	5000	55		2.75	118	2.95	2.95	Animal husbandry dept.
2a	Paddy cultivation (1 acre)	25000	53	13.25		113	14.125	14.125	Krishibhavan
2b	Preparation of land	5525	53		2.93	113	3.12	3.12	MGNREGS
3a	Vegetable cultivation (1 acre)	25000	51	12.75		102	12.75	12.75	Krishibhavan
3b	Preparation of land	7000	51		3.57	102	3.57	3.57	MGNREGS
4a	Banana cultivation (1 acre)	25000	49	12.25		100	12.5	12.5	Krishibhavan
4b	Water supply, Bio pesticide, transportation	17750	49		8.70	100	8.875	8.875	Krishibhavan
2. Major Livelihood									
5a	Backyard poultry (Each group receives 50 chicks)	6000	183	5.49	5.49	365	10.95	10.95	Animal husbandry dept.
5b	Hen cage construction	30000				183	27.45	27.45	MGNREGS

6a	Goat rearing (Each group receives 5 goats)	25000	70	8.75	8.75	145	18.125	18.125	Animal husbandry dept.
6b	Goat shed construction	15000				70	5.25	5.25	MGNREGS
7	Food processing unit	50000	9	2.25	2.25	15	3.75	3.75	Small scale industries
	Amount foreseen			0.15					
	Total			**68.64**	**34.44**		**138.165**	**138.165**	

II.20 ANNUAL ACTION PLAN

Table 25 Annual Action Plan for NRM Activities

Sl No.	Activity	Unit	Total Volume	Rate (Rs)	Year 1		Year 2		Year 3		Total Amount (Rs in Lakhs)
					Physical	Financial	Physical	Financial	Physical	Financial	
Work components											
I	**Soil & Moisture conservation works**										
1	Contour pitched bunds	m	37022	103	14637	1507611	17661	1819083	4724	486572	38.13
2	Percolation pit	Nos.	30256	178	15446	2749388	12850	2287300	1960	348880	53.86
3	Earthern bund	m	22435	56	7372	412832	12372	692832	2691	150696	12.56
4	Coconut trenching and Multching	Nos.	12280	226	4368	987168	4825	1090450	3087	697662	27.75
II	**Water Harvesting Structures**										
1	Well recharging	Nos.	1572	7150	668	4776200	732	5233800	172	1229800	112.4
2	Pond side protection	Nos.	21		4	835100	13	2604500	4	733000	41.73
3	Stream side protection	m.	1205			0		0	1205	4971553	49.72
4	Well renovation (Public)	Nos.	19		18	328800	1	2500		0	3.31
5	Sluice construction	Nos.	8		2	397000	3	1017100	3	1227500	26.42
6	Shutter onstruction for sluice	Nos.	18		14	645000	4	217000			8.62
7	Pond maintenance	Nos.	7		1	43000	3	2541500	3	1487000	40.72
8	Pond desilting	Nos.	5		5	73500					0.74
9	Stream desilting	m	550		550	20000					0.2
III	**Afforestation Works**										
1	Tree Planting(Private land)	Nos.	87533	9	85533	769797	2000	18000		0	7.88
2	Biofencing	m2	43258	7	16137	112959	22522	157654	4599	32193	3.03
	Amount foreseen					45		114		344	0.00503
	Total					**13658400**		**17681833**		**11365200**	**427.05**

Table 26 Annual Action Plan for PSM Activities

Sl No.	Activity	Unit	Total Volume	Rate/Unit	Year 1		Year 2		Year 3		Total Amount (Rs in Lakhs)
					Physical	Financial	Physical	Financial	Physical	Financial	
I	**Production System**										
1	Vegetable cultivation	Nos.	2793	500	635	317500	1420	710000	738	369000	13.97
2	Arbana	Nos.	178	3000	43	129000	88	264000	47	141000	5.34
3	Motor 1.5 HP	Nos.	99	9000	31	279000	35	315000	33	297000	8.91
4	Drip Irrigation	Ha.	53	60000	14	420000	23	690000	16	480000	15.9
5	Horticulture	Nos.	3170	195	713	139035	1643	320385	814	158730	6.18
6	Bio-gas plant /0.75m3	Nos.	118	12500	36	450000	44	550000	38	475000	14.75
7	Cow rearing	Nos.	30	40000	3	90000	22	660000	5	150000	9
8	Dwarf coconut seedling	Nos.	3395	65	820	53300	1655	107575	920	59800	2.21
	Amount fore seen					165		335		175	0.01
	Total					**1878000**		**3617295**		**2130705**	**76.26**

Table 27 Annual Action Plan for LH Activities

Sl No.	Activity	Unit	Rate	Total Units	Year 1		Year 2		Year 3		Total Amount (Rs in Lakhs)
					Physical	Financial	Physical	Financial	Physical	Financial	
Seed money Projects											
1	Goat Rearing	SHG	25000	55	14	350000	25	625000	16	400000	13.75
2	Paddy cultivation (1acre)	SHG	25000	52	13	325000	24	600000	15	375000	13
3	Vegetable cultivation (1 acre)	SHG	25000	50	11	275000	25	625000	14	350000	12.5
4	Banana cultivation (1 acre)	SHG	25000	50	12	300000	25	625000	13	325000	12.5
Major LH activites											
5	Backyard poultry	Group	6000	187	52	156000	75	225000	60	180000	5.61
6	Goat Rearing	Group	25000	71	18	225000	33	412500	20	250000	8.875
7	Food Processing Unit	Group	50000	9	2	50000	5	125000	2	50000	2.25
	Amount foreseen							7590.5		7282.5	0.15
	Total					**1681000**		**3245091**		**1937283**	**68.63**

II.21 MICRO WATERSHEDS

MUTHALANGATHODU WATERSHED (20B44g)

Table 28 Location and Extend of MuthalangathoduWatershed

1	Name of the Block	ThrithalaBlock Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayat	Thirumittakode, Nagalassery, Thrithala
Geographical Location		
4	Latitude/Longitude	76°8'41.935"E 10°43'58.573"N, 76°10'27.687"E 10°47'1.904"N
5	Geographical Area of the Watershed	1048.40 ha
6	Watershed and Watershed codes	Muthalangathodu (20B44g)
7	Major Water Source	Kadachira thodu
8	River flowing nearby the watershed area	Bharathapuzha River
9	Livelihood Options	Agriculture, Animal Husbandry, Wage employees, Govt. Job

Table 29 Watershed Character Muthalangathodu Watershed

Relief	Subnormal to Excessive
Drainage	Well Drained
Average Slope	Gently slopping to steep

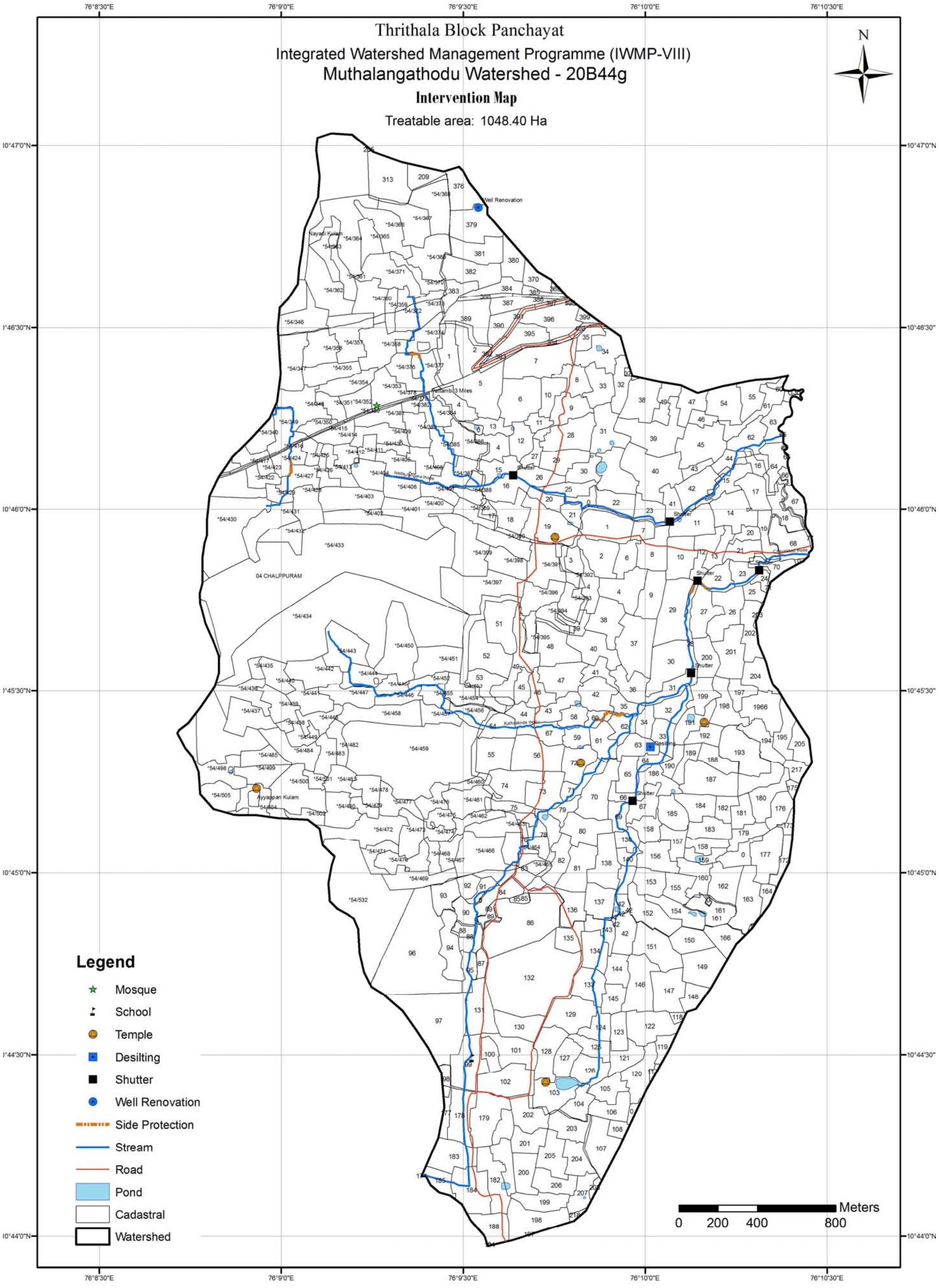
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Muthalangathodu Watershed - 20B44g

Intervention Map

Treatable area: 1048.40 Ha



AKILANAM WATERSHED (19K8c)

Table 30 Location and Extend of Akilanam Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode, Nagalassery
Geographical Location.		
4	Latitude/Longitude	76°6'59.521"E 10°42'39.758"N, 76°9'54.184"E 10°44'48.913"N
5	Geographical Area of the Watershed	973.52 ha
6	Watershed and Watershed codes	Akilanam (19K8c)
7	Major Water Source	Manjapatta thodu
8	River flowing nearby the watershed area	Bharathapuzha River
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 31 Watershed Character Akilanam Watershed

Relief	Subnormal to Excessive
Drainage	Well drained
Average Slope	Gently sloping to very steep

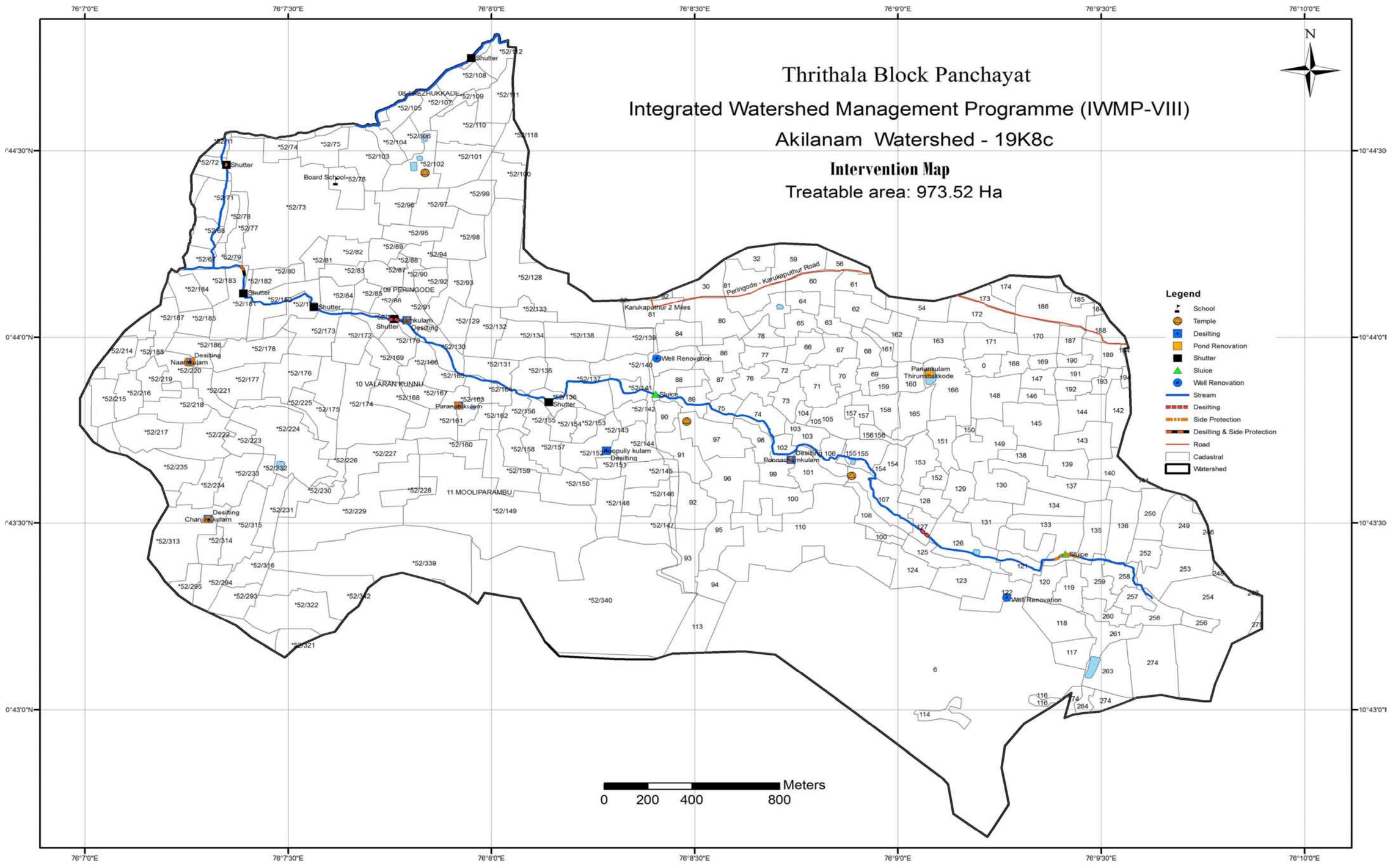
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Akilanam Watershed - 19K8c

Intervention Map

Treatable area: 973.52 Ha



CHEENIKAZHAYA WATERSHED (20B44a)

Table 32 Location and Extend of Cheenikazhaya Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location.		
4	Latitude/Longitude	76°10'21.626"E 10°44'59.749"N
		76°12'22.546"E 10°47'12.371"N
5	Geographical Area of the Watershed	677.57 ha
6	Watershed and Watershed codes	Cheenikazhaya (20B44a)
7	Major Water Source	Kodalurkavu thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 33 Watershed Character Cheenikazhaya watershed

Relief	Subnormal to Normal
Average Slope	Gently slopping to strongly slopping
Drainage	Well drained

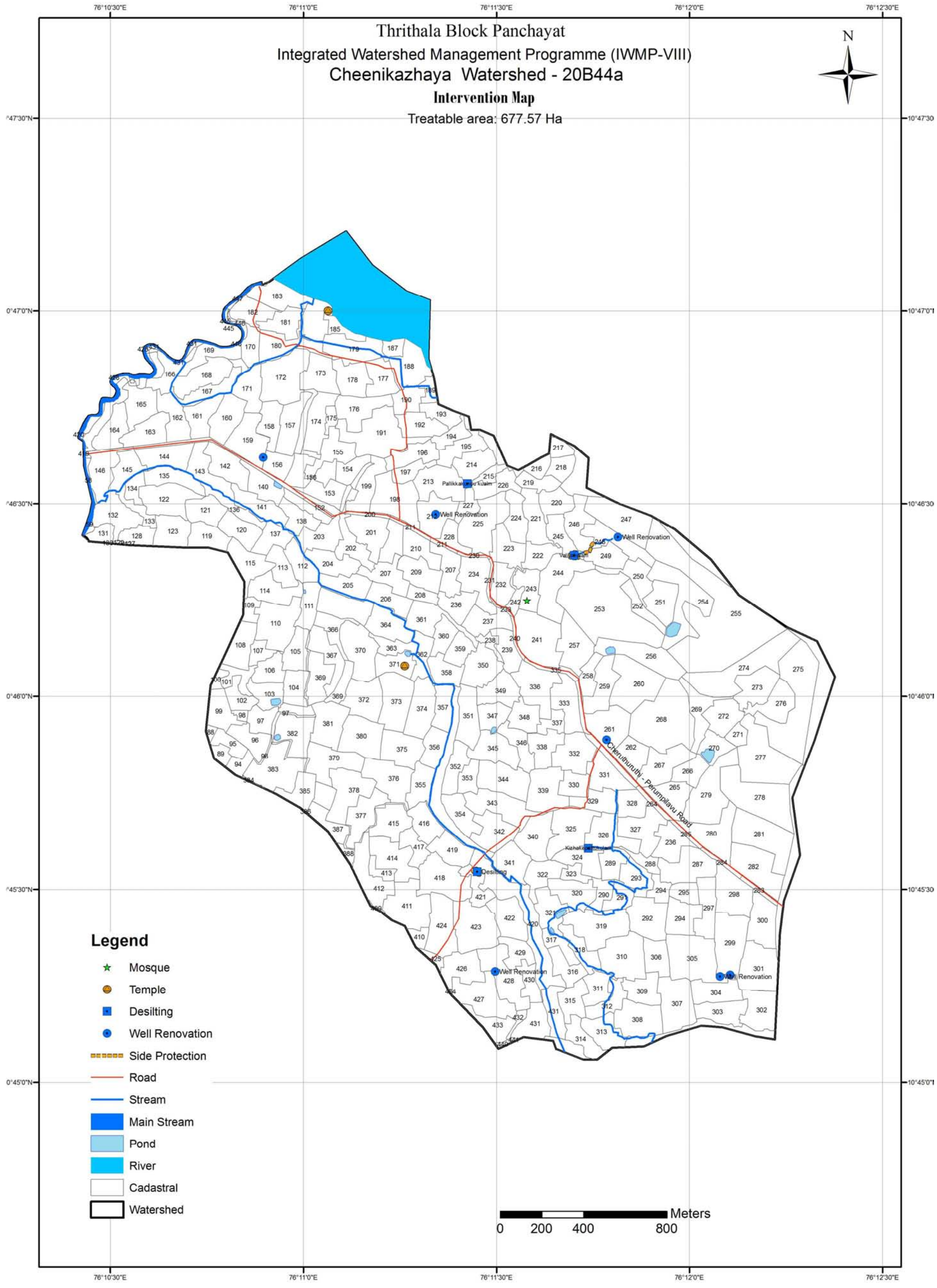
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Cheenikazhaya Watershed - 20B44a

Intervention Map

Treatable area: 677.57 Ha



ITTONAM WATERSHED (20B44f)

Table 34 Location and Extend of Ittonam Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location		
4	Latitude/Longitude	76°9'32.651"E 10°43'17.898"N
		76°11'8.433"E 10°45'52.624"N
5	Geographical Area of the Watershed	637.61 ha
6	Watershed and Watershed codes	Ittonam (20B44f)
7	Major Water Source	Parempadam thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 35 Watershed Character Ittonam watershed

Relief	Subnormal to Normal
Average Slope	Moderately slopping
Drainage	Drained

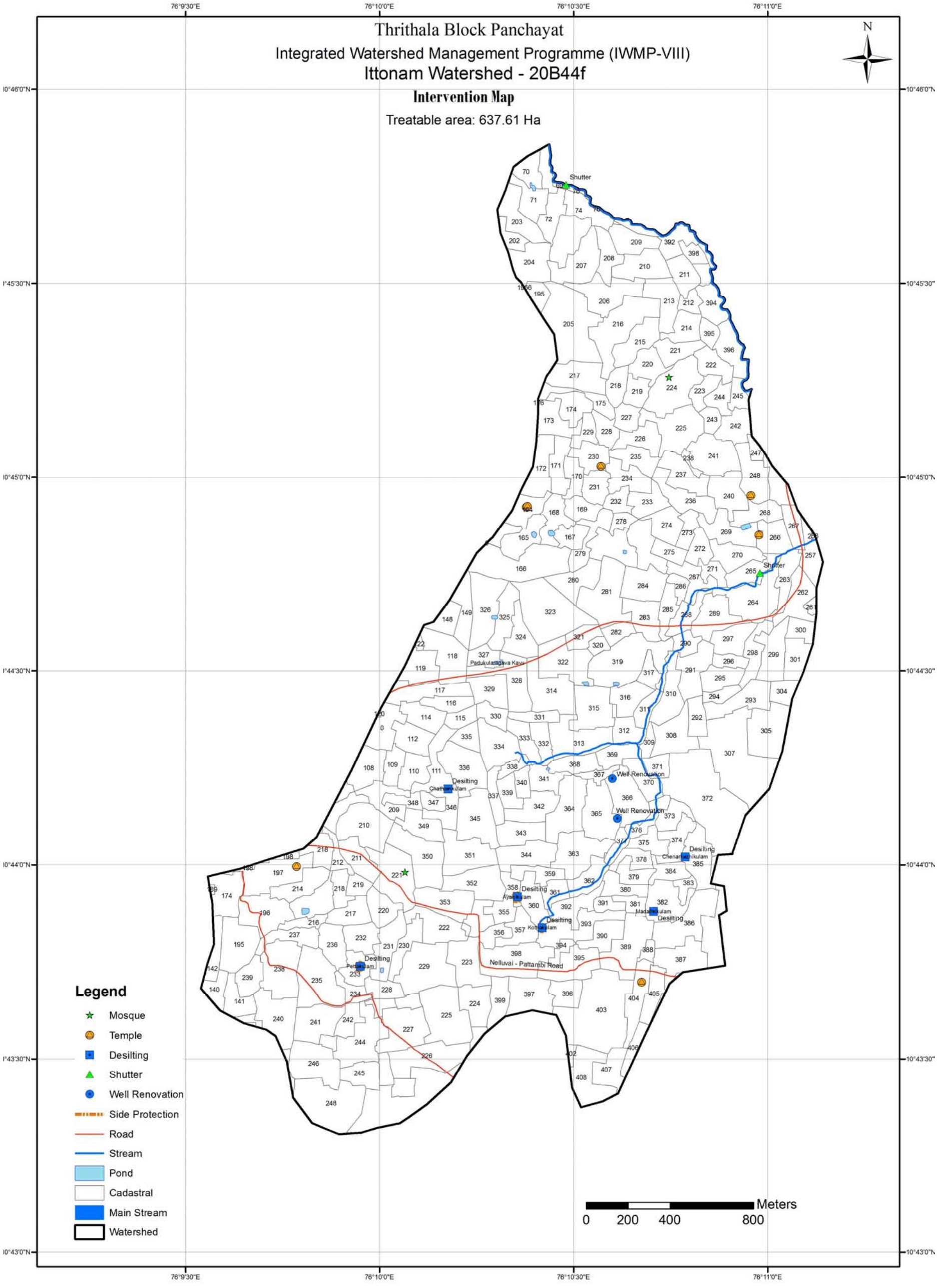
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Ittonam Watershed - 20B44f

Intervention Map

Treatable area: 637.61 Ha



NJANGATTIRI WATERSHED (20B44h)

Table 36 Location and Extend of Njangattiri watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode, Thrithala
Geographical Location		
4	Latitude/Longitude	76°9'29.617"E 10°46'19.495"N
		76°11'12.334"E 10°48'6.547"N
5	Geographical Area of the Watershed	476.15 ha
6	Watershed and Watershed codes	Njangattiri (20B44h)
7	Major Water Source	Mattaya thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 37 Watershed Character Njangattiri watershed

Relief	Subnormal to Normal
Drainage	Drained
Average Slope	Gently slopping to strongly slopping

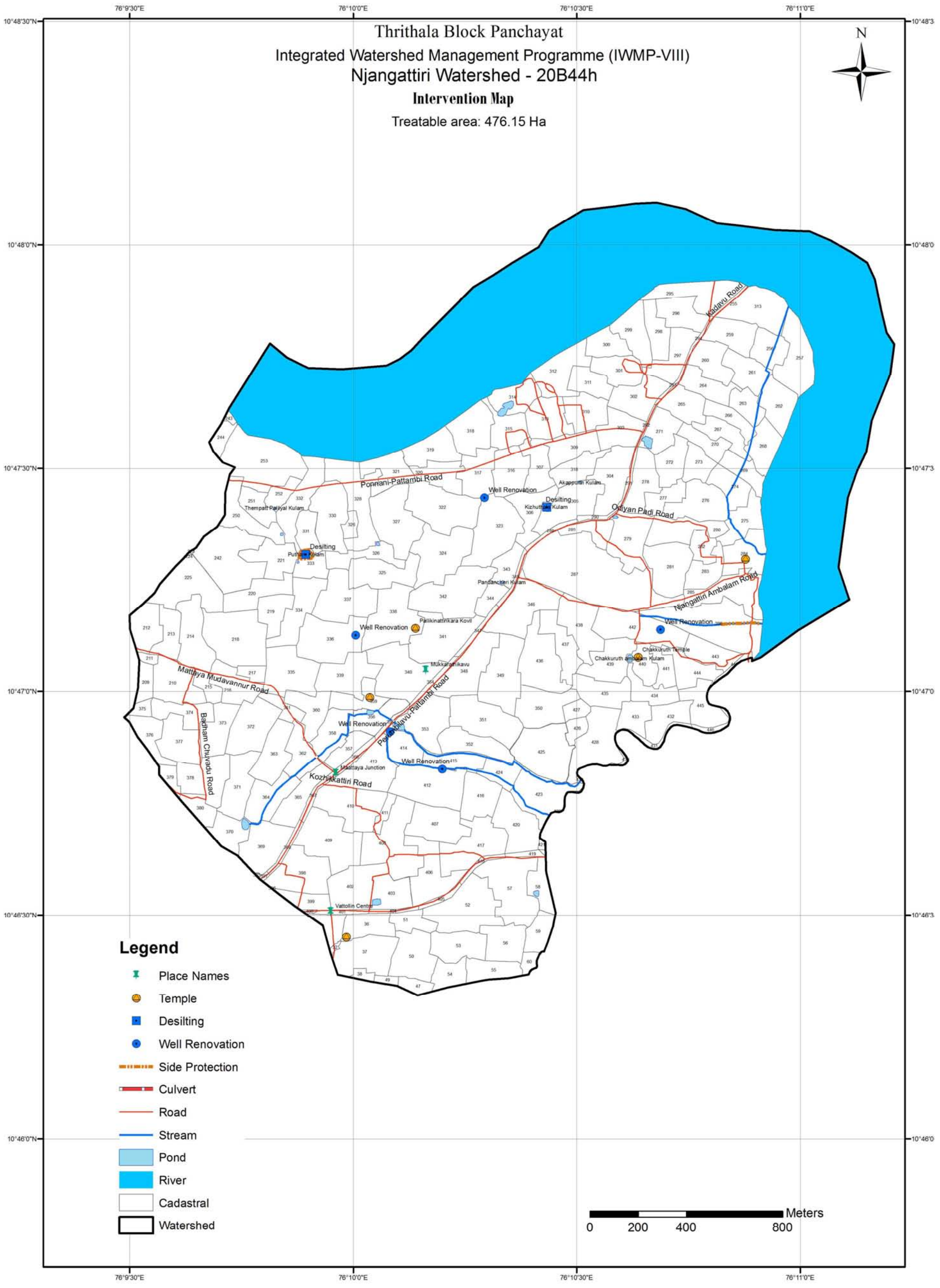
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Njangattiri Watershed - 20B44h

Intervention Map

Treatable area: 476.15 Ha



PATHIYAMTHODU WATERSHED (19K8b)

Table 38 Location and Extend of Pathiyamthodu watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode, Nagalassery
Geographical Location		
4	Latitude/Longitude	76°8'3.802"E 10°44'5.573"N
		76°9'27.883"E 10°45'23.586"N
5	Geographical Area of the Watershed	391.25 ha
6	Watershed and Watershed codes	Pathiyamthodu (19K8b)
7	Major Water Source	Eriyedam - Koonangadu thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 39 Watershed Character Pathiyamthodu watershed

Relief	Normal to Excessive
Average Slope	Moderately steep to steep
Drainage	Well Drained

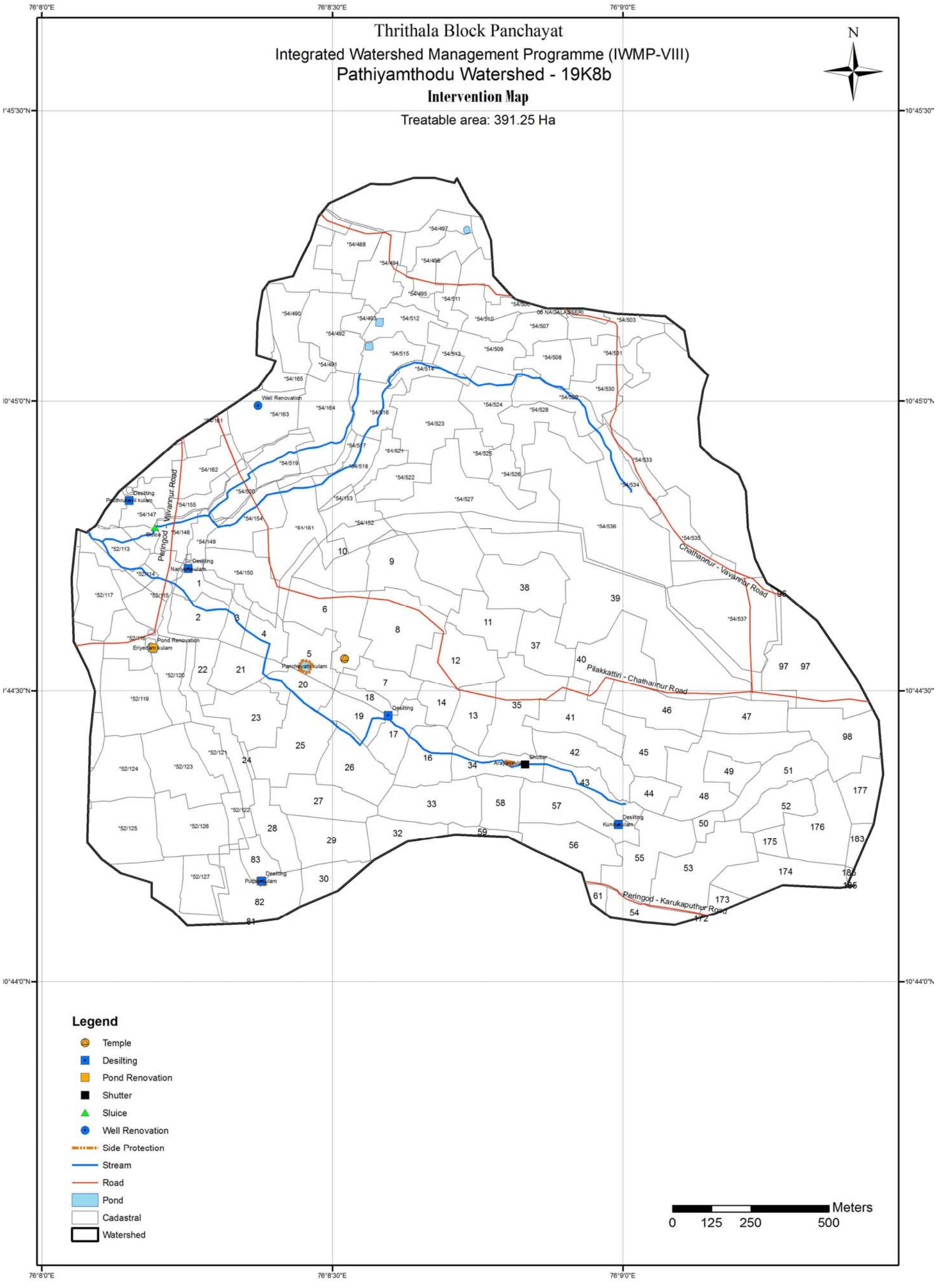
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Pathiyamthodu Watershed - 19K8b

Intervention Map

Treatable area: 391.25 Ha



VERUMPILAVU WATERSHED (19K9a)

Table 40 Location and Extend of Verumpilavu watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Nagalassery, Chalissery
Geographical Location		
4	Latitude/Longitude	76°6'10.25"E 10°42'42.359"N
		76°7'29.563"E 10°44'12.507"
5	Geographical Area of the Watershed	336.47 ha
6	Watershed and Watershed codes	Verumpilavu (19K9a)
7	Major Water Source	Kothakulam thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 41 Watershed Character Verumpilavu watershed

Relief	Subnormal to Normal
Average Slope	Moderately slopping
Drainage	Well Drained

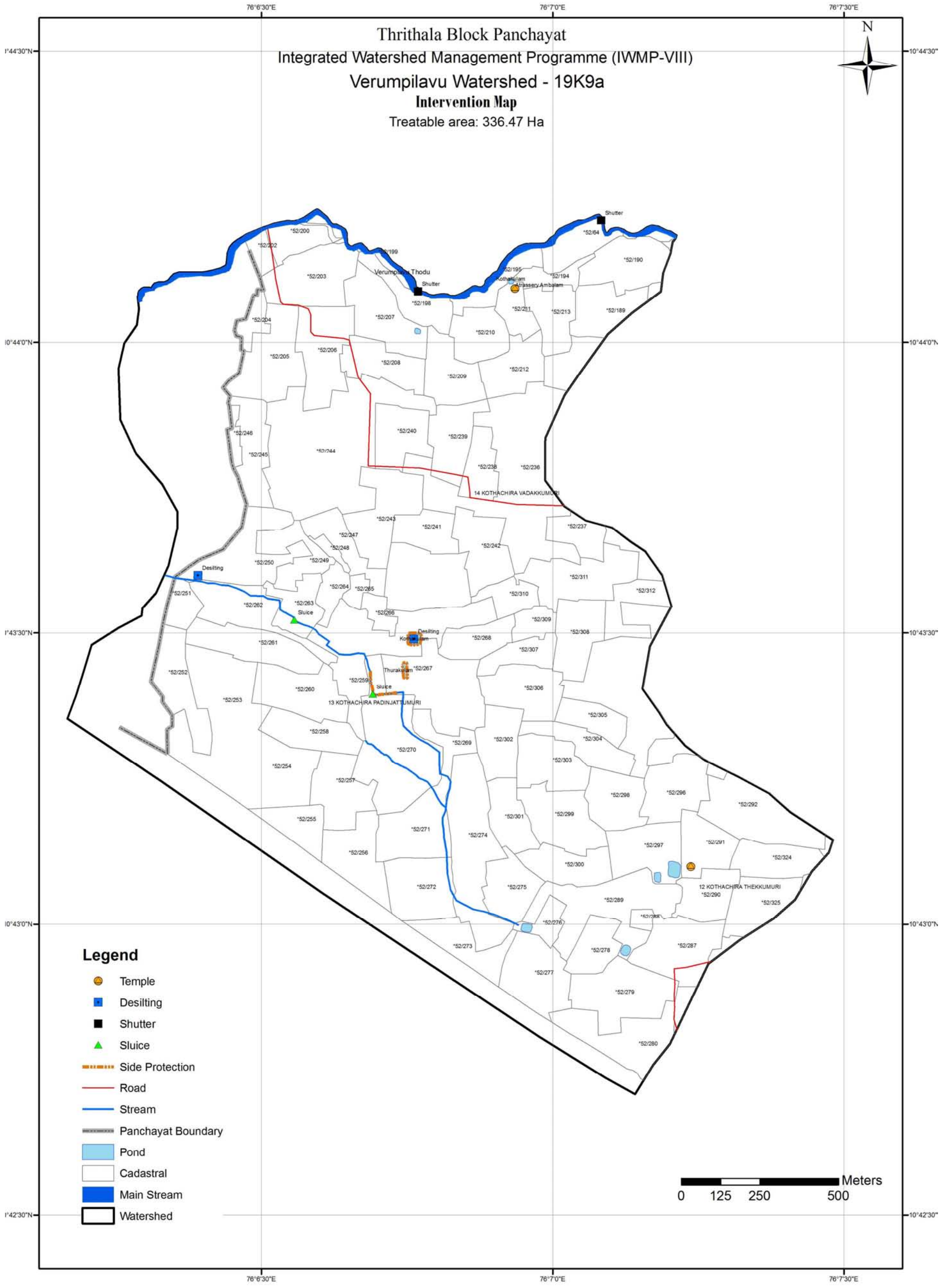
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Verumpilavu Watershed - 19K9a

Intervention Map

Treatable area: 336.47 Ha



POTTIKATHODU WATERSHED (20B44b)

Table 42 Location and Extend of Pottikathodu Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location		
4	Latitude/Longitude	76°10'21.842"E 10°45'0.789"N
		76°11'30.754"E 10°46'24.87"N
5	Geographical Area of the Watershed	159.7 ha
6	Watershed and Watershed codes	Pottikathodu (20B44b)
7	Major Water Source	Thachapalam thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 43 Watershed Character Pottikathodu watershed

Relief	Normal to Subnormal
Average Slope	Moderately slopping
Drainage	Well Drained

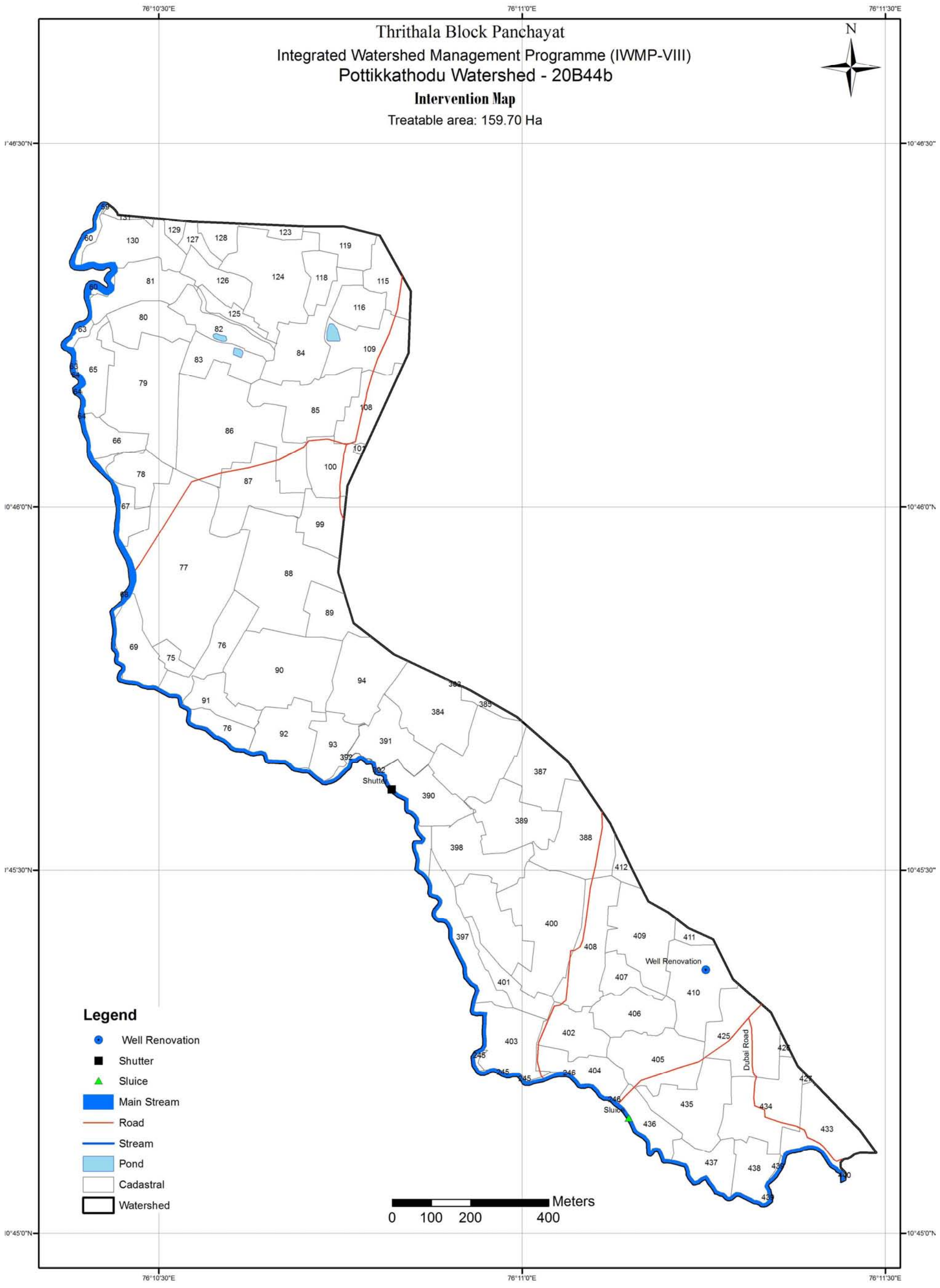
Thrithala Block Panchayat

Integrated Watershed Management Programme (IWMP-VIII)

Pottikkathodu Watershed - 20B44b

Intervention Map

Treatable area: 159.70 Ha



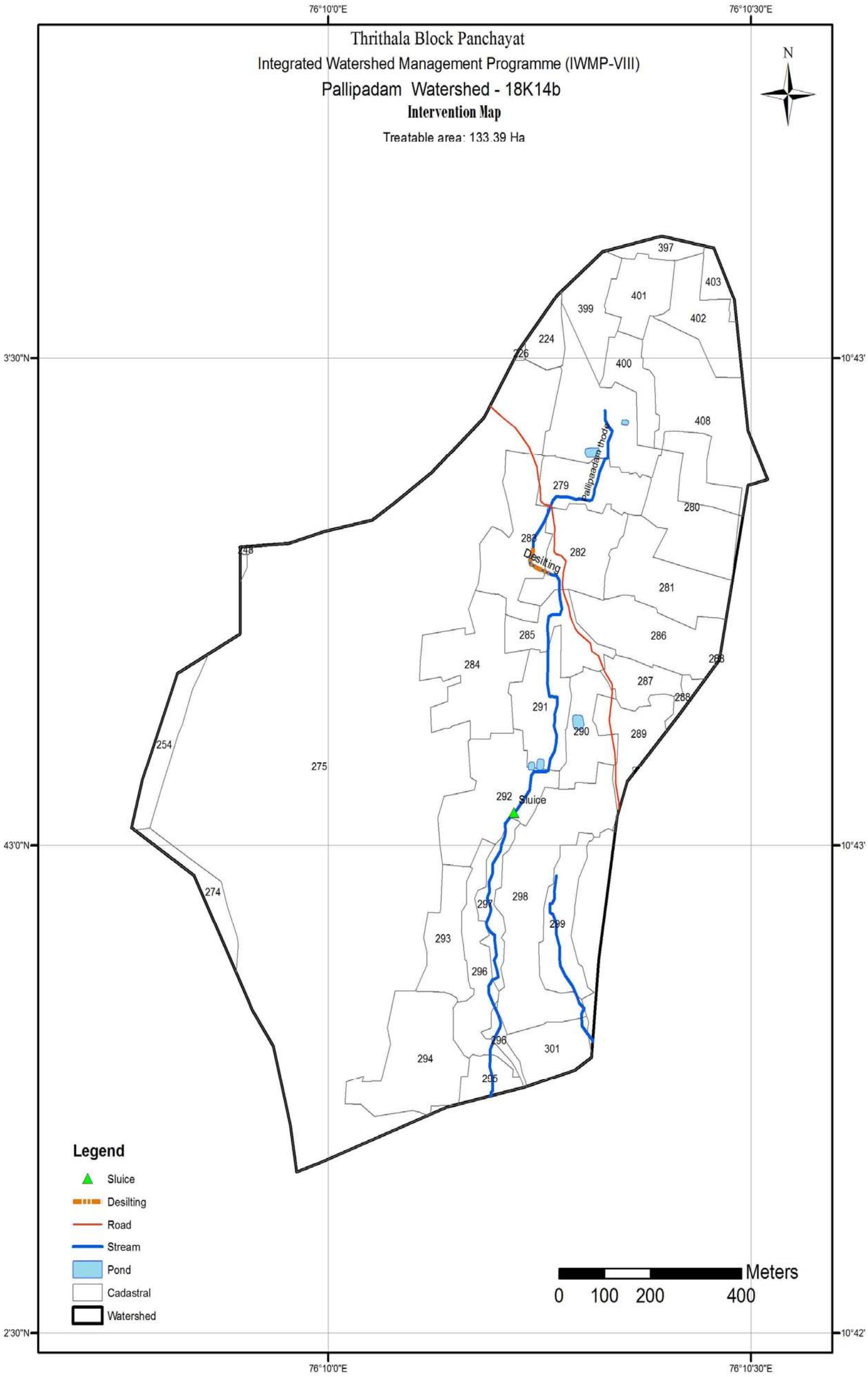
PALLIPADAM WATERSHED (18K14b)

Table 44 Location and Extend of Pallipadam Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location		
4	Latitude/Longitude	76°9'45.869"E 10°42'40.798"N
		76°10'31.811"E 10°43'37.141"N
5	Geographical Area of the Watershed	133.39 ha
6	Watershed and Watershed codes	Pallipadam (18K14b)
7	Major Water Source	Pallipadam thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 45 Watershed Character Pallipadam watershed

Relief	Subnormal to Excessive
Average Slope	Moderately slopping to moderately steep to steep
Drainage	Well Drained


76°10'0"E
76°10'30"E
Thrithala Block Panchayat
Integrated Watershed Management Programme (IWMP-VIII)
Pallipadam Watershed - 18K14b
Intervention Map
Treatable area: 133.39 Ha
N
3'30"N
10°43'
43'0"N
2'30"N
10°42'
397
403
401
399
402
224
226
400
408
279
Pallipaadam thodu
280
283
282
Desilting
281
285
286
284
287
288
291
290
289
254
275
292
Sluice
274
297
298
299
293
296
294
301
295
Legend
Sluice
Desilting
Road
Stream
Pond
Cadastral
Watershed
Meters
0 100 200 400

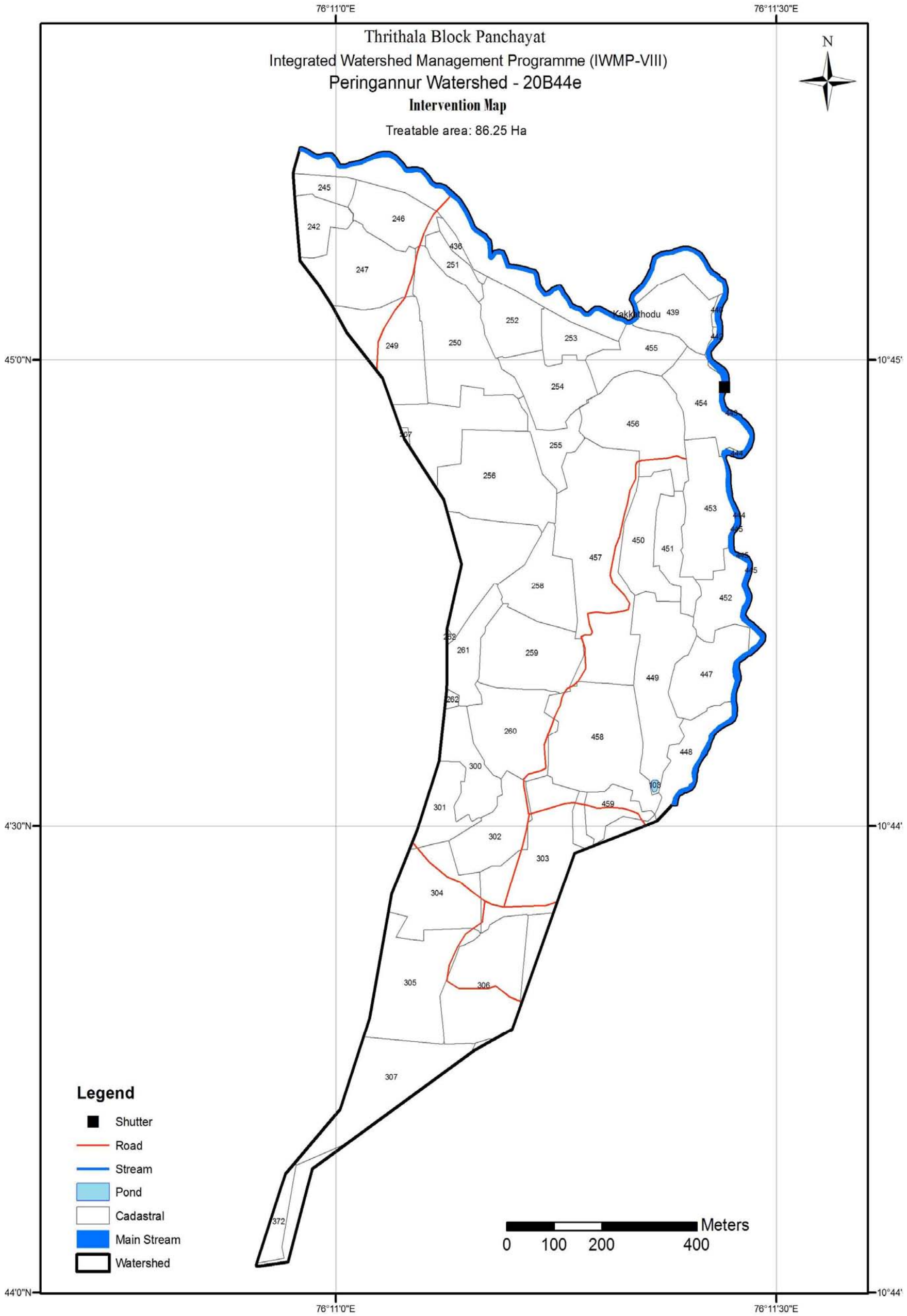
PERINGANNUR WATERSHED (20B44e)

Table 46 Location and Extend of Peringannur watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location		
4	Latitude/Longitude	76°10'54.255"E 10°44'1"N
		76°11'39.763"E 10°45'12.187"N
5	Geographical Area of the Watershed	86.25 ha
6	Watershed and Watershed codes	Peringannur (20B44e)
7	Major Water Source	Kizhakke thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 47 Watershed Character Peringannur watershed

Relief	Subnormal to Normal
Average Slope	Moderately slopping
Drainage	Well Drained


Thrithala Block Panchayat
Integrated Watershed Management Programme (IWMP-VIII)
Peringannur Watershed - 20B44e
Intervention Map
Treatable area: 86.25 Ha
N
76°11'0"E
76°11'30"E
45'0"N
10°45'
4'30"N
10°44'
44'0"N
245
246
242
436
247
251
252
253
439
Kakkathodu
455
249
250
254
454
456
297
255
256
453
444
450
451
457
258
452
262
261
259
449
447
262
260
458
448
300
108
301
459
302
303
304
305
306
307
372
Legend
Shutter
Road
Stream
Pond
Cadastral
Main Stream
Watershed
Meters
0
100
200
400

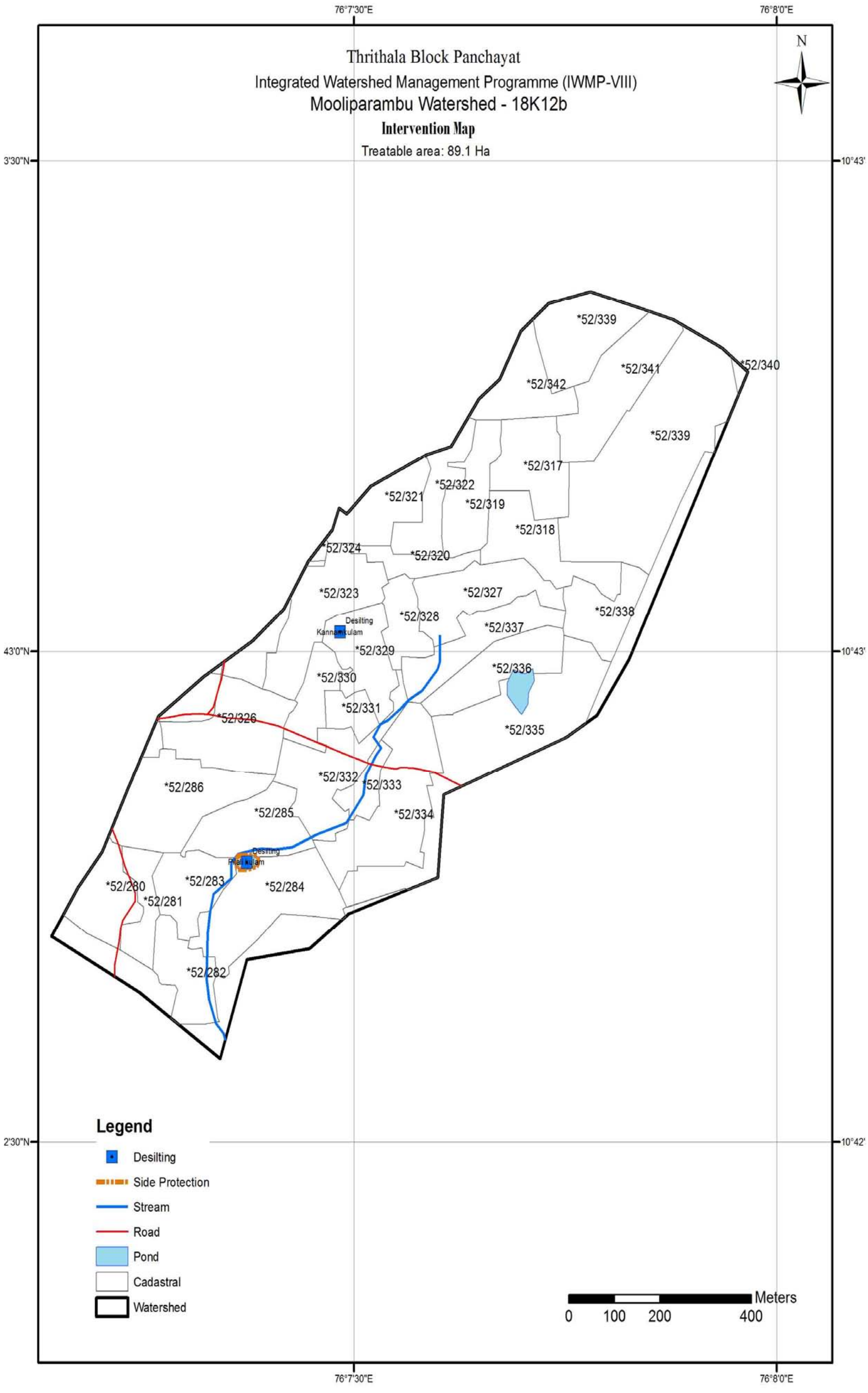
MOOLIPARAMBU WATERSHED (18K12b)

Table 48 Location and Extend of Mooliparambu Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Nagalassery
Geographical Location		
4	Latitude/Longitude	76°7'9.057"E 10°42'35.251"N
		76°7'58.14"E 10°43'21.734"N
5	Geographical Area of the Watershed	89.10 ha
6	Watershed and Watershed codes	Mooliparambu (18K12b)
7	Major Water Source	Narikuzhi thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 49 Watershed Character Mooliparambu Watershed

Relief	Normal to Excessive
Average Slope	Moderately slopping to strongly sloping
Drainage	Well Drained


76°7'30"E
76°8'0"E
N
Thrithala Block Panchayat
Integrated Watershed Management Programme (IWMP-VIII)
Mooliparambu Watershed - 18K12b
Intervention Map
Treatable area: 89.1 Ha
3'30"N
10°43'
43'0"N
2'30"N
10°42'
*52/339
*52/341
*52/340
*52/342
*52/339
*52/317
*52/322
*52/321
*52/319
*52/318
*52/324
*52/320
*52/323
*52/327
*52/338
*52/328
*52/337
Desilting
Kannamkulam
*52/329
*52/336
*52/330
*52/331
*52/326
*52/335
*52/332
*52/333
*52/286
*52/285
*52/334
Desilting
*52/280
*52/283
*52/284
*52/281
*52/282
Legend
Desilting
Side Protection
Stream
Road
Pond
Cadastral
Watershed
Meters
0 100 200 400
76°7'30"E
76°8'0"E

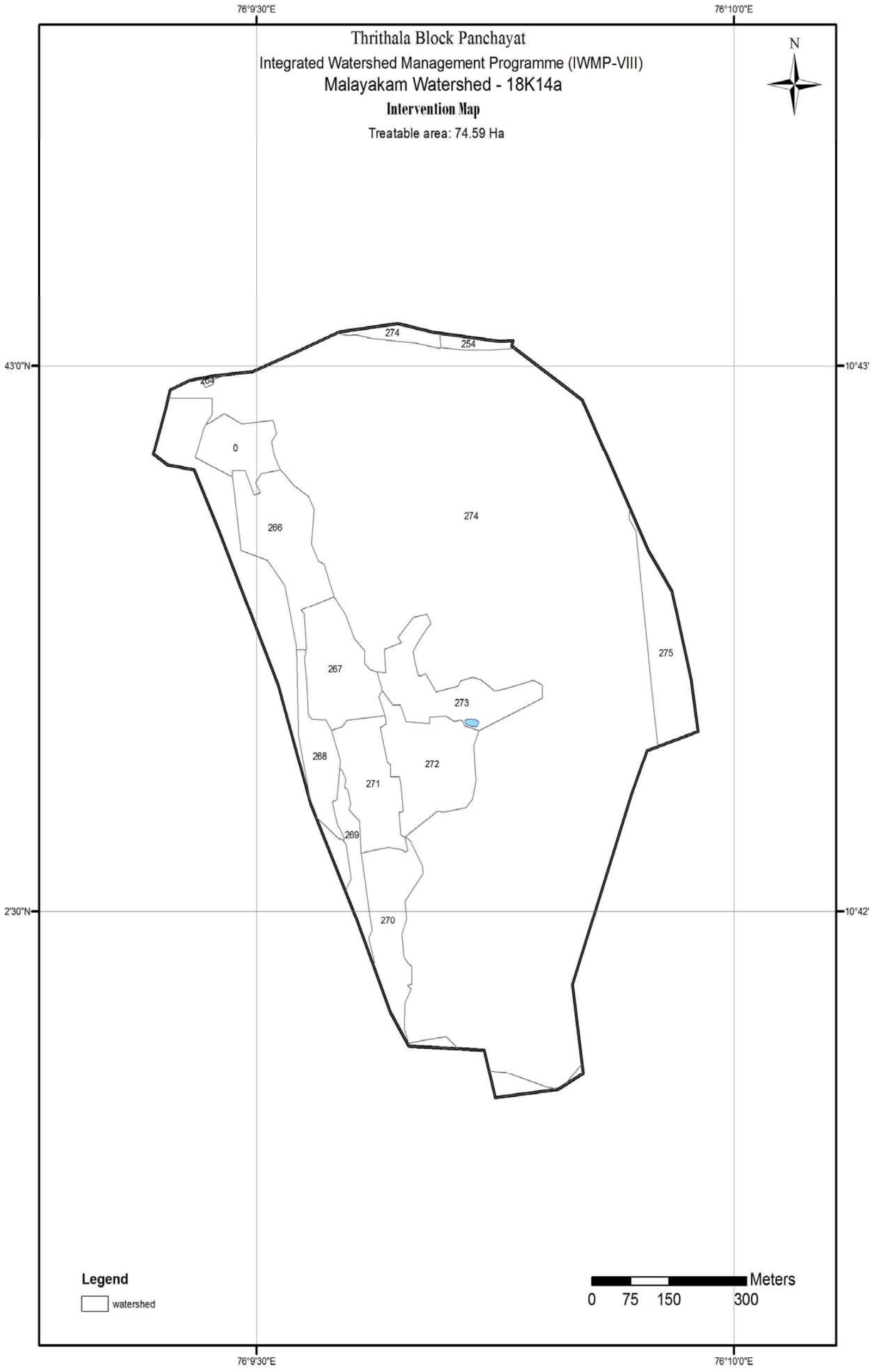
MALAYAKAM WATERSHED (18K14a)

Table 50 Location and Extend of Malayakam Watershed

1	Name of the Block	Thrithala Block Panchayat
2	Name of the District	Palakkad
3	Name of Grama Panchayath	Thirumittakode
Geographical Location		
4	Latitude/Longitude	76°7'58.14"E 10°43'21.734"N
		76°9'57.913"E 10°43'2.932"N
5	Geographical Area of the Watershed	74.59 ha
6	Watershed and Watershed codes	Malayakam (18K14a)
7	Major Water Source	Malayakam thodu
8	River flowing nearby the watershed area	Bharathapuzha
9	Livelihood Options	Agriculture, Animal Husbandry, Wages, Govt. Job

Table 51 Watershed Character Malayakam Watershed

Relief	Normal to Excessive
Average Slope	Moderately steep to steep
Drainage	Well Drained


76°9'30"E
76°10'0"E
Thrithala Block Panchayat
Integrated Watershed Management Programme (IWMP-VIII)
Malayakam Watershed - 18K14a
Intervention Map
Treatable area: 74.59 Ha
N
43'0"N
10°43'
2'30"N
10°42'
274
254
264
0
266
274
275
267
273
268
272
271
269
270
Legend
watershed
Meters
0 75 150 300
76°9'30"E
76°10'0"E

II.22 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 depositedin 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.

II.23EXPECTED OUTCOME

Table 52 Expected Outcome

Expected outcome of activities taken under IWMP				
Sr No	**Specific activity identified for convergence**	**Sector/ Schemes & Programmes**	**Quantifiable estimated amount of convergence (DPR) (in lakh's)**	**Quantifiable Expected Outcome**
Natural Resources Management				
1	Pond side protection	MGNREGS	74.7	925 ha
2	Stream side protection	MGNREGS	49.7	125 ha
3	Pond desilting	MGNREGS	7.9	100 ha
4	Stream desilting	MGNREGS	0.2	25 ha
5	Maintenance of public well	MGNREGS	3.3	19 nos
6	Sluice construction	MGNREGS	26.3	200 ha
7	Shutter for sluice	MGNREGS	8.8	300 ha
8	Well recharging	MGNREGS	112.75	1551 nos
9	Coconut trenching& multching	MGNREGS	27.8	12281 nos
10	Tree planting	MGNREGS	7.9	500 ha
11	Earthen bund	MGNREGS	38.1	325 ha
12	Bio fencing	MGNREGS	2.63	100 ha
13	Percolation pit	MGNREGS	53.9	1500 ha
14	Bunds on paddy land	MGNREGS	12.6	725 ha
Production System and Micro Enterprises				
15	Vegetable promotion	Krishi Bhavan	13.93	39.66 ton
16	Biogas (0.75 m3)	Sujitwa Mission	14.75	118 nos
17	Horticulture	State Horticulture Mission	6.18	10 ha
18	Dwarf coconut seedling	National Horticulture Mission	2.21	8.3 ton
19	Cow rearing	Animal Husbandry Department	8.7	40 nos
Livelihood Activities				
20	Poultry	Animal Husbandry Department	5.43	2614 nos
21	Poultry cage construction	MGNREGS	27.15	181 nos
22	Goat rearing	Animal Husbandry Department	8.75	350 nos
23	Food Processing unit	Small scale industries	2.25	9 units
Seed money Project				
24	Goat rearing	Animal Husbandry Department	13.5	270 nos
25	Cattle shed for goat construction	MGNREGS	30.8	205 nos
26	Paddy cultivation	Krishi bhavan	13.25	143.5 ton
27	Vegetable cultivation	Krishi bhavan	12.75	323 ton
28	Banana cultivation	Krishi bhavan	12.25	403 ton

Expected Outcomes from the Project			
Sl No	**Particulars**	**Expected Result**	**Unit**
1	Biogas	118	Nos
2	Vegetable cultivation	2791	Nos
3	Dwarf coconut seedlings	3395	Nos
4	Food Processing Unit	9	Nos
II	**Water conservation activities**		
1	Contour pitched bunds	37022	m
2	Well recharging	1577	Nos
3	Tree planting	87533	Nos
4	Bio fencing	37615	m
5	Coconut trenching and mulching	12281	Nos
6	Earthen bund	22435	m
7	Percolation pit	30256	Nos
III	**Production system and Micro enterprises**		
1	Motor 1.5 Hp	99	Nos
2	Drip irrigation	53	Ha
3	Horticulture	3170	Nos
4	Single wheel barrow	178	Nos
IV	**Animal Husbandry**		
1	Cow rearing	30	Nos
2	Goat rearing	350	Nos
3	Backyard poultry	9150	Nos
V	**Seed money projects**		
1	Goat rearing	275	Nos
2	Paddy cultivation	143.5	Ton
3	Vegetable culticvation	323	Ton
4	Banana cultivation	403	Ton

II.24 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.

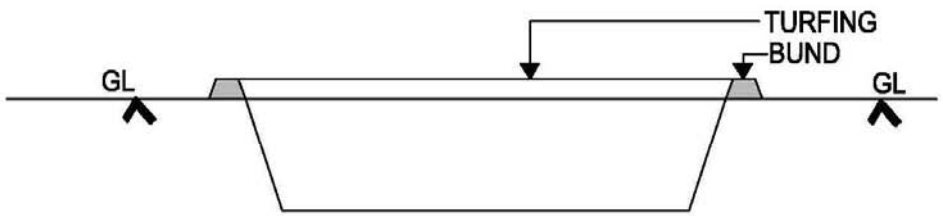
ANNEXURE – DETAILED ESTIMATES

DETAILED ESTIMATE

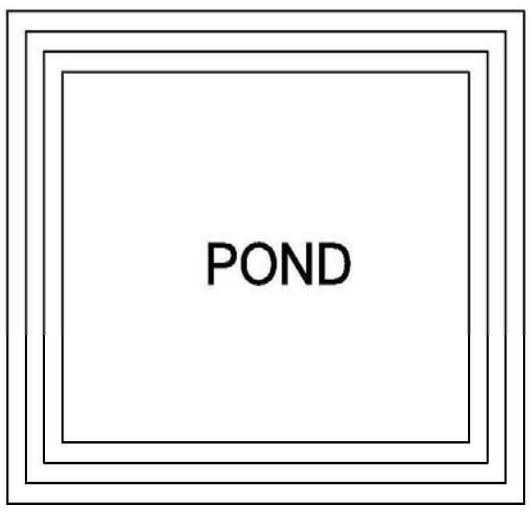
1. NAME OF WORK : SLUICE SHUTTER WORK CHAVAKADUTHODU							
SL NO	**ITEM**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**
1	Supplying and fixing vengai wood wrought and put up for shutter including all cost etc. Complete	9	0.25	0.05	2.3	0.259	
		9	0.25	0.05	2.3	0.259	
		5	0.25	0.05	2.3	0.144	
	Total					0.661	
	Say	0.66	m3	@	53983.00	/m3	35696.26
2	Supplying and fixing 10mm dia rings for shutter including all cost						
	Say	23	Nos	@	85.10	/Each	1957.30
3	Providing locking arrangements to shutter using rod for locks and 12mmlocking rods and 65mm pad lock etc. complete						
	Say	6	Nos	@	1342.26	/Each	8053.56
4	Tarring with coal tar 2coats toall shutters including allcost						
	Say	24	m2	@	267.21	/10m2	6413.04
	TOTAL (IWMP)						**52120.16**
	ADD TAX 6% & UNFORESEEN						**3380**
	GRAND TOTAL						**55500**

2. NAME OF WORK - DESILTING OF VARUKARIL KULAM								
SL NO	**DESCRIPTION**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**	**MNREGS (AMOUNT)**
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	60.00	3.00		180.00		
	Say	180.00	m2	@	377.00	/100m2		678.60
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	12.00	hr	@	366.00	/hr	**4392.00**	
3	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 3m depth	1	20.00	15.00	1.00	300.00		
	Say	300.00	m3	@	1203.00	/10m3		36090.00
	TOTAL (MNREGS)							36768.60
	TOTAL (IWMP)						**4392.00**	
	ADD TAX 6% & UNFORESEEN						**608**	
	GRAND TOTAL						**5000**	**36800.00**

POND DESILTING & BUND



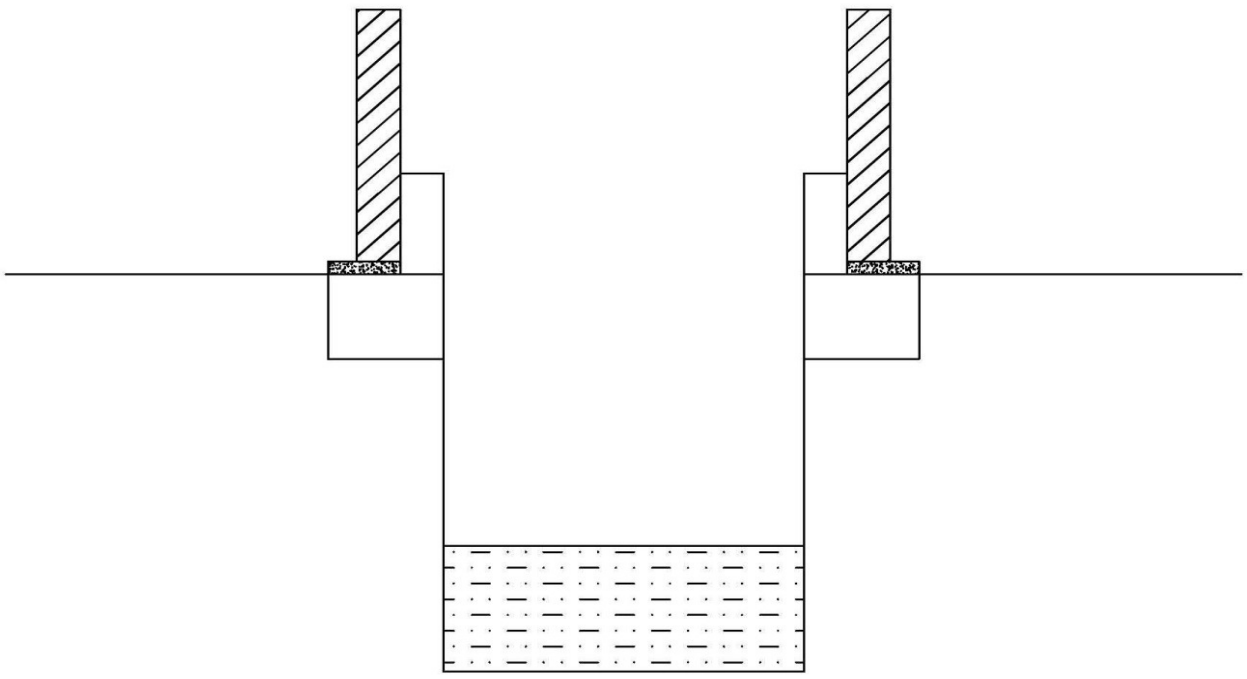
CROSSECTION



PLAN

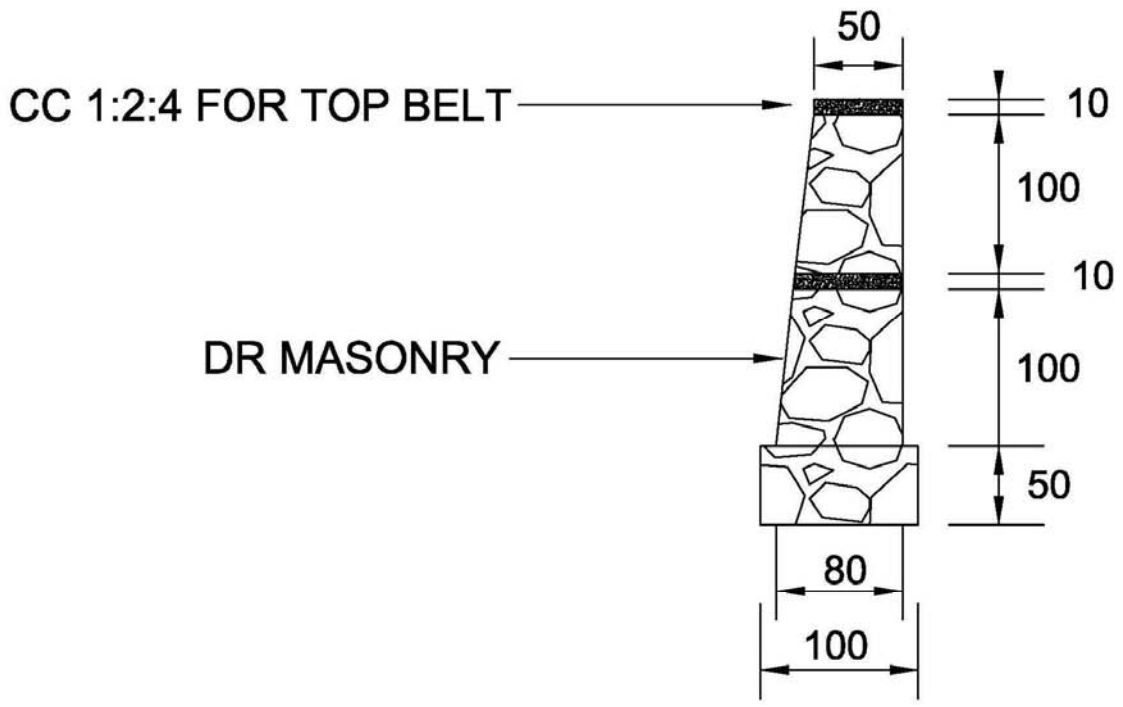
3. NAME OF WORK - WELL CLEANING (THANNIKUNNU S C COLONY)								
SL NO	**DESCRIPTION**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**	**MNREGS (AMOUNT)**
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	5.00	2.00		10.00		
	Say	10.00	m2	@	377.00	/100m2		37.70
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	5.00	hr	@	366.00	/hr	**1830.00**	
3	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 7th lift depth	3.14	2.00	2.00	1.00	12.56		
		3.14	2.3*2.3		0.45	7.47		
						20.03		
	Say	20.03	m3	@	1711.60	/10m3		3429.15
4	Brick work in foundation and plinth	3.14	2.3*2.3-2*2		0.45	1.82		
		3.14	2.3*2.3-2*2		1.00	4.05		
						5.87		
		5.87	m3	@	4613.00	/m3		27093.86
5	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size). **(Over Top Belt DR Masonry)**	3.14	2.3*.		0.10	0.22		
		0.22	m3	@	5214.00	/m3		1129.67
	TOTAL (MNREGS)							31690.37
	TOTAL (IWMP)						**1830.00**	
	ADD TAX 6% & UNFORESEEN						**170**	
	GRAND TOTAL						**2000**	31700

WELL MAINTANENCE



4. NAME OF WORK - SIDE PROTECTION OF KATHIRAKODU THODU								
SL NO	**DESCRIPTION**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**	**MNREGS (AMOUNT)**
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	210.00	3.00		630.00		
	Say	630.00	m2	@	377.00	/100m2		2375.10
2	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 3m depth	1	200.00	1.00	0.50	100.00		
	Say	100.00	m3	@	1203.00	/10m3		12030.00
3	Dry Rubble masonry for Retaining walls.	1	200.00	1.00	0.50	100.00		
		1	200.00	(0.80+0.70)/2=.75	1.00	150.00		
		1	200.00	(0.70+0.50)/2=.60	1.00	120.00		
	Total					370.00		
	Say	370.00	M3	@	1873.00	/M3	**693010.00**	
4	Form work for beltonthe top of DR masonryWalls (any thickness) including attached pilasters, butteresses, plinth and string courses etc. (sides of Abutment, Drains)	2	200.00	0.70		280.00		
		2	200.00	0.50		200.00		
						480.00		
	Say	480.00	M2	@	396.00	/M2	**190080.00**	
5	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size). **(Over Top Belt DR Masonry)**	1	200.00	0.70	0.10	14.00		
		1	200.00	0.50	0.10	10.00		
	Total					24.00		
	Say	24.00	m3	@	5214.00	/m3	**125136.00**	
	TOTAL (MNREGS)							14405.10
	TOTAL (IWMP)						**1008226.00**	
	ADD TAX 6% & UNFORESEEN						**60774**	
	GRAND TOTAL						**1069000**	14405

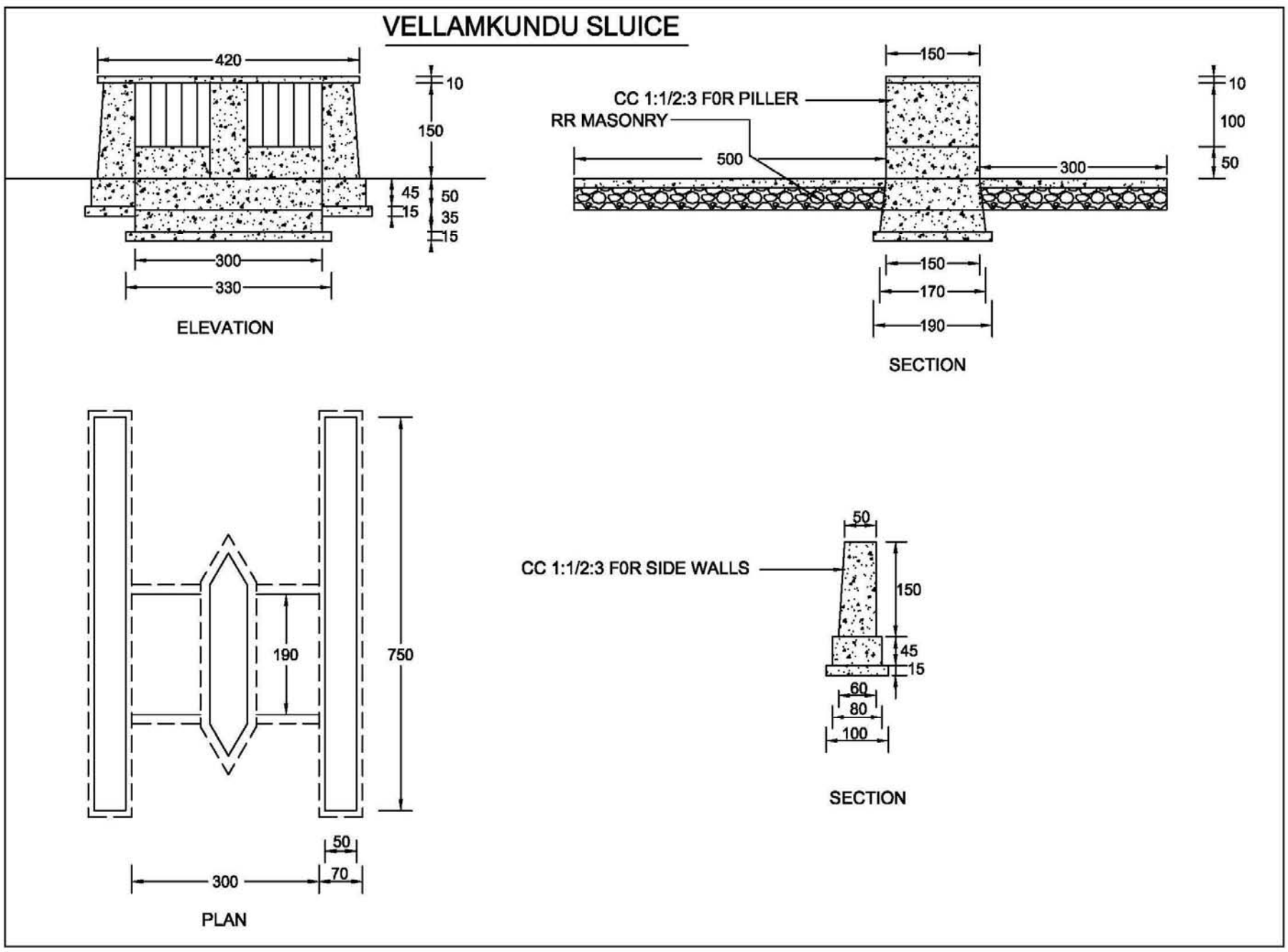
KAITHARAKODU THODU SIDE PROTECTION



SECTION

5. NAME OF WORK : VELLANKUNDU THODU SLUICE								
SL NO	**ITEM**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**	**MNREGS (AMOUNT)**
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	10.00	2.00		20.00		
	Say	**20.00**	**m2**	**@**	**377.00**	**/100m2**		75.40
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	**18.00**	**hour**	**@**	**366.00**	**/Hour**	**6588**	
3	Putting up ring bund using two rows of gunny bags for a height of 1.50 m and a size of 2.0 X 1.00 m size using earth filled bags, packing tightly and removing after completion of work.	1	3.00	1.50	1.50	6.75		
	Say	6.75	M3	@	2886.00	/M3		19480.5
4	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead. (2nd depth)							
a)	For Foundation	1	3.30	1.90	1.00	6.27		
b)	For bed on two sides of the wier	1	3.00	3.00	0.50	4.50		
		1	3.00	5.00	0.50	7.50		
c)	for side walls of the stream.	1	15.00	0.80	0.60	7.20		
	Total					**25.47**		
	Say	**25.47**	**m3**	**@**	**1203.00**	**/10m3**		3064.041
4	CC 1:4:8 using 40 mm nominal size broken stone for foundation.							
a)	For Foundation	1	3.30	1.90	0.15	0.94		
b)	For bed on two sides of the wier	1	3.00	3.00	0.15	1.35		
		1	3.00	5.00	0.15	2.25		
		1	15.00	1.00	0.15	2.25		
	Total					6.79		
	Say	**6.79**	**m3**	**@**	**4637.00**	**/m3**	**36599**	
5	Randum rubble masonry for retainning wall including all labour,material,and conveyance charges etc.complete.							
a)	For bed on two sides of the wier	1	3.00	3.00	0.35	3.15		
		1	3.00	5.00	0.35	5.25		
						8.40		
	Say	**8.40**	**m3**	**@**	**4033.00**	**/m3**	**33877**	
6	CC 1:1/2:3 using 20 mm nominal size broken stone for RCC work including form works,all labour material and conveyance charges etc. complete for Foundation.	1	3.00	1.70	0.35	1.79		
	Basement	1	3.00	1.50	0.50	2.25		
	Wier obstructions	2	1.20	1.50	0.50	1.80		
	Piller	1	0.60	3.00	1.50	2.70		
	Slab over wier	1	4.00	1.50	0.10	0.60		
	For side walls of the stream.	1	15.00	0.80	0.45	5.40		
		1	15.00	0.60	1.50	13.50		

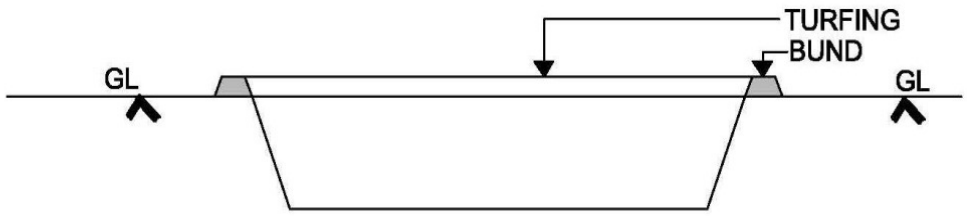
	Total					28.04		
	Say	**28.04**	**m3**	**@**	**7473.00**	**/m3**	**209506**	
7	Supplying and fixing vengai wood wrought and put up for shutter including all cost etc . Complete	10	0.25	0.1	1.8	0.225		
	Say	0.225	m3	@	53983.00	/m3	12146.18	
8	Supplying and fixing 10mm dia rings for shutter including all cost							
	Say	0	Nos	@	85.10	/Each	0.00	
9	Providing locking arrangements to shutter using rod for locks and 12mmlocking rods and 65mm pad lock etc. complete							
	Say	4	Nos	@	1342.26	/Each	5369.04	
10	Tarring with coal tar 2coats toall shutters including allcost							
	Say	15	m2	@	267.21	/10m2	4008.15	
	TOTAL (MNREGS)							**22619.94**
	TOTAL (IWMP)						**308093**	
	ADD TAX 6% & UNFORESEEN						**18907**	
	GRAND TOTAL						**327000**	**22620**



6. NAME OF WORK - DESILTING & STEPS OF PANAMKULAM

SL NO	DESCRIPTION	NO	L	B	H	QTY	IWMP (AMOUNT)	MNREGS (AMOUNT)
	APPENDIX -A -DESILTING							
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	250.00	3.00		750.00		
	Say	750.00	m2	@	377.00	/100m2		2827.50
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	45.00	hr	@	366.00	/hr	**16470.00**	
3	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 3m depth	1	80.00	40.00	1.50	4800.00		
	Say	4800.00	m3	@	1203.00	/10m3		577440.00
	APPENDIX -B -STEPS							
4	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	10.00	3.00		30.00		
	Say	30.00	m2	@	377.00	/100m2		113.10
5	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 4m depth	6	3.20	0.60	0.30	3.46		
		4	3.20	0.80	0.30	3.07		
						6.53		
	Say	6.53	m3	@	1203.00	/10m3		785.3184
6	Dry Rubble masonry for steps(for foundation)	6	3.20	0.60	0.30	3.46		
		4	3.20	0.80	0.30	4.61		
	For super structure	6	3.00	0.40	0.15	1.44		
		4	3.00	0.60	0.15	1.44		
	Total					10.94		
	Say	10.94	M3	@	1873.00	/M3	**20498.11**	
7	**Pointing** on stone work with cement mortar 1:3 (1 cement : 3 fine sand). **(for stone works)**	6	3.00	0.40		7.20		
		6	3.00	0.15		2.70		
		4	3.00	0.60		7.20		
		4	6.00	0.15		3.60		
	Total					20.70		
	Say	20.70	m2	@	163.00	/m2	**3374.10**	
	TOTAL (MNREGS)							581165.92
	TOTAL (IWMP)						**40342.21**	
	ADD TAX 6% & UNFORESEEN						**2658**	
	GRAND TOTAL						**43000**	**581166**

POND DESILTING & BUND



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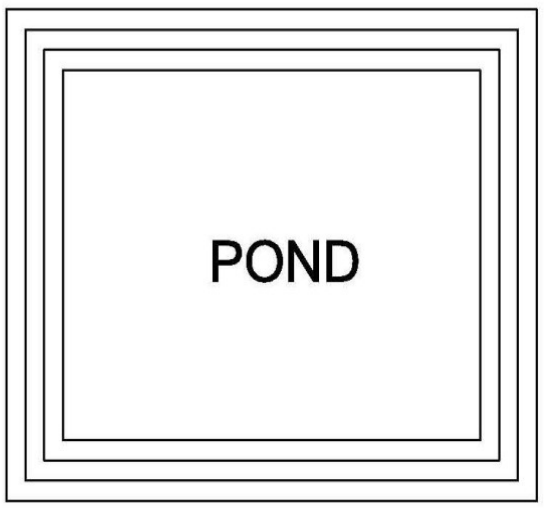
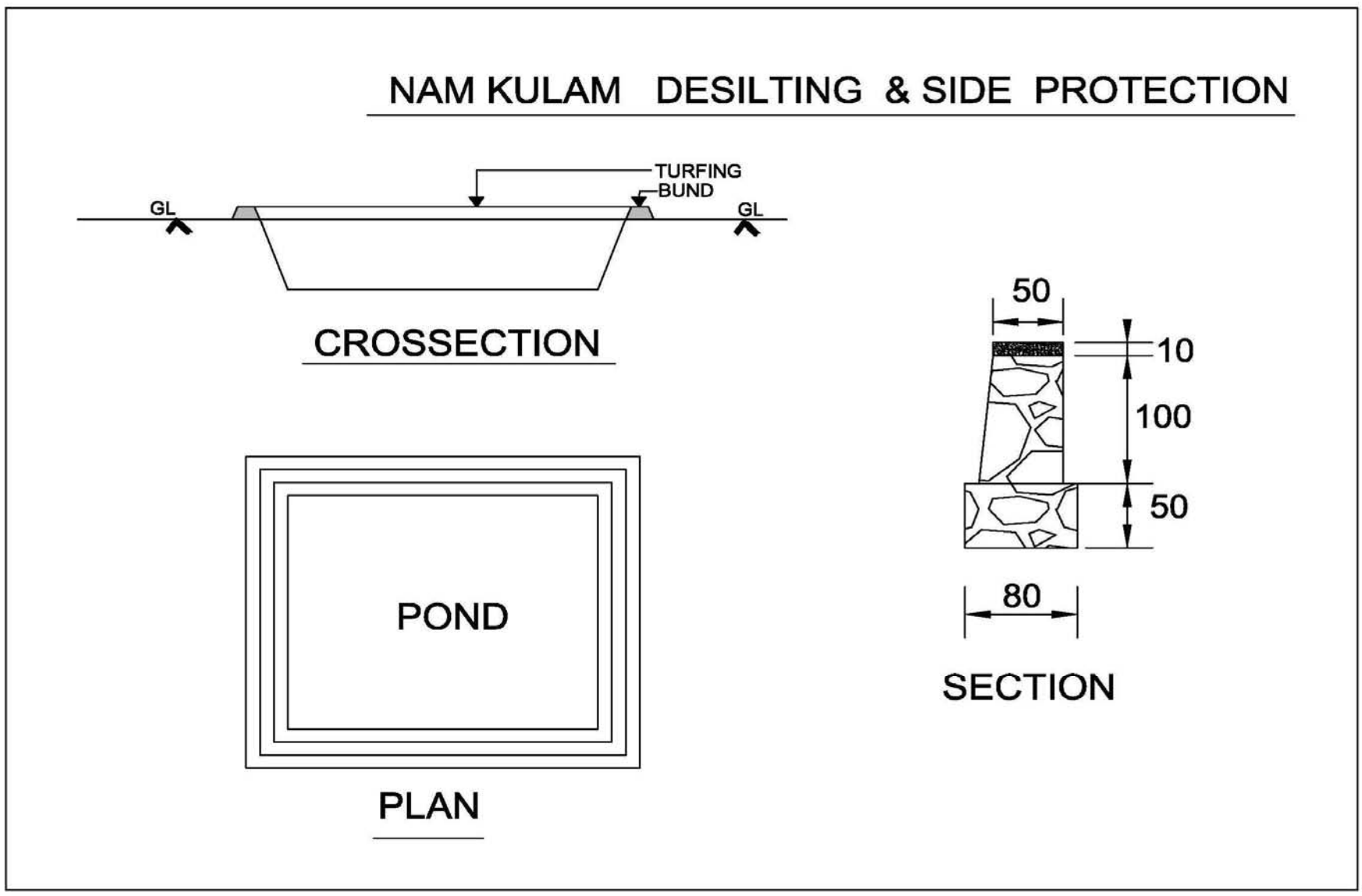


PLAN

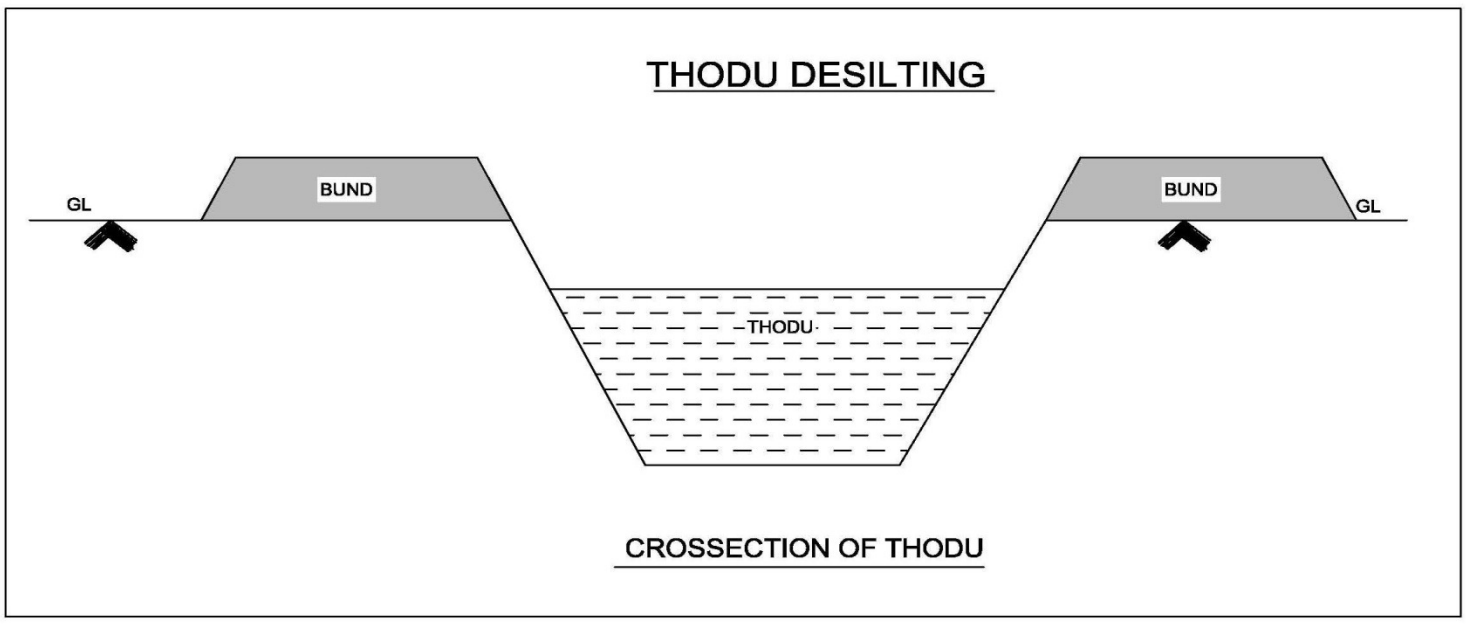
SL NO	DESCRIPTION	NO	L	B	H	QTY	IWMP (AMOUNT)	MNREGS (AMOUNT)
	7. NAME OF WORK - DESILTING & SIDE PROTECTION OF NAMKULAM							
	APPENDIX -A- DESILTING							
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	130.00	3.00		390.00		
	Say	390.00	m2	@	377	/100m2		1470.30
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)					60.00		
	Say	43.00	hr	@	366	/hr	**15738.00**	
3	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.(2nd depth)	1	32.00	32.00	1.00	1024.00		
	Say	1024.00	m3	@	1372.40	/10m3		140533.76
	APPENDIX -B-SIDE PROTECTION							
4	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	10.00	hr	@	366.00	/hr	**3660.00**	
5	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.)3.5m depth	1	25.00	0.80	0.50	10.00		
		5	3.20	0.60	0.30	2.88		
		2	3.20	0.80	0.30	1.54		
						14.42		
	Say	14.42	m3	@	1203.00	/10m3		1734.2448
6	Dry Rubble masonry for Retaining walls.	1	25.00	0.80	0.50	10.00		
		1	25.00	(0.6+0.5)=..55	1.00	13.75		
		5	3.20	0.60	0.30	2.88		
		2	3.20	1.00	0.30	2.88		
		5	3.00	0.40	0.15	1.20		
		2	3.00	0.80	0.15	0.96		
	Total					31.67		
	Say	31.67	M3	@	1873.00	/M3	**59317.91**	
7	**Pointing** on stone work with cement mortar 1:3 (1 cement : 3 fine sand). **(for stone works)**	5	3.00	0.40		6.00		
		5	3.00	0.15		2.25		
		2	3.00	0.80		4.80		
		2	5.00	0.15		1.50		
						14.55		
	Say	14.55	m2	@	163.00	/m2	2371.65	
8	Form work for beltonthe top of DR masonryWalls (any thickness) including attached pilasters, butteresses, plinth and string courses etc. (sides of Abutment, Drains)							

		2	25.00	0.50		25.00		
						25.00		
	Say	25.00	M2	@	396.00	/M2	**9900.00**	
9	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size). **(Over Top Belt DR Masonry)**							
		1	25.00	0.50	0.10	1.25		
	Total					1.25		
	Say	1.25	m3	@	5214.00	/m3	**6517.50**	
	TOTAL (MNREGS)							143738.30
	TOTAL (IWMP)						**97505.06**	
	ADD TAX 6% & UNFORESEEN						**5995**	
	GRAND TOTAL						**103500**	**143738**



8. NAME OF WORK - DESILTING AKILANAM THODU

SL NO	DESCRIPTION	NO	L	B	H	QTY	IWMP (AMOUNT)	MNREGS (AMOUNT)
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	60.00	3.00		180.00		
	Say	180.00	m2	@	377.00	/100m2		678.60
2	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like. (**Bailing out water**)							
	Say	18.00	hr	@	366.00	/hr	**6588.00**	
3	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.) 3m depth	1	50.00	1.50	1.00	75.00		
	Say	75.00	m3	@	1203.00	/10m3		9022.50
	TOTAL (MNREGS)							9701.10
	TOTAL (IWMP)						**6588.00**	
	ADD TAX 6% & UNFORESEEN						**412**	
	GRAND TOTAL						**7000**	**9701**

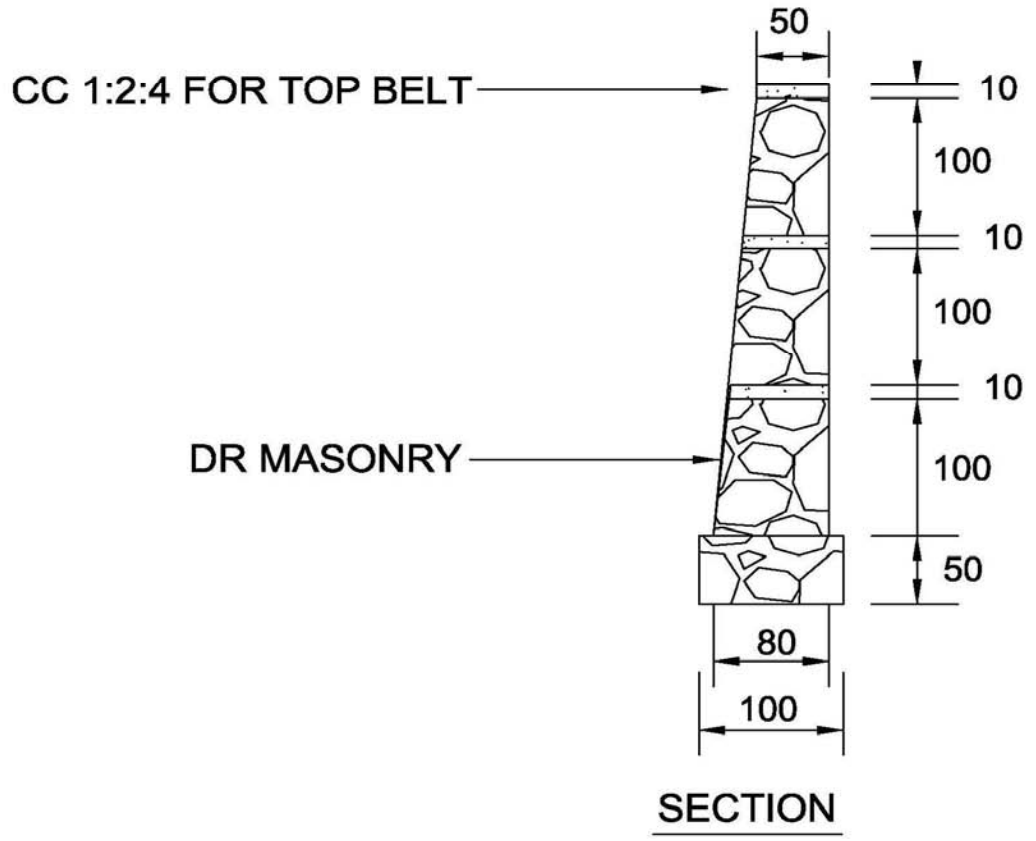


9. NAME OF WORK - SIDE PROTECTION OF CHAKURUTHIPADAM PAADAM								
SL NO	**DESCRIPTION**	**NO**	**L**	**B**	**H**	**QTY**	**IWMP (AMOUNT)**	**MNREGS (AMOUNT)**
1	Clearing light jungle including uprooting of thick vegitations and smaall trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m out side the periphery of the area cleared	1	70.00	3.00		210.00		
	Say	210.00	m2	@	377	/100m2		791.70
2	Earth work in excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5 m.(extra for every additonal lift of 1.5m or part there of over initial lead.(2nd depth)	1	50.00	1.00	0.50	25.00		
	Say	25.00	m3	@	2066.00	/10m3		5165.00
3	Dry Rubble masonry for Retaining walls.	1	50.00	1.00	0.50	25.00		
		1	50.00	(0.80+0.70)/2=.75	1.00	37.50		
		1	50.00	(0.70+0.60)/2=0.65	1.00	32.50		
		1	50.00	(0.6+0.5)/2=0.55	1.00	27.50		
	Total					122.50		

	Say	122.50	M3	@	1873.00	/M3	**229442.50**	
4	Form work for beltonthe top of DR masonryWalls (any thickness) including attached pilasters, butteresses, plinth and string courses etc. (sides of Abutment, Drains)	2	50.00	0.70		70.00		
		2	50.00	0.60		60.00		
		2	50.00	0.50		50.00		
						180.00		
	Say	180.00	M2	@	396.00	/M2	**71280.00**	
5	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size). **(Over Top Belt DR Masonry)**	1	50.00	0.70	0.10	3.5		
		1	50.00	0.60	0.10	3		
		1	50.00	0.50	0.10	2.5		
	Total					9		
	Say	9.00	m3	@	5214.00	/m3	**46926.00**	
	TOTAL (MNREGS)							**5956.70**
	TOTAL (IWMP)						**347648.50**	
	ADD TAX 6% & UNFORESEEN						**22351.91**	543

	GRAND TOTAL	**370000**	**6500**

CHAKURUTHIPADAM THODU SIDE PROTECTION



SECTION

DRAFT ESTIMATE AND UNIT COST

1. Tree planting

NAME OF WORK - TREE PLANTING								
NO	**ITEM**	**NO**	**L**	**B**	**D**	**QTY**	**RATE**	
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	1.00	1.00		1.00		
	Say	1.00	m2	@	377	/100m2	3.77	
2	Cost of transportation							
	Say	1	nos	@	2	nos	2.00	
3	Cost of seedling							
	Say	1	nos	@	3	nos	3.00	
Total							8.77	
Grand total							**9.00**	

(Source: PWD Rate)

2. Bio fencing

NAME OF WORK - BIO FENCING							
SR NO	**ITEM**	**NO**	**L**	**B**	**D**	**QTY**	**RATE**
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	1.00			1.00	
	Say	1.00	m2	@	377	/100m2	3.77
2	Collecting and planting 1 m to 1.5 m long stems of hibiscus, henna and other suitable plants@ 25cm c/c including cost labourcharges, conveyance etc.	1	1.00			1.00	
	Say	1.00	m3	@	3	/m3	3.00
	TOTAL						**6.77**
	Say						**7.00**

(Source: PWD Rate)

3. Contour pitched bund

NAME OF WORK - Contour pitched bund							
NO	**ITEM**	**NO**	**L**	**B**	**D**	**QTY**	**RATE**
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	1.00	2.10		2.10	
	Say	2.10	m2	@	377	/100m2	7.917
2	Earth work excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift 1.5m including breaking clods , watering , ramming , and sectioning of spoil bank etc complete.	1	1.00	0.50	1.00	0.50	
	Say	0.50	m3	@	162.42	/m3	81.21
3	Consolidating the bund where ever required.	1	1.00	0.50	1.00	0.50	
	Say	0.50	m3	@	264.00	/10m3	13.20
	TOTAL						**102.33**
	Say						**103.00**

(Source: PWD Rate)

4. Earthen bund

NAME OF WORK - Earthen bund							
NO	**ITEM**	**NO**	**L**	**B**	**D**	**QTY**	**RATE**
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	1.00	2.10		2.10	
	Say	2.10	m2	@	377	/100m2	7.917
2	Earth work excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift 1.5m including breaking clods , watering , ramming , and sectioning of spoil bank etc complete.	1	1.00	0.50	0.50	0.25	
	Say	0.25	m3	@	162.42	/m3	40.61
3	Consolidating the bund where ever required.	1	1.00	0.50	0.50	0.25	
	Say	0.25	m3	@	264.00	/10m3	6.60
	TOTAL						**55.12**
	Say						**56.00**

(Source: PWD Rate)

5. Well recharging

Open Well Recharging Structure					
Sl. No.	**Description**	**Nos.**	**Unit**	**Rate**	**Amountt**
1	Supplying 160 mm PVC Gutter Pipe including labour and conveyance	26	mt	84	2184
2	Supplying 160 mm PVC Stopper including labour and conveyance	1	No	70	70
3	Supplying 160 mm PVC Dropperincluding labour and conveyance	1	No	81	81
4	Supplying160 mm GI Clampincluding labour and conveyance	20	No	41	820
5	Supplying 63 mm PVC Pipe (6/kg/cm2) including labour and conveyance	26	mt	93	2418
6	Supplying 63 mmX50mm PVC Reducer including labour and conveyance	3	No	34	102
7	Supplying PVC Bent 63mmincluding labour and conveyance	7	No	27	189
8	Supplying 63 mm Tee including labour and conveyance	4	No	55	220
9	Supplying 63mm MTA including labour and conveyance	1		19	19
10	Supplying 63 mm Thread End Capincluding labour and conveyance	1	No	17	17
11	Supplying 63 mm Steel Clampincluding labour and conveyance	14	No	41	574
12	Pit near well	1	No	178	178
13	Supplying Miscellaneous Items (screw, steel nail, solvent cement)		LS		41
14	Supplying 63mm elbow pvc including labour and conveyance	5		45	225

Total Rs.	**7138**
Grand Total Rs.	**7150**

6. Coconut trenching and mulching

NAME OF WORK - COCONUT TRENCHING & MULTCHING								
SR NO	**ITEM**	**NO**		**L**	**B**	**D**	**QTY**	**RATE**
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	3.14	1.5*1.5			7.065	
	Say	7.07	m2		@	377	/100m2	26.63505
2	Earth work excavation in ordinary soil and depositing on bank with initial lead upto 50m and lift upto 1.5m including breaking, clods, watering, ramming and sectioning of spoil bank, etc. complete.	1	3.14	2*2-1.5*1.5=1		0.30	0.942	
	Say	0.94	M3		@	162.42	/m3	153.00
3	Collecting and laying coconut fibre	65.00	nos		@	70	100nos	45.50
	TOTAL							**225.13**
	Grand total							**226.00**
	Say							**226.00**

(Source: PWD Rate)

7. Percolation pit

NAME OF WORK - PERCOLATION PIT							
SR NO	**ITEM**	**NO**	**L**	**B**	**D**	**QTY**	**RATE**
1	Clearing light jungle including up rooting of vegetation & small trees of girth upto 30cm including rooting out and removal of rubbish up to a distance of 150 m outside the periphery.	1	2.00	2.00		4.00	
	Say	4.00	m2	@	377	/100m2	15.08
2	Earth work excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift 1.5m including breaking clods , watering , ramming , and sectioning of spoil bank etc complete.	1	1.00	1.00	1.00	1.00	
	Say	1.00	m3	@	162.42	/m3	162.42
	TOTAL						**177.50**
	Say						**178.00**

(Source: PWD Rate)