INTEGRATED WATERSHED MANAGEMENT PROGRAMME

IWMP-1/2010-11

Ranni-B Watershed

Detailed Project Report

Ranni Block Panchayat

Technical Supporting Organisation
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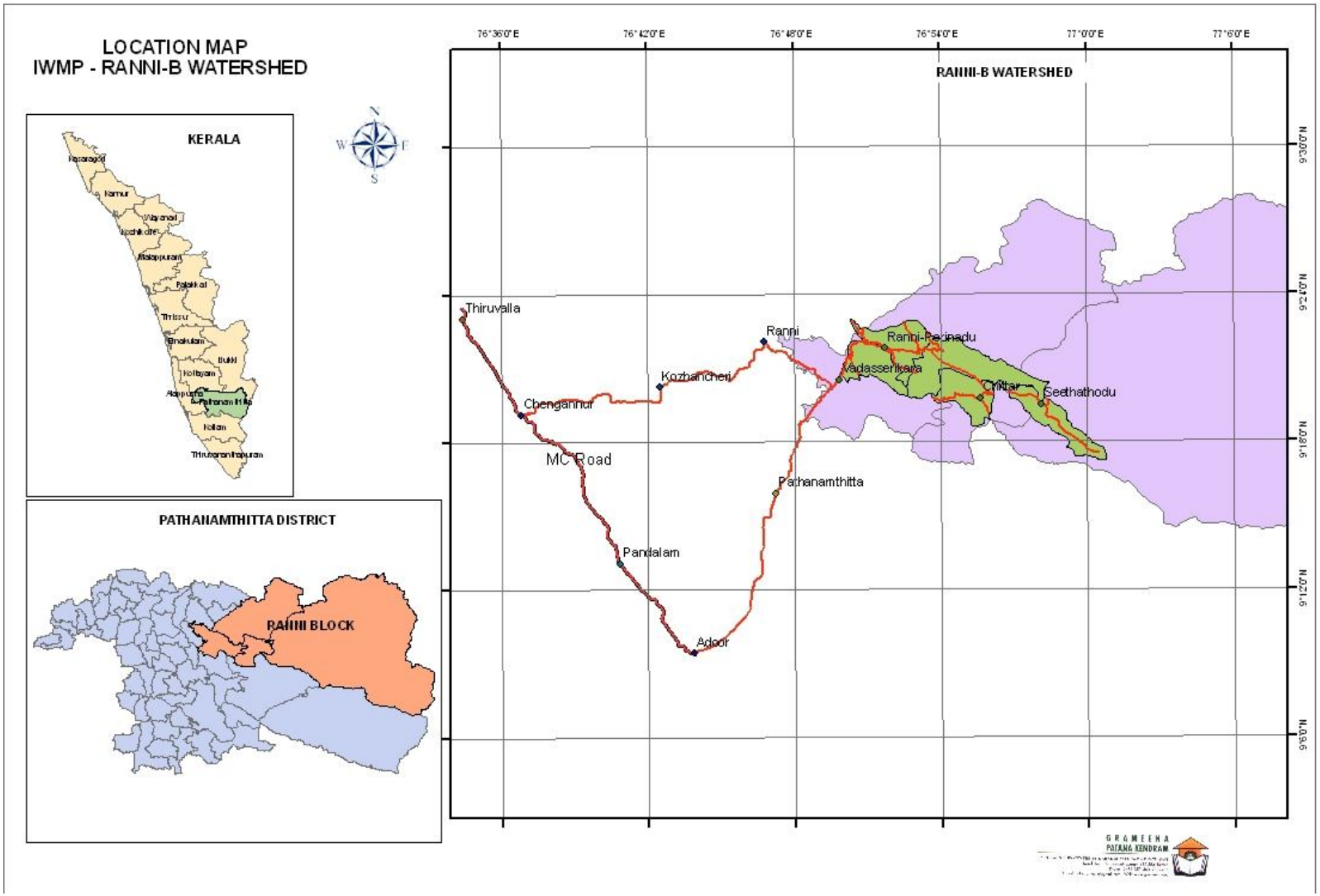
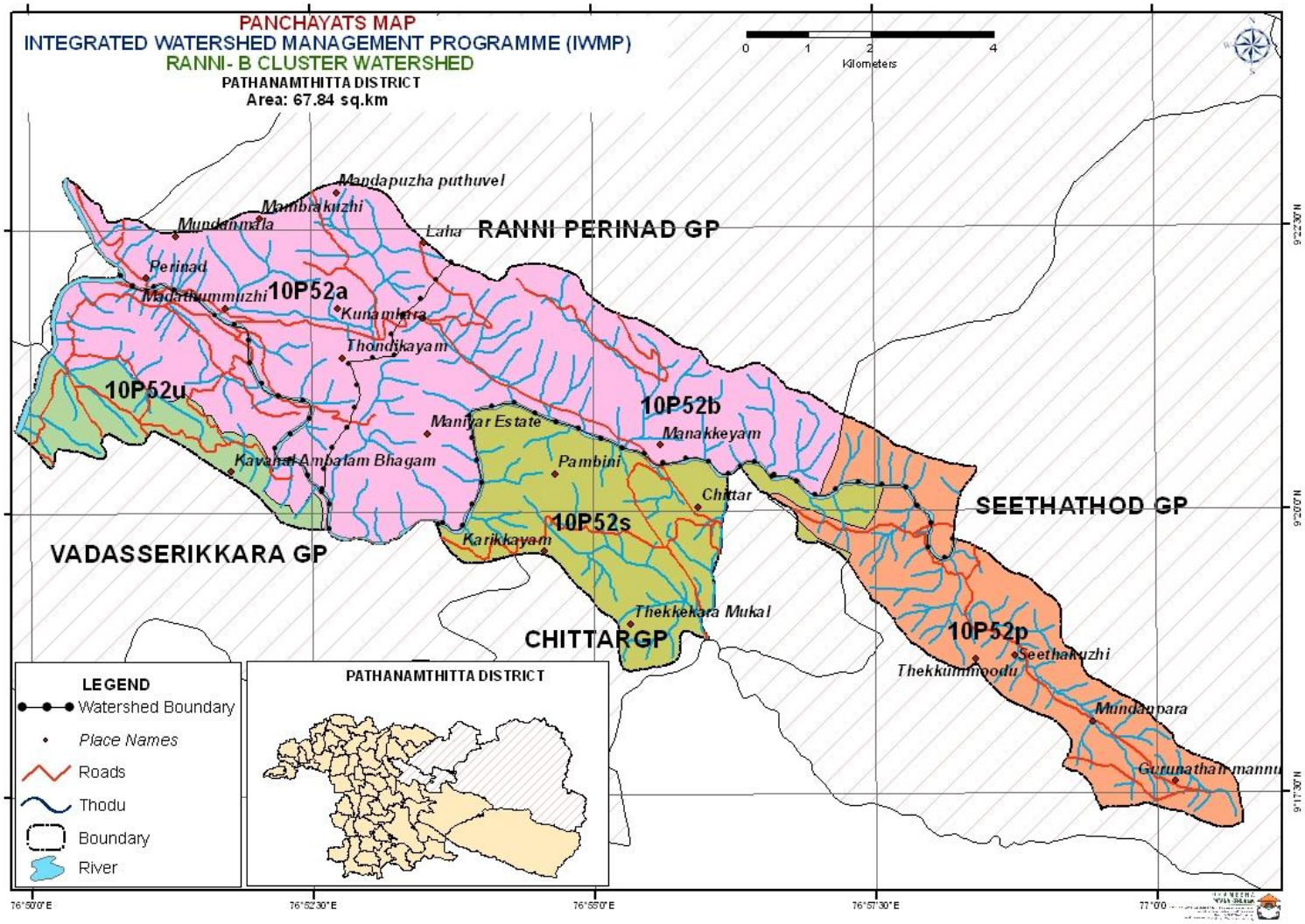
PART II

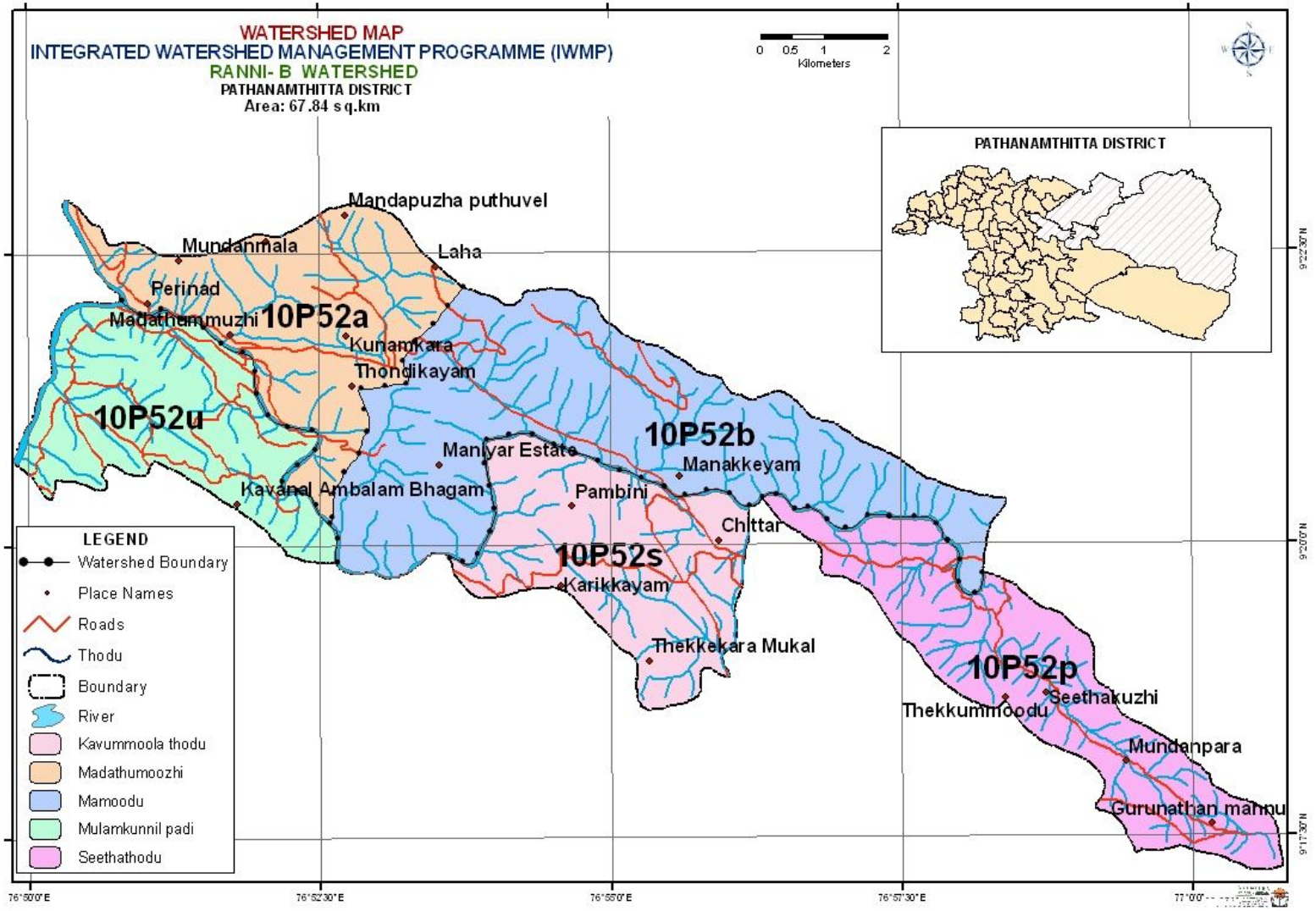
ABBREVIATIONS

AAP	Annual Action Plan
APL	Above Poverty Line
BP	Block Panchayat
BLCC	Block Level Coordination Committee
BPL	Below Poverty Line
BRGF	Backward Regions Grant Fund
DLCC	District Level Coordination Committee
DPC	District Planning Committee
DPR	Detailed Project Report
EC	Energy Conservation
EPA	Entry Point Activities
FGD	Focus Group Discussion
GIS	Geographic Information System
GP	Grama Panchayat
GW	Ground Water
IEC	Information, Education and Communication
IT	Information Technology
IWMP	Integrated Watershed Management Programme
LHA	Livelihood Activities
LSGD	Local Self Government Department

LSGI	Local Self Government Institutions
MCM	Million Cubic Meters
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Act
MLA LAD	Member of Legislative Assembly Local Area Development scheme
MLO	Mico Level Organisation
MPLAD	Member of Parliament Local Area Development
MSL	Mean Sea Level
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-Governmental Organization
NRAA	National Rain fed Areas Authority
NRHM	National Rural Health Mission
NRM	Natural Resource Management
OBC	Other Backward Community
PAU	Poverty Alivation 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 Supporting Organisation
UGs	User Groups
WC	Watershed Committee
WCDC	Watershed Cell Cum Data Centre
WDF	Watershed Development Fund
WDT	Watershed Development Team


LOCATION MAP
IWMP - RANNI-B WATERSHED
KERALA
PATHANAMTHITTA DISTRICT
RANNI BLOCK
RANNI-B WATERSHED
76°36'0"E
76°42'0"E
76°48'0"E
76°54'0"E
77°0'0"E
77°6'0"E
N
S
E
W
Thiruvalla
Ranni
Ranni-Perinadu
Vadasserikara
Chittar
Seethathodu
Kozhanchery
Chengannur
MC Road
Pathanamthitta
Pandalam
Adoor
GRAMEENA
VIKASANA KENDRAM


PANCHAYATS MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
RANNI- B CLUSTER WATERSHED
PATHANAMTHITTA DISTRICT
Area: 67.84 sq.km
0 1 2 4
Kilometers
Mandapuzha puthuvel
Mambrakuzhi
Mundanmala
Laha
RANNI PERINAD GP
Perinad
Madathummuzhi
10P52a
Kunamkara
Thondikayam
10P52u
10P52b
Maniyar Estate
Manakkeyam
Kavanal-Ambalam Bhagam
Pambini
Chittar
SEETHATHOD GP
10P52s
Karikkayam
VADASSERIKKARA GP
Thekkekara Mukal
CHITTAR GP
10P52p
Seethakuzhi
Thekkummoodu
Mundanpara
Gurunathan mannu
LEGEND
Watershed Boundary
Place Names
Roads
Thodu
Boundary
River
PATHANAMTHITTA DISTRICT
76°50'0"E
76°52'30"E
76°55'0"E
76°57'30"E
77°0'0"
9°22'30"N
9°20'0"N
9°17'30"N


WATERSHED MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
RANNI- B WATERSHED
PATHANAMTHITTA DISTRICT
Area: 67.84 sq.km
0 0.5 1 2
Kilometers
PATHANAMTHITTA DISTRICT
Mandapuzha puthuvel
Mundanmala
Laha
Perinad
Madathummuzhi
10P52a
Kunamkara
Thondikayam
10P52u
10P52b
Maniyar Estate
Manakkeyam
Kavanal Ambalam Bhagam
Pambini
Chittar
10P52s
Karikkayam
Thekkekara Mukal
10P52p
Seethakuzhi
Thekkummoodu
Mundenpara
Gurunathan mannu
LEGEND
Watershed Boundary
Place Names
Roads
Thodu
Boundary
River
Kavummoola thodu
Madathumoozhi
Mamoodu
Mulamkunnil padi
Seethathodu
76°50'0"E
76°52'30"E
76°55'0"E
76°57'30"E
77°0'0"
9°22'30"N
9°20'0"N
9°17'30"N

Part I

Introduction

The Integrated Watershed Management Programme (IWMP) initiated by the Central Government is a unique watershed development program that targets the food security of the nation by utilizing the unutilized and underutilized waste lands of the country in a sustainable manner. This program is being implemented through Panchayat Raj institutions ensuring people's participation in all the related processes taking right from planning to evaluation and the post project activities as stipulated under various phases of the project.

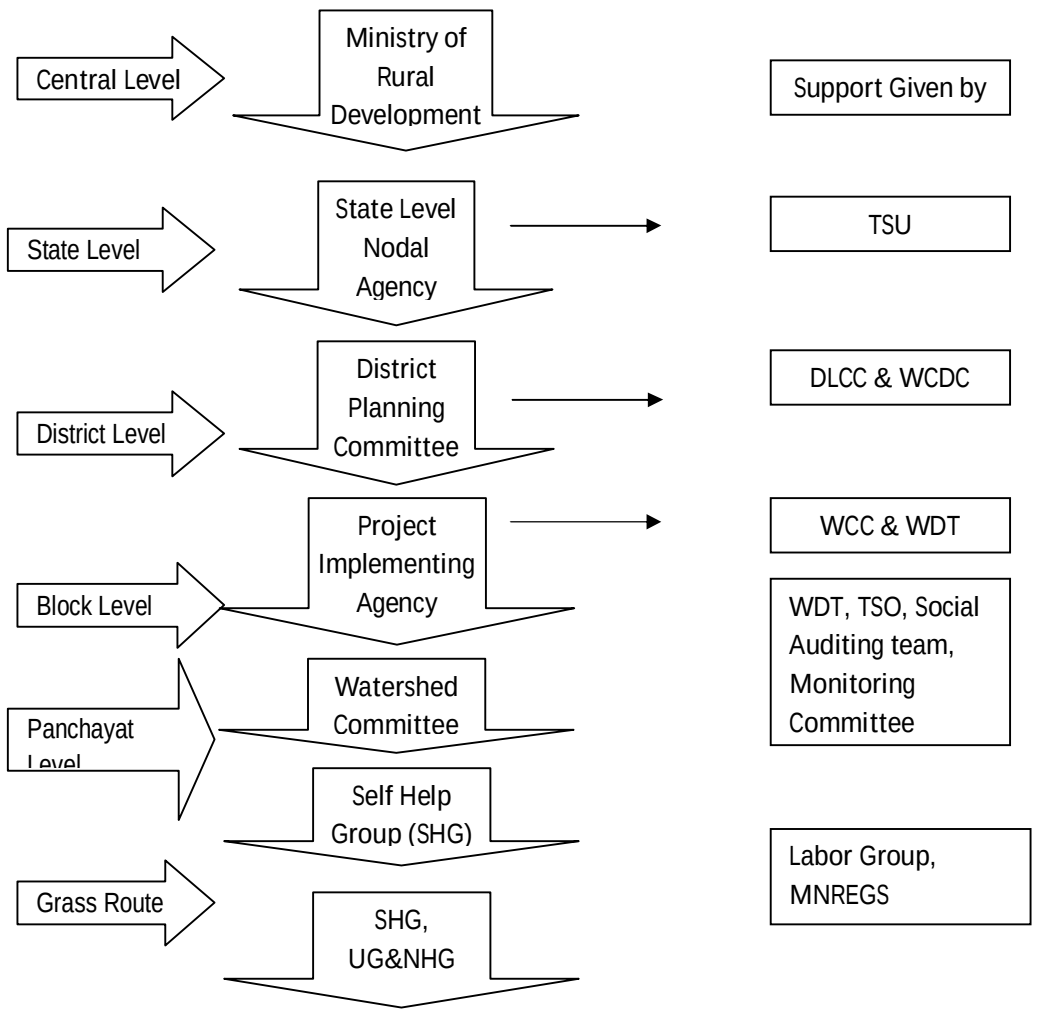
The project area is located in the Ranni Block Panchayat of the Pathanamthitta District. Ranni Block Panchayat forms a part of the Western Ghats which have now been declared as a world heritage site by IUCN. Total area covered under this project is 6884 hectares. Ranni, RajanPara and Sabarimala reserve forests are adjacent to this watershed. This area is hilly and forms a part of the highland ecosystem. It is a region with steep slopes. Physiographically it belongs to the "mid upland and upland" units.

Portions of four Grama Panchayats such as Seethathodu, Chittar, Ranni-Perunnadu and Vadasserikkara are covered under this project. The project area constitutes a cluster of five micro watersheds, namely, SeethaThodu, Mamood, Kavummoola Thodu, Madathummuzhi and MulamKunnilpadi.

I.1 Project Background

State	District	Taluk	Block	Project	Micro Watersheds			Grama Panchayats	Wards included		Total Area	Treatable Area	Project Amount
					Name	Code no.	Area(Ha)		Full	Partial			
Kerala	Pathanamthitta	Ranni	Ranni	IWMP 1/ 2010-11 Ranni B	Seethathodu	10P52p	1224	Seethathodu	9,10,11,12	7,8	6884 ha	6784 ha	814.08 Lakhs
								Chittar		4			
					Mamoodu	10P52b	2134	Seethathodu		13			
								Ranni Perunadu	10	11,12			
					Kavummoola thodu	10P52s	1130	Chittar	1,2,3,12	4,10,13			
					Madathumoozhi	10P52a	1223	Ranni Perunadu	3,4	2,11,12			
					Mulamkunnilpadi	10P52u	1073	RanniPerunadu	13,14,15	1			
								Vadasserikkara		4,5,6,7,8			

I.2. Organisational Set up



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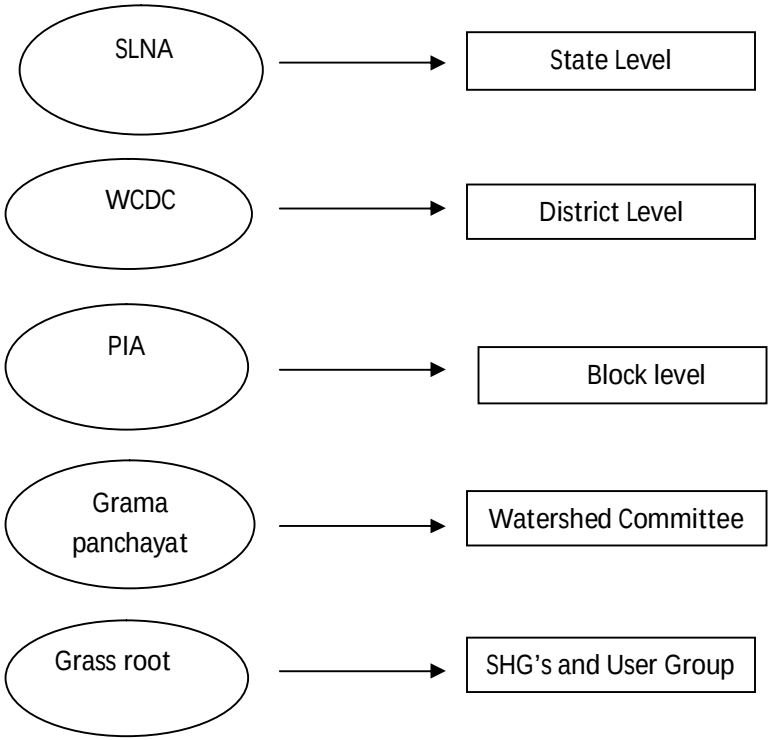
I. 3 Funding Pattern



Administrative exp.	10%
Monitoring	1 %
Evaluation	1 %
Entry Point Activities	4 %
Institution and capacity building	5 %
DPR Preparation	1 %
Watershed development works (NRM)	56 %
Livelihood Activities	9 %
Production System and Micro Enterprises	10 %
Consolidation Phase	3 %
Total	**100 %**

IWMP1- RANNI WATERSHED		
Treatable Area (ha)- 6784		
Total Amount--81,408,000		
		Total Amount
Itoms	***%***	**81,408,000**
Administrative exp.	**10**	8,140,800
Monitoring	**1**	814,080
Evaluation	**1**	814,080
Entry Point Activities	**4**	3,256,320
Institution and capacity building	**5**	4,070,400
DPR Prepration	**1**	814,080
Watershed development works(NRM)	**56**	45,588,480
Livelihood Activities	**9**	7,326,720
Production System and Micro	**10**	8,140,800
Consolidation Phase	**3**	2,442,240
	100	***81,408,000***

Part II
General description of the Project area

II.1. Brief history

The watersheds cluster named Ranni – B is located between elevations of 60 to 650 m from msl. The entire area has an undulating topography featured with hills and deep valleys. Evidently, the area had been once part of forest. Later settlers from elsewhere came and established in the area and began cultivating. Construction activities were undertaken in the area in a massive scale, particularly for the purpose of residence and transport. Gradually the locality lost its environmental glory and civil interferences began dominating.

II.2. Profile of the area

II.2.1. Location

State	District	Taluk	Block	Panchayats	Revenue Village
Kerala	Pathanamthitta	Ranni	Ranni	Vadasserikkara, Ranni, Perunadu, Chittar, Seethathodu	Vadasserikkara, Ranni-Perunadu, Chittar, Seethathodu

Boundaries of the Watershed

North	From river Pampa to Mundanmala, Manthapuzha, Puthuval, Laha, Vilakkuvanchi, Urumbini-Southern slope
South	Vadasserikkara Petrol Pump to Pezhumpara, Maniyar, Karikkyam upto Thekkekkara and 86 Junction, Thekkinmoodu Narakathinkkuzhi upto Kunnam.
East	Seethathodu Power house to Gurunathan mannu boundary, Kakkattaru river to Kavumoola thodu, Chittar Vayyattupuzha road
West	River Pamba

II.2.2. Geographical Coordinates

Latitude	$9^0$17'12" N - $9^0$22'58" N
Longitude	$76^0$49'52" E - $77^0$0'45" E

II.3. Criteria for Selection

Sl. No.	Criteria	Maximum score	Ranges & scores			
i	Poverty index % of poor to population)	10	Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20 % (2.5)
ii	% of SC/ ST population	10	More than 40 % (10)	20 to 40 % (5)	Less than 20 % (3)	
iii	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
iv	% of small and marginal farmers	10	More than 80 % (10)	50 to 80 % (5)	Less than 50 % (3)	
v	Ground water status	5	Over exploited (5)	Critical (3)	Sub critical (2)	Safe (0)
vi	Moisture index/ DPAP/ DDP Block	15	-66.7& below(15) DDP Block	-33.3 to -66.6(10) DPAP Block	0 to -33.2 (0) Non DPAP/ DDP Block	
vii	Area under rain-fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80% (5)	Above 70 % (Reject)
viii	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered (0)
ix	Degraded land	15	High – above 20 % (15)	Medium – 10 to 20 % (10)	Low- less than 10 % of TGA (5)	

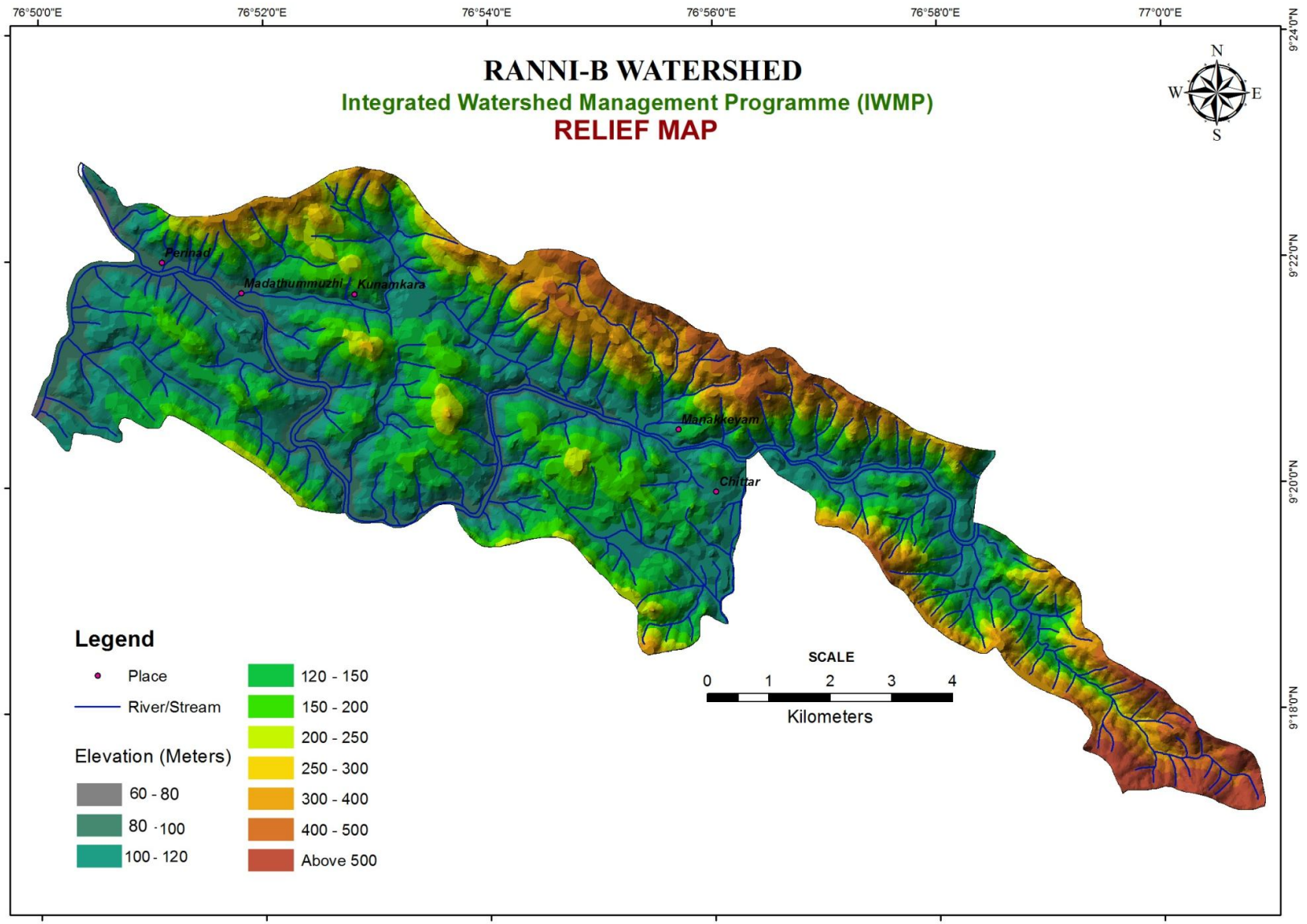
x	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	
xi	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)	
xii	Cluster approach in the plains (more than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro watersheds in cluster (10)	2 to 4 micro watersheds in cluster (5)	
xiii	Cluster approach in the hills (more than one contiguous micro-watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)	
	Total	**150**	**150**	**90**	**41**	**2.5**

Weightage

District	Name of the project	No. of micro-w/s	Project Area (ha)	Type of project	Proposed cost (Rs in lakh)	Weightage under the criteria													
						1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Pathanamthitta	IWMP1/ 2010-11	5	6784	Plains	814.08	7.5	3	0	5	0	0	15	7.5	15	15	5	10	10	93

II.4. Physiography, Relief and Drainage

Physiographically the project area forms part of both the midland and highland units. The highest point in the project area is at an elevation of 650 m and the lowest point is at an elevation of 80 m from msl. The highest point is the Gurunathan Mannu. This hilly watershed is adjacent to the forest area and wildlife habitats. The relief is normal to excessive in the project area. The western boundary of the project area is the river Pamba. The rivulets and all small streams flow to the Kakkattar and then it flows through Madathumuzhy watershed and joins river Pamba at Poovathumudu. Large Rubber Plantations such as Harrisons Malayalam LTD. and Kavanal Estate forms a part of the project area. Slope of the area is generally oriented towards the West direction is east-west.


RANNI-B WATERSHED
Integrated Watershed Management Programme (IWMP)
RELIEF MAP
76°50'0"E
76°52'0"E
76°54'0"E
76°56'0"E
76°58'0"E
77°0'0"E
9°24'0"N
9°22'0"N
9°20'0"N
9°18'0"N
N
W
E
S
Perinad
Madathummuzhi
Kunamkara
Manakkeyam
Chittar
Legend
Place
River/Stream
Elevation (Meters)
60 - 80
80 - 100
100 - 120
120 - 150
150 - 200
200 - 250
250 - 300
300 - 400
400 - 500
Above 500
SCALE
0 1 2 3 4
Kilometers

II.4.2. Water Sources

There are two rivers associated with this area. One is River Pamba and the other is River Kakkattar. River Kakkattar; drains all the five watersheds Pamba at Puvathummoodu. Statistics on the number of major water sources is furnished in the table below.

Watershed	Streamlets	Ponds
Kavummoola thodu	22	3
Mulamkunnilpadi	25	2
Madathumoozhi	29	3
Mamoodu	18	3
Seethathodu	47	2
Total	141	13

(Source: Drainage survey-TSO)

Apart from this, a vast number of small drainage lines from the area directly drains into the river Kakkattar.

II.5. Climate

The area enjoys the tropical highland climate and the rainfall varies across the months. There was an acute decline in rainfall in the year 2009 which recorded the lowest rain fall of the decade in the area. Currently, a slight and steady increase in the Temperature of the area is noticed. Seethathodu, Chittar, Ranni-Perunadu and Vadasserikkara are the highest rainfall areas in the Project area. Run off, landslides, deforestation, excessive extraction of ground water etc are the major reasons causing prolonged water scarcity in the area during the off monsoon seasons. March to May marks the hot season here. The area is blessed with two monsoons viz.the South-West Monsoon (June- September) and the North –East Monsoon (October-December). The areas receive some off season rains also.

During the hot seasons, the temperature may shoot up very high. The average annual rainfall of the locality during the decade 2000 – 2009 was 2995 mm and the annual average mean temperature for the period was 29^{o} C.

Weather Data (2000-2009)
Rain fall Data

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan	0	1.73	86	0	49.7	23.2	9	0	0	5.8
Feb	0	66.9	45.6	116	0	49	0.4	37.4	132.3	20
Mar	0	66	102.5	297	94.6	89.6	231	71.2	175.6	134
Apr	0	375	239.4	171	209.8	382.9	127.2	332.6	351.4	158
May	0	145.6	277.2	147.5	393.8	142.1	480.5	286	54.4	146
Jun	568.8	604.1	360.2	431	522.1	546.6	258.2	396.6	271.6	329.3
Jul	192.1	612.1	408.8	329.3	32.4	771.8	441.4	570.2	619.8	381.7
Aug	726.1	334.4	29.6	360	363.5	169	257.8	197.8	191.4	253.6
Sep	394.45	258.4	124.8	12.4	358	462.1	339.7	453.2	162.1	286.9
Oct	314.8	430.4	545.7	569.8	374.9	403.1	487.1	323.3	249	261
Nov	163	477.8	280.4	47.8	96	320.2	320.2	136.9	164.5	146.6
Dec	22	0	7	19.4	5.1	86.6	1.2	14.4	10	86.6
Total (Annual)	2381.25	3372.43	2507.2	2501.2	2499.9	3446.2	2953.7	2819.6	2382.1	2209.5
Max. (Annual)	726.1	612.1	545.7	569.8	522.1	771.8	487.1	570.2	619.8	381.7

Source : Carborandum, Hydro Electric Project, Maniyar

Temperature

Month	Time	2005		2006		2007		2008		2009		2010	
		Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Jan	7 am	19	30	30	32	29	31	22	25	18	22	23	24
	4 pm	32	34	34	36	34	35	30	34	30	32	30	32
Feb	7 am	28	31	30	33	29	31	21	24	20	23	23	25
	4 pm	33	36	34	36	34	35	30	34	31	34	31	33

Mar	7 am	29	32	30	32	29	31	23	25	23	25	24	25
	4 pm	32	36	34	36	33	35	31	33	25	36	32	37
Apr	7 am	28	31	30	32	29	31	23	24	23	26	25	26
	4 pm	32	34	34	36	32	35	30	33	30	35	30	37
May	7 am	28	30	30	32	29	31	24	24	25	26	24	25
	4 pm	32	35	34	36	33	35	32	33	29	35	30	33
Jun	7 am	29	31	28	32	28	31	24	28	25	26	24	25
	4 pm	32	35	33	25	33	35	30	32	30	33	30	32
Jul	7 am	28	31	29	31	25	31	24	25	24	26	24	25
	4 pm	32	34	33	36	29	34	30	32	29	32	29	33
Aug	7 am	28	31	30	32	28	31	24	25	24	25	24	25
	4 pm	32	36	34	36	30	34	30	32	30	33	30	33
Sep	7 am	28	31	28	31	28	30	23	24	24	25	24	25
	4 pm	33	36	32	35	31	34	30	32	30	32	30	32
Oct	7 am	28	30	29	31	28	30	24	25	24	25	24	29
	4 pm	32	35	32	34	32	34	30	32	30	33	28	32
Nov	7 am	30	31	29	31	29	30	24	25	24	25	24	25
	4 pm	32	36	32	35	32	34	30	32	30	32	29	32
Dec	7 am	28	32	30	32	23	30	18	24	24	25	0	0
	4 pm	34	36	34	35	28	34	30	32	30	32	0	0

II.6. Geology

The main rock type exposed in Ranni is of charnockite group. Charnockite group shows great diversity in lithology comprising pyroxene granulite, hornblende pyroxenite, charnockite and hypersthenes diopside gneisses. These are manly Archean group of rocks. The main source of building material in Pathanamthitta district and adjacent districts is from crushers and quarries located in this Taluk.

II.7. Ground water

Pathanamthitta District receives normally 2500-3000 mm rain in a year. This rain fall forms the most important source of ground water recharge. Recharging takes place through seepage from irrigation canals also. Other sources of recharge include surface water bodies. Since this area belongs to the physiographic unit of highlands, runoff is very high. There had been no serious efforts in the past to direct water to aquifers to augment ground water. Though the area receives enough precipitation, the sloppy terrain drains water quite easily and in large volumes. Severe neglect in conserving rain water and in augmenting sustainable recharging has resulted in rapid depletion of the ground water stock of the area. As such, many of the Ponds, streams and open wells in the areas get dried up during off monsoon periods.

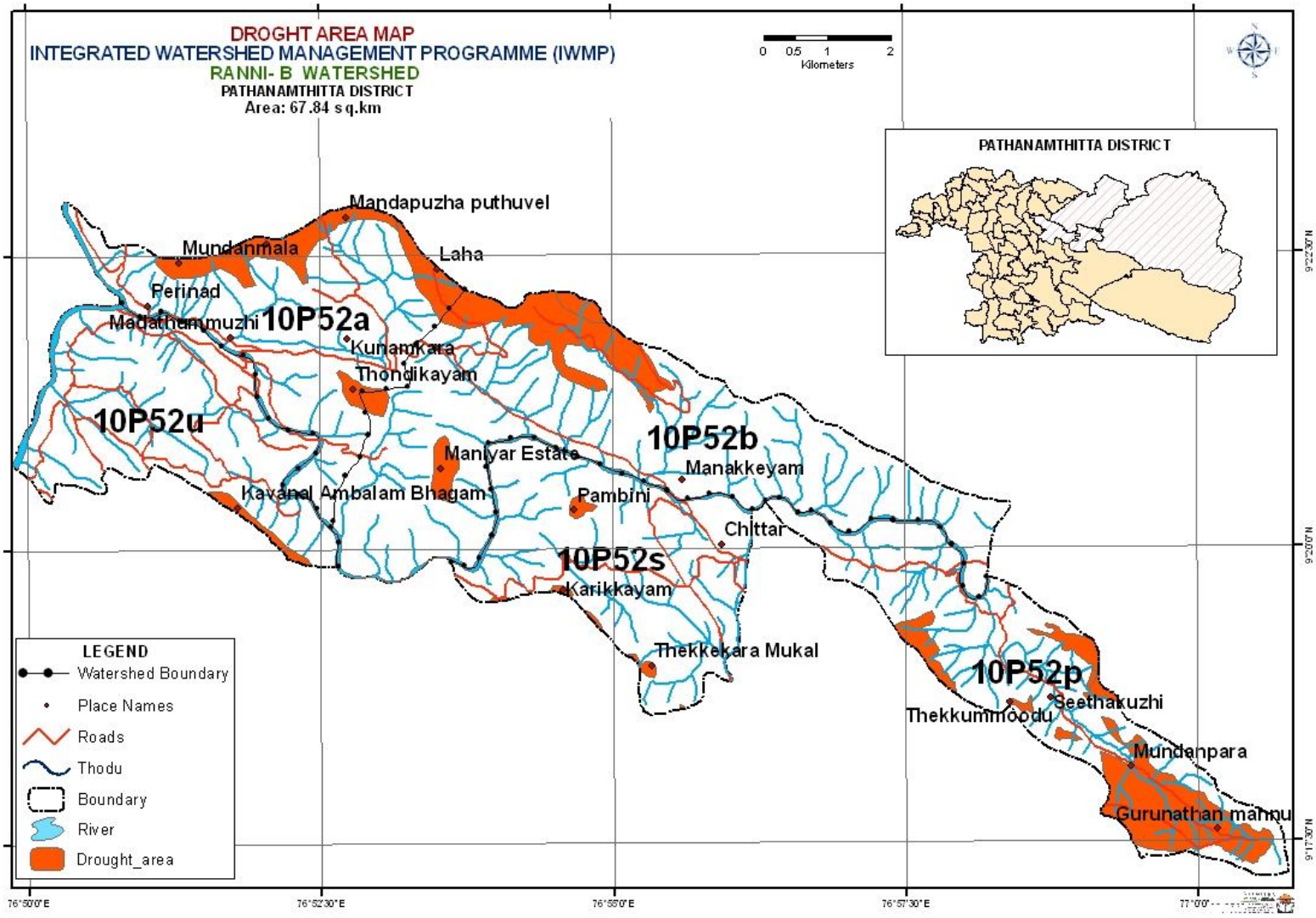
Location	**Depth to water level range in meter below ground level(mbgl}**			
	April		November	
	Minimum	Maximum	Minimum	Maximum
Ranni Block	1.55	9.85	0.65	9.54

(Source: Ground Water Information booklet of Pathanamthitta, dist., Central Ground Water Board)

Stage of Ground Water Development in Ranni Block	
Net Ground Water available in (Million cubic Meter)	64.01
Total gross draft (Million cubic Meter)	12.22
Stage of Ground Water Development	19.09
Categorization of Block	Safe
Net Annual Ground Water availability	64.01
Existing gross Ground Water Draft for all uses	12.22
Allocation for domestic and industrial requirement supply up to next 25 years	7.56
Net Ground Water availability for future Irrigation development	50.60
No of Wells analyzed	12

(Source: Ground Water Information booklet of Pathanamthitta, dist., Central Ground Water Board)

Drought Areas : Kunnam, Gurunadhan mannu, Laha, Bheema ram Colony, Seethathodu, Manakkayam, Maniyar, Thondikkayam


DROGHT AREA MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
RANNI- B WATERSHED
PATHANAMTHITTA DISTRICT
Area: 67.84 sq.km
0 0.5 1 2
Kilometers
PATHANAMTHITTA DISTRICT
Mandapuzha puthuvel
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10P52a
Kunamkara
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10P52u
10P52b
Manalyar Estate
Manakkeyam
Kavanal Ambalam Bhagam
Pambini
Chittar
10P52s
Karikkayam
Thekkekara Mukal
10P52p
Seethakuzhi
Thekkummoodu
Mundenpara
Gurunathan mannu
LEGEND
Watershed Boundary
Place Names
Roads
Thodu
Boundary
River
Drought_area
76°50'0"E
76°52'30"E
76°55'0"E
76°57'30"E
77°0'0"E

II.8. Drinking Water and Irrigation

Though the region experiences high water scarcity, so far no major schemes have been implemented in this region either to improve the drinking water availability or to augment the irrigation facilities. The existing small scale drinking water projects are Idappra drinking water project which plans to serve drinking water to the families of Mamoodu, Mulakunnilpadi and Madathumoozhy. Kambakathupara drinking water project of the Kerala Water Authority plans to bring water to the inhabitants of the Kavummoola thodu watershed. There is also a project initiated by Jilla Panchayat and the Ranni-Perunad Grama Panchayat to provide drinking water in some areas of the Mulamkunnilpadi watershed. Another project that got started is Perunad drinking water project. But the people mostly depend on the open wells for drinking water needs.

Existing area under Irrigation

Name of watershed	Source								
	Open well		Tube well		Ponds		Streamlets (Thodu)		Total area
	Nos	Area irrigated(ha)	Nos	Area irrigated(ha)	Nos	Area irrigated(ha)	Nos	Area irrigated(ha)	
Seethathodu	1423	284	205	82	6	6	47	94	466
Mamoodu	479	95	38	15	1	1	18	36	147
Kavummoola thodu	1239	247	116	45	2	2	22	44	338
Madathumoozhi	458	183	135	52	2	2	29	58	295
Mulamkunnilpadi	726	290	129	51	2	2	23	46	359

(Source: base line survey TSO)

Existing water supply schemes

Name of Water Supply Scheme	Owner ship	Watersheds
Idapra	K.W.A	Mamoodu, Mulamkunnilpadi
Kambakathupara, Chempol Pipe line	K.W.A	Mulamkunnilpadi
Thengin thoppu	K.W.A, Ranni -Perunadu Grama Panchayat	Mulamkunnilpadi
Perunadu	K.W.A	Madathumoozhi

II.9. Socio Economic Details

The watershed community is constituted by small and marginal farmers and plantation workers. The major occupation of the people is rubber cultivation and related works. The SC/ST communities are mainly working as agricultural workers in plantations. In general, the community is economically backward. 54 % of the people are under BPL category. The new generation is trying to acquire good education and is trying to get jobs in the government sector as well as abroad.

Population

A total of 7959 families inhabit in this watershed. Among this 11% are Schedules caste and 3.5 % are scheduled tribes.

Demographic Profile of the Watershed

Family	Family			Population				
	Total General	Total SC	Total ST	Total	General	SC	ST	BPL
7959	6793	867	299	28272	24080	3190	1002	4276

(Source: Baseline survey-TSO)

Employment and Income

The main occupation of the area providing employment to the community is agriculture. Yearly average employment days available for Plantation workers are around 200 and that for other agricultural workers are 150 days. Govt. employees, NRI dependant families are only in negligible numbers. Nearly 40% of the income is used for education and health needs. Those who live in colonies face poverty in the lean period such as monsoon. During monsoon labour opportunities decrease drastically. Shortage of raw materials such a reed and bamboo has resulted in the reduced opportunities in many of the traditional employment sectors such as weaving baskets, sieves, etc. Though programmes such as MGNREGS, Kudumbasree are able to improve the status of women, increasing debts is one major concern among poor and the marginalized people. Also, people are not utilizing the labour opportunities emerging in the construction sector, which are fully utilized by the employees from other states.

Work force in the Project area

Govt	Agri	Coolie	Abroad	Private	NREGA
932	2738	2671	1171	1058	818

(Source: Baseline survey-TSO)

Micro level Organisations and wage rates in the Watershed

MLOS			Wages Rate (Average/Day)			
BPL Family	No of SHGs	No of User Group	Unskilled	Skilled	Rubber Tapping	MGNREGS
4278	174	0	296	427	394	180

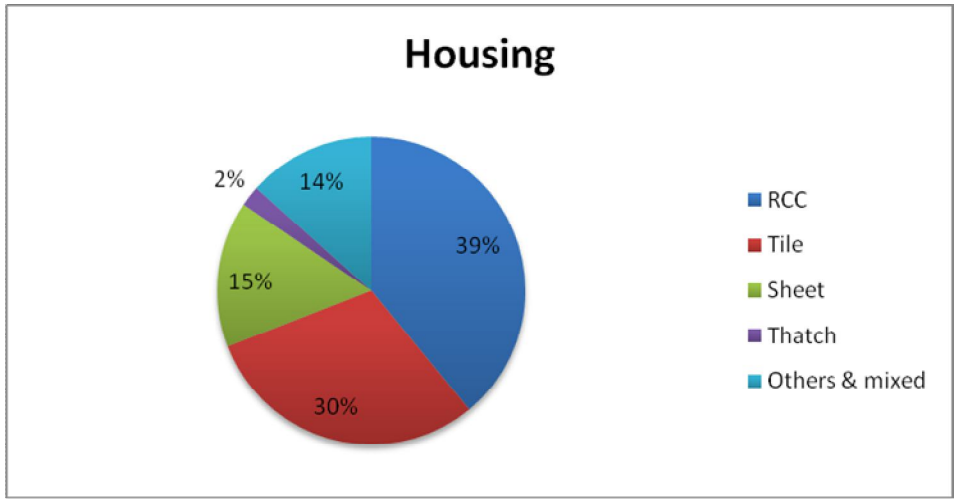
Housing

15 % of the watershed communities do not have proper houses. Most of the houses are of concrete or tiled roofs. Integration of schemes such as MGNREGS, IAY and other housing scheme should be interlinked to provide houses to all.

Housing pattern of the families

RCC	Tile	Sheet	Thatch	Others & mixed
3015	2323	1184	166	1036

(Source: Baseline survey-TSO)



Electricity

Electricity has reached most of the places of the watersheds. But still 4% of the population is yet to be provided with electricity. This area falls in the electoral constituency which has been declared as a completely electrified one.

Electrified houses

Total Electrified houses	Non electrified houses	Total
7638	321	7959

(Source: Baseline survey-TSO)

Cooking fuel

52% of the inhabitants are depending on firewood for cooking purpose. 38% of houdeholds use both Firewood and LPG. Biogas is used only by 2%. Increasing cost of LPG and the scarcity for fire wood together seem to cause a crisis in the sector. Though 22% of households rear cattle, only 2% have installed biogas systems. As such, there exists great potential for utilizing the biogas technology for fuel needs.

Cooking fuel sources

Wood	L.P.G	L.P.G + Wood	Biogas + Wood	Electrified + L.P.G + Wood
4129	872	2131	159	668

(Source: Baseline survey-TSO)

Educational Status.

Educational institutions				Educational Status				
Gov-Primary Schools	Gov-High Schools	Private School	Anganavadi	UP Level	H.S. Level	HSS Level	U.G Level	P.G Level
8	5	4	31	7327	7893	5790	1223	251

(Source: Baseline survey-TSO)

Health

There are no super specialty health care facilities in the project area. There are 5 government health centers and 9 private clinics in the locality. PHC, NRHM and Pain & Palliative clinics are functioning under the Grama Panchayats. For serious illness and for critical treatment people have to depend nearby medical colleges or Private hospitals. Only a few people of the area have so far been benefitted under the health insurance scheme.

Healthcare facilities in the watershed

Government Hospitals	Private Hospitals
5	9

(Source: Baseline survey-TSO)

Transport

Nearly 70% of the roads are motorable. Major roads are Pathanamthitta-Sabarimala, Vadasserikkara-Chittar –Seethathodu and Puthukkada. KSRTC and the private buses are the main means of transportation. Pathanamthitta-Pamba-Sabarimala road passes through Mulamkunnilpadi and Madathumuzhy micro watersheds.Vadasserikkara-chittar, Seethathodu, Angamuzhi road pasess through Mulakunnilpadi, Kavummoolathodu, Mamoodu and Seethathodu micro watershed. Puthukkada-chittar road passes through Mamoodu micro watershed. But people depend upon conveyance like auto-rickshaws and Jeeps also for their day to day needs.

Credit facility in the project area

Sl.no	Watershed Code no.	Bank & Financial institutions	Location
1	10P52p	The Federal Bank	Seethathodu
2		State Bank of Travancore	
3		The Pathanamthitta District Service Co operative Bank (Branch)	
4		Seethathodu Service co operative Bank (Ltd.)	
5	10P52s	State Bank of Travancore	Chittar
6		The Federal Bank	
7		South Malabar Grameena Bank	
8		The Pathanamthitta District Service Co operative Bank (Branch)	

9		Vyattupuzha Service co operative Bank (Ltd.)	
10	10P52a	Central Bank of India	Madathummoozhi
11		R-Perunadu Service Co operative Bank	
12		Kerala State Financial Enterprises	
13		Sub Treasury	
14	10P52u	R-Perunadu Service Co operative Bank	Madamon

Marketing Facility

Sl No	Public Market
1	Seethathodu
2	Chittar
3	Vadasserikkara
4	Ranni-Perunadu

Milk Marketing Co-Operative Society in the Project Area

SL No	Watershed	Location
1	Seethathodu	Seethathodu
2	Kavummoola Thodu	Chittar
3	Madathumoozhi	Madathumoozhi
4	Mulamkunnilppadi	Madamon

Major Assets

Sl.no	Assets	Numbers	Sl.no	Assets	Numbers
1	Anganavadi	31	14	Panchayat Office	3
2	Private School	8	15	K.S.E.B Office	3
3	High School	5	16	Village Office	2
4	Gov-Hospital	5	17	B.S.N.L Office	1
5	Private Hospital	9	18	Police Station	1
6	Veterinary Hospital	3	19	P.W.D Office	1
7	Agricultural Office	2	20	Rubber Produce Factory	3
8	Post Office	5	21	Forest Office	2
9	Bank &Financial institutions	14	22	Power House	2
10	Market	4	23	Private Hydal Electrical Project	3
11	Dairy Society	4	24	Dam	1
12	Library	7	25	Bus Stand	2
13	Ration Depot	9	26	Fire Station	1

(Source: Baseline survey-TSO)

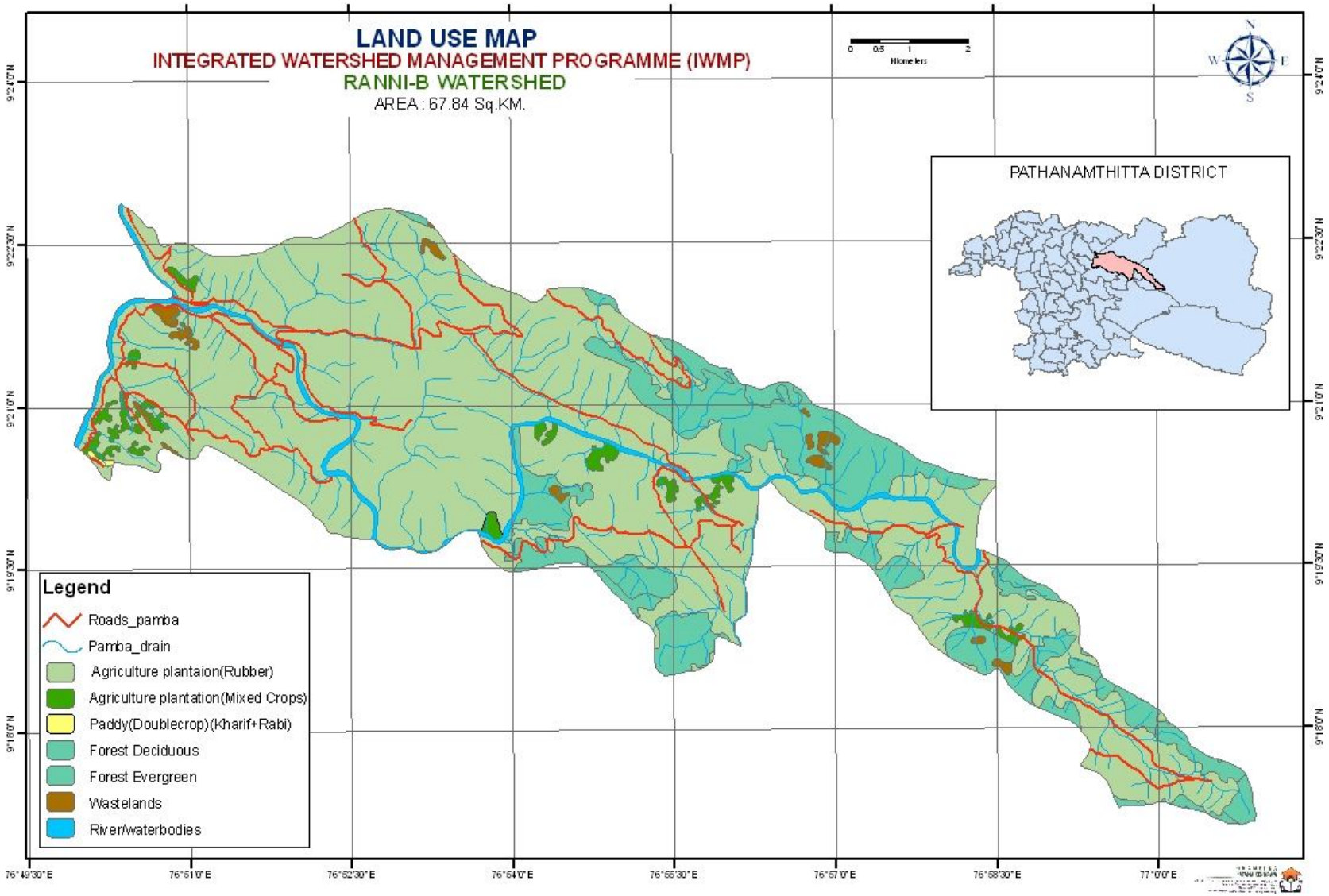
II.10 Agriculture and Land Use

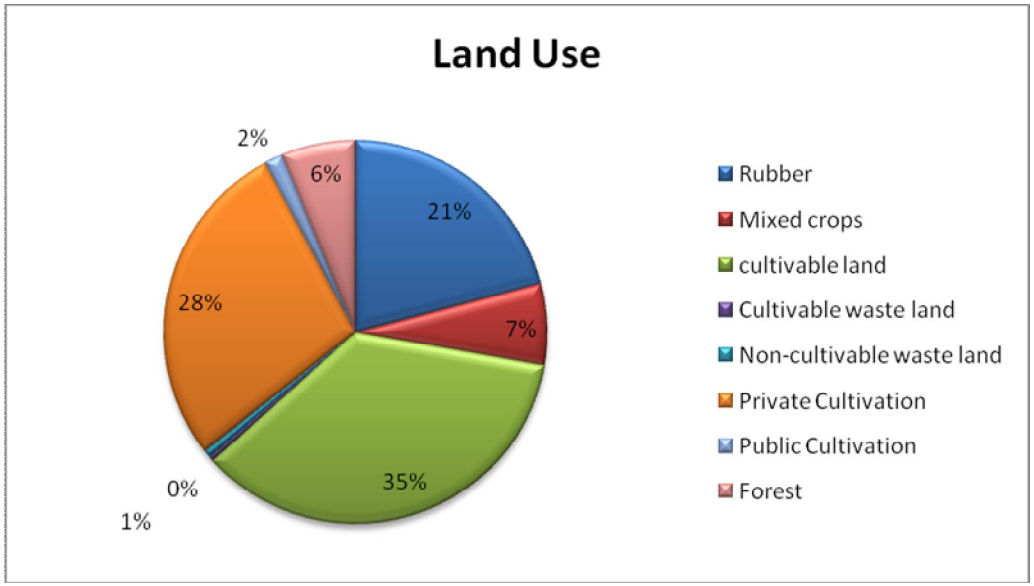
Ranni-B area belongs to an agricultural tract. People mainly used to cultivate food crops such as rice, tapioca, tubers, banana and spices such as pepper, ginger and turmeric in the area. Favorable climate, continuous supply of water, fertile soil etc had motivated farmers in a great manner during the earlier times. But, during the current decade, drastic changes have occurred in the general cropping pattern of the area. People have moved to rubber due to the remunerative advantages of the crop. Presently rubber is the main crop in the area. People have started growing certain sps like Rumbuttan on a small scale basis. Some of the rubber growers follow a practice of leasing out land under re-plantation of rubber for pine apple cultivation. Excessive use of agro chemicals paves the way for the degradation of biodiversity and also for the deterioration of the soil. Rubber is cultivated in 75% of the total area.

Area under Agriculture & General Land Use of Watershed

	Crops (ha)		Land Use(ha)		
Total Area	**Mixed crops**	**Rubber**	**Cultivable waste land**	**Non-cultivable waste land**	**Forest**
6884	**1435**	4043	77	128	1201

(Source: Baseline survey-TSO)


LAND USE MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
RANNI-B WATERSHED
AREA : 67.84 Sq.KM.
PATHANAMTHITTA DISTRICT
Legend
Roads_pamba
Pamba_drain
Agriculture plantaion(Rubber)
Agriculture plantation(Mixed Crops)
Paddy(Doublecrop)(Kharif+Rabi)
Forest Deciduous
Forest Evergreen
Wastelands
River/waterbodies
9°24'0"N
9°22'30"N
9°21'0"N
9°19'30"N
9°18'0"N
76°49'30"E
76°51'0"E
76°52'30"E
76°54'0"E
76°55'30"E
76°57'0"E
76°58'30"E
77°0'0"E



Land holding size

Number of Large Farmers	Number of Small Farmers	Number of Marginal Farmers	Number of Landless
56	2477	5155	271
197 ha	2947 ha	2233 ha	-

II.11. Details of Waste Land in the area

Nature of Land	Area (Ha)	Problems	Suggestions
Cultivable	77	Water scarcity and drought, Neglect of resources, poor productivity of soil, loss of soil moisture, lack of availability of labours etc.	Reclamation of land for practicing food crops in the area, Effective utilization of organic wastes, Promotion of micro enterprises, Distribution of seedlings of high yielding varieties, Promotion of intercrops etc.
Uncultivable waste land	128	Highly degraded and sloppy land	Adoption of suitable conservation measures to make the area useful and productive.

Sl No	Name of Watershed	Extent of cultivable waste land	Target fixed for each year							
		Cultivable	1st year		2nd year		3rd year		4th year	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Seethathodu	9	2ha	21,000	3ha	31,500	2.5ha	26,250	1.5ha	15,750
2	Mamoodu	27	4ha	42,000	10ha	105,000	7ha	73,500	6ha	63,000
3	Kavummoola thodu	11	1.5ha	15,750	4ha	42,000	3ha	31,500	2.5ha	26,250
4	Madathumoozhi	14	2ha	21,000	4ha	42,000	4ha	42,000	4ha	42,000
5	Mulamkunnilpadi	16	4ha	42,000	6ha	63,000	3ha	22,500	3ha	22,500

II.12 Livestock and Fisheries

Cattle rearing had been one of the main activities of the farm community of the area since the arrival of settlers till the recent past. Livestock remained a significant livelihood for many of the households. Cost of inputs and services increased gradually with the introduction of hybrid animals. As a result, many farmers began giving up cattle rearing as a livelihood option. If need based technical as well as financial support and provision for maintaining infrastructure at affordable costs are ensured, livestock management can prosper in the project area.

Fisheries find a little scope for development in the locality as the region is hilly. At the same time, the unused ponds and some water bodies formed as a result of granite quarrying at Manakkayam area of the Mamood micro watershed can be considered for pisiculture.

Livestock Status

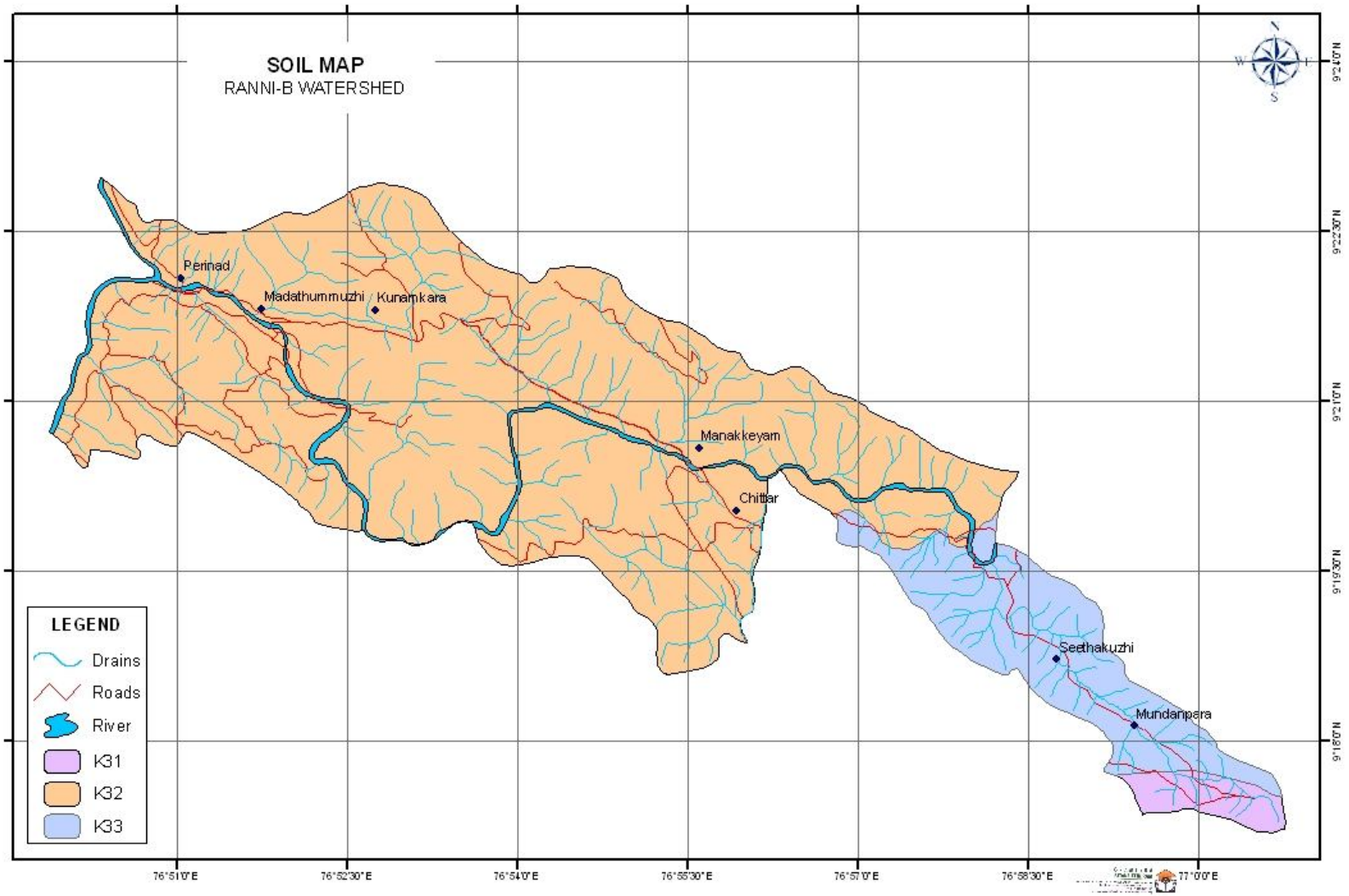
Cow	Rabbit	Goat	Cock	Duck	Buffalo	Others
1825	921	2224	6123	18	38	255

(Source: Baseline survey-TSO)

II.13 Soil

Black colored, well drained clayey soils are found in most places of the micro watersheds. The top layer is highly fertile and prone to erosion due to the slope factor. In moderate sloping areas, gravelly loam with moderate erosion is found. Erosion is a major concern in the watersheds.

Soil Mapping Unit No.l	Description Major Soils	Classification	
		Major soils	Inclusions
K31	Very deep, well drained, gravelly loam soils on steeply slopping medium hills with thick vegetation, with moderate erosion associated with very deep, well drained, clayey soils on moderate slopes.	Fine - loamy, mixed, Ustic Humitropepts Clayey, mixed, Ustic Palehumults	Rock land Clayey, mixed, Ustic Haplohumults
K32	Deep, Well drained, loamy soils on gently sloping low hills with isolated hillocks, with moderate erosion; associated with deep, well drained, loamy soils with coherent material at 100 to15) cm on moderate slopes, severely eroded.	Fine-loamy, mixed, Ustic Humitropepts Fine-loamy, mixed, Ustic Haplohumults	Fine, mixed, Ustic Humitropepts Clayey-skeletal, Mixed, Ustic Humitropepts
K33	Deep, well drained, gravelly clay soils on moderately sloping medium hills with thin vegetation, with severe erosion; associated with rock outcrop	Fine, kaolinitic, Oxic Humitropepts Rock land	Fine-loamy, mixed, Ustic Palehumults


SOIL MAP
RANNI-B WATERSHED
Perinad
Madathummuzhi
Kunamkara
Manakkeyam
Chittar
Seethakuzhi
Mundanpara
LEGEND
Drains
Roads
River
K31
K32
K33
76°51'0"E
76°52'30"E
76°54'0"E
76°55'30"E
76°57'0"E
76°58'30"E
77°0'0"E
9°21'0"N
9°19'30"N
9°18'0"N
N
S
E
W

(Source: KSLUB)

II. 14 Major problems of the watershed

Agriculture

- Diminishing agricultural production
- Spreading of Rubber plantations
- Water scarcity
- Lack of marketing facilities
- Instability in prices of agriculture produces
- Lack of processing and product diversification
- Shortage farm Labour
- High incidences of pest and diseases
- Crop damage by wild animals
- Fragmentation of land

Animal husbandry and livestock

- Elimination of local breeds of cattle
- Increase in cost of management
- Lack of convenient credit facilities

Soil and water conservation

- Soil erosion and soil moisture stress
- Lack of protection to streams and ponds

- Degradation of biomass and biodiversity
- Uncontrolled mining

Environment

- Pollution Higher level of coli form bacteria in the river Pamba
- Uncontrolled extraction of sand from rivers
- Lack of scientific waste Indiscriminate application of agrochemicals in the catchment
- Emission from rock sand units

II.15. Capacity Building

One of the main objectives of this project under IWMP is to Capacitate the watershed communities to take up this project in a participatory mode to bring in holistic development in the area. Hence, necessary trainings in the various subjects related to watershed management viz; the concept of watershed, the objectives of IWMP, the management of assets, monitoring and evaluation, the empowerment of SHGS, micro enterprises etc. need to be imparted to SHGS, UGS, watershed community, elected representatives of the people and other stake holders belonging to each watershed The yearly budget allocation related to each Micro Watershed is given below:

Training Programme

Sl No	Subject Title	Target Group	Budget (in Lakhs)				
			I st Year	II nd Year	III rd Year	IV th Year	Total
1	Awareness Programme of IWMP	Watershed community and Watershed Committee	1.25	1.5	1.5	.75	5.00
2	Awareness Programme of PSM	SHGs, UGs and Beneficiaries	1.25	1.5	1.5	.75	5.00
3	Concept of Watershed Management, Role and Responsibilities	Watershed Committee and Officials	1	1	.5	.5	3.00
4	Empowering Peoples, Representative and Strengthen of PRIs, Gender development, convergence with IWMP etc.	District , Block, Grama Panchayat Members	.5	.5	.5	.5	2.00
5	Concept of Watershed Management, Roles and Responsibilities and Sustainable Development	Implementing Officers, other officials and stake holders	1	.5	.5	0	2.00
6	Awareness Programme of Livelihood Activities , Better Management, Accounting Method etc.	User Group, SHGs, Watershed Committees	1	1	1.5	.5	4.00
7	Management of Revolving Fund , Accounting, Financial Discipline etc.	SHGs	1	1	.5	.5	3.00
8	Exposure Visit, Organic Farming and Marketing etc	SHGs, Watershed Committees, UGs	1	1	.5	.5	3.00
9	Promotion of Micro Enterprises and Value Addition Units	UGs and SHGs	.5	.75	.5	.25	2.00
10	Animal Husbandry and Better Management of Livestock Camps	SHGs , UGs and Beneficiaries	.5	.75	.5	.25	2.00
Total			**9**	**9.5**	**8**	**4.5**	**31.00**

Training Target Details

Sl no of subject title.	I st Year		II nd Year		III rd Year		IV th Year		Total	
	No of training	No of participants	No of training	No of participants	No of training	No of participants	No of training	No of participants	No of training	No of participants
1	5	500	6	600	6	600	5	300	22	2000
2	10	500	10	600	10	600	5	300	35	2000
3	5	250	5	250	3	125	3	125	16	750
4	3	120	3	120	3	120	3	120	12	480
5	5	250	3	120	3	120	0	0	11	490
6	6	330	6	330	10	500	5	170	27	1330
7	6	330	6	330	5	170	5	170	22	1000
8	1	100	8	400	4	200	4	200	17	900
9	4	200	6	300	4	200	2	100	16	800
10	4	200	6	300	4	200	2	100	16	800

Information Education and Communication (IEC) Plan

Sl No	Programme	Target Group	Budget (Rs. In Lakh)
1	Watershed Awareness Programme through School Children's Slide shows	School Level	2.00
2	Road Shows of watershed	Public	1.704
3	Campaign through Poster Sicker, Banner , Calendar, Slides etc	Community	2.00
4	Hand Books, Brochure	Community	2.00
5	Quiz Programme, Competition and 'Mela'	Students, Young people, Women , Clubs etc	2.00
Total			**9.704**

II.16 Entry point activity

12 different activities related to the protection and development of natural resources has specifically been identified through a participatory process of interaction by using tools such as PRA (participatory rural appraisal), FGD (Focus Group Discussion) etc, for execution at the entry point of the project in the watersheds. These activities are referred to as Entry Point Activities-EPA- through the participatory implementation of which the watershed community might get acquainted with the processes and procedures involved in the implementation of IWMP.

Name of W/S	Name of GP	Ward	Type of work	Work details	Area benefited (Ha)/beneficiaries	Estimate Cost
Mulamkunnilpadi	Vadasserikkara	6	Stream Protection	DR work location at Valumannil padi to Athanamkuzhi plantation road Length (30+30)x2 side=120m	32 ha	2,28000/-
Seethathodu	Seethathodu	8	Stream Protection	DR work location at Seethathodu Bridge(W-N Side) length-57m	22.8ha	214500/-
Seethathodu	Seethathodu	10	Pond Protection	Location at Seethakuzhi colony DR work. In addition in a protection wall 15 m	20 ha	469000/-
Kavummoolathodu	Chittar	2	Side wall protection	Location at panniyoor housing area, DR works	2 ha	185000
Kavummoolathodu	Chittar	12	Rain water harvesting	Ferrocement watertank at chittar market	500 nos	120000

				capacity 25000 litter (Height 3 m)		
Mamoodu	Ranni Perunad	4	Water tank (water protection)	Location at Perunadu Laha road side Capacity 4x3x1m size on the ground	500 nos	172000
Mulamkunnilpadi	Vadasserikkara GP	8	Side wall Construction (Protection work)	Location at Foreign padi, Lottory colony At maniyan. DR Works 15 mtrs x 2sides	6 ha	88000
Mulamkunnilpadi	Vadasserikkara GP	8	Side wall Construction (Protection work)	Location at Foringn Padi Maniyar to Mampara road side road side. DR Work 62.5 Mtr x 2 Side	25 ha	242000
Madathumoozhy	Ranni Perunad	11	Side wall Construction (Protection work)	Location at vayaran maruthi Gurumandhiram Jn at laha-Perunadu road side 45 m +55 +60=160m	64 ha	646000
Madathumoozhy	Ranni Perunad	12	Side wall Construction (Protection work)	(DR) Location at Puthanpurayil padi-onkam road side 45m+28m=73m	29 ha	262490
Mulamkunnilpadi	Ranni Perunad	14	Stream Protection	Aruvattupuzha-Mambrathodu side protection	60 ha	400000
Mulamkunnilpadi	Vadasserikkara	6	Stream protection	Adhambanam kuzhy-Madaman thode side protection	20 ha	250000
Total						**3276990**

II.17 Ongoing parallel Projects in the Area

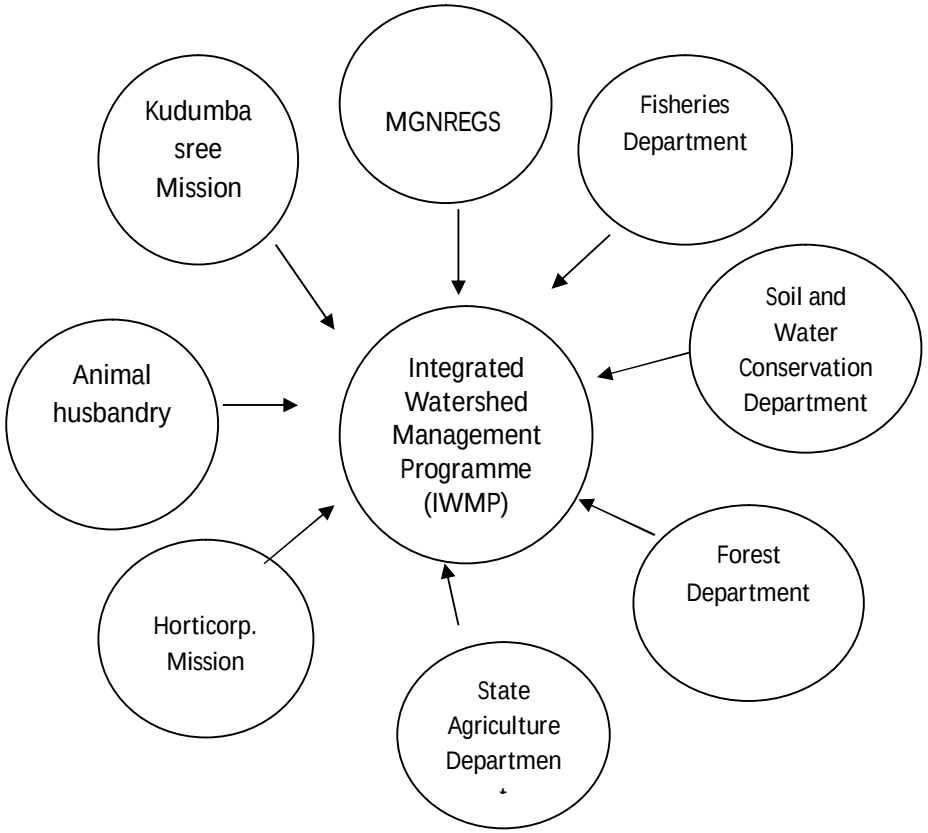
Centrally sponsored MGNREGS is one of the important parallel programmes under implementation in the watershed areas. Though the MGNREGS focuses on providing employment to poor people to support their household income in a regular manner, the programme appropriately recognizes the overriding priority of natural resources conservation in the interest of ensuring sustainability of rural development. Soil and water conservation has become a very important concern of the MGNREGS.

Grama Panchayat wise MGNREGS registration details 2012-13

GP	No. of families				No. of persons				Job card issued			
	SC	ST	Gen	Total	SC	ST	Gen	Total	SC	ST	Gen	Total
Ranni Perunadu	268	191	1794	2253	397	328	2544	3269	268	191	1794	2283
Chittar	307	102	1905	2314	384	167	2550	3101	307	102	1905	2314
Seethathodu	182	17	1977	2176	-	-	-	-	182	17	1977	2176

II.18 Convergence

Since the activities undertaken/carried out under the MGNREGS in general are related to the conservation of natural resources of the concerned areas, they are almost totally in tune with the course of activities under IWMP. This very similarity of the two programmes throw open a wider arena of scope for the convergence of the programmes for more voluminous and sustainable achievements in the areas. The IWMP project of the Ranni B watershed will be implemented by integrating the inputs and services from the MGNREGS. So also, efforts for converging suitable components of similar schemes and projects implemented in the area by agencies like Agriculture department, Soil and Water Conservation department, Animal Husbandry department, Dairy Development Department, Fisheries, Kudumabsree Mission etc with IWMP will be taken.



Details of Convergence with other Programmes

Seethathodu Watershed				
Project Items	**Unit Rate**	**Unit**	**Estimate Amount**	**Linked Department**
Terracing	1,100/cent	2,470 cent	2,717,000	MGNREGS, Soil & Water Conservation Dept.
Rain Pit	43/Nos	4000 Nos	172,000	MGNREGS, Soil & Water Conservation Dept.
Fodder Cultivation	570/Cent	1000 Cent	570,000	Animal husbandry &MGNREGS and Agri Dept.
Bio Fencing	18/Rm	8000m	144,000	Social Forestry& MGNREGS
Afforestation	32/plant	2500 Nos	80,000	Social Forestry, MGNREGS
Mamoodu Watershed				
Project Items	**Unit Rate**	**Unit**	**Estimate Amount**	**Linked Department**
Terracing	1100/cent	2110 cent	2,321,000	MGNREGS, Soil & Water Conservation Dept.
Rain Pit	43/Nos	3900 Nos	167,700	MGNREGS, Soil & Water Conservation Dept.
Fodder Cultivation	570/Cent	500 Cent	285,000	Animal husbandry &MGNREGS and Agri. Dept.
Afforestation	32/plant	2800 Nos	89,600	Social Forestry Department&MGNREGS
Kavummoola Thodu Watershed				
Project Items	**Unit Rate**	**Unit**	**Estimate Amount**	**Linked Department**
Terracing	1100/cent	3000 Cent	3,300,000	MGNREGS, Soil & Water Conservation Dept.
Rain Pit	43/Nos	2500 Nos	107,500	MGNREGS, Soil & Water Conservation Dept.
Fodder Cultivation	570/Cent	1200 Cent	684,000	Animal Husbandry &MGNREGS and Agri Dept.
Afforestation	32/plant	1500 Nos	48,000	Social forestry Department &MGNREGS

Madathumoozhy Watershed				
Project Items	**Unit Rate**	**Unit**	**Estimate Amount**	**Linked Department**
Terracing	1100/cent	2200 Cent	2,420,000	MGNREGS, Soil & Water Conservation Dept.
Rain Pit	43/Nos	3000 Nos	129,000	MGNREGS, Soil & Water Conservation Dept.
Fodder Cultivation	570/Cent	1000 Cent	570,000	Animal husbandry &MGNREGS and Agri. Dept.
Afforestation	32/plant	5100 Nos	163,200	Social forestry Department &MGNREGS
Mulamkunnilpadi Watershed				
Project Items	**Unit Rate**	**Unit**	**Estimate Amount**	**Linked Department**
Terracing	1100/cent	3207 Cent	3,527,700	MGNREGS, Soil & Water Conservation Dept.
Fodder Cultivation	570/Cent	2559 Cent	1,458,630	Animal husbandry &MGNREGS and Agri. Dept.
Rain Pit	43/Nos	250 Nos	10,750	MGNREGS, Soil & Water Conservation Dept.
Afforestation	32/plant	3000 Nos	96,000	Social forestry Department& MGNREGS

II.19. Major conservation Interventions Proposed

Natural Resources Management

The following are some of the major interventions proposed in this report with a view to conserve and develop the natural resources in the area for bringing out the benefits conceived in the objectives of the project.

Rain Pits /Recharge Pits

Pits of appropriate dimensions are made at suitable locations in the watersheds for augmenting recharge of ground water through enhanced percolation of rain water. These pits may also be termed as rain pits. This is an intervention suitable for areas with moderate slopes. Plant Basins can also act as efficient recharge pits. Number and spacing of the pits shall be conducive to the land use in each holding. Rain pits are not recommended for areas with higher and for locations under water logging.

Terracing

Terracing is, in a way, a practice of leveling land for minimizing soil erosion and excessive run off. The intervention helps in enhancing recharge of ground water. Usually Table top, inwardly inclining and outwardly inclining are the three types of terraces in our areas. Inwardly inclined terracing shall not be practiced in steep slopes and in landslide prone areas. Narrow terraces are recommended for higher slopes and wider terraces are suited in moderate slope. But, practice of forming Terraces in highly sloping areas shall be discouraged for the threat of landslides/slips.

Jungle Stone Pitched Contour Bunds

Stone Pitched Contour Bunding is one of the widely accepted interventions for soil and water conservation in the areas where the stone material is locally available. The structure has stood the test of time. It is cost effective and simple to construct. In lands with higher slopes graded stone bunds are preferred to eliminate chances of landslides/slips. Generally, Stone Pitched Contour Bunds are recommended for slopes between 20 % and 30 % with excessive run off. Spacing of the bunds shall be determined on the basis of the slope factor. These bunds need to be reinforced with appropriate vegetative sps like fodder grass, pineapple suckers, vetiver, stylosanthus etc.

Natural Fencing

Natural fencing is a multi purposed method to check soil erosion, improve biomass and for protecting crops by enabling shelter for natural predators of the pest population. The plants suitable for planting on the fences are Cassia, Hibiscus, Lettuce, Tapioca or Glyricidia, Henna etc. Annual or quarterly chopping of the leafs will provide biomass to the agriculture land. Glyricidia can fix nitrogen to the soil. This is not a new method but one that has been practiced by farmers elsewhere for long time.

Tree Basins

Formation of tree basins is an effective method to enhance conservation of rain water in a tremendous and effective manner. The basins shall be designed on the basis of the tree/plant. However it shall catch maximum water from the canopy. Basins are normally circular. But in sloppy lands it may be crescent shaped. The berms around the basin shall be reinforved with suitable vegetation. Mulching can also be adopted in the plant basins for controlling evaporation loss. This practice will also augment productivity of the trees/plants in a substantial manner.

Gully Plugging

Appropriate Gully control measures are to be adopted in the watersheds for checking the loss and deterioration of land resources in the areas. Widening and deepening of gullies, breech of the gully banks, damage caused by gullies to adjoining land etc need to be controlled under the watershed development projects. Cross Bars, Stone Checks, log Checks, Brushwood Checks, Live Checks, Flow Trap pits/Sinks, side protection measurers etc are to be consider for the purpose. As far as possible, vegetative support is to be provided to the Gully Banks instead of bluntly choosing structural works.

Compost Pit

The topsoil of a large extent of agricultural land in the watersheds has lost its quality with respect to water holding capacity and productivity due to depletion in its organic matter content. The practice of organic mannuring needs to be popularized in the areas to overcome this setback. Maximum households in the identified watersheds shall be motivated to the production of compost from organic wastes from the household premises and the farm lands. This will serve the dual purposes of the disposal of organic waste and the production of compost material for enhancement of the quality and productivity of soil in the locations. 3x1.5x1m shall be the typical size of a compost pit. But the dimensions can vary according to the site conditions.

Well Recharging

Water scarcity is one of the major problems in the watershed area during summer. Years of neglect of the of water conservation practices in the area have caused this problem. Though the watershed receives about 2500 mm rain fall annually, water scarcity is acute in most of the areas. Most of the wells in the upper areas of the watersheds remain dried up for months together every year. This is an indication of the lowering of water table in the areas due to poor recharge. Additional measures to recharge the wells can be taken up in the area to get around the problem. Roof water can effectively be directed to recharge/percolation pits in the upstream sides of the wells so that the process can help augmenting the recharge of the wells. A

filtering mechanism can also be provided in the case of the water being polluted by solid wastes. Charcoal, pebbles, gravel and sand can be used in the filter mechanism. Mixing of the water coarsely collected in the locations shall not be directly guided into the wells as it may pollute the ground water stock of the area in long run.

Production System and Micro Enterprises

Banana Cultivation

Banana cultivation is a promising activity for farmers in the light of new agricultural scenario. Banana has duel potential as a raw fruit and processed items such as Banana powder, chips and other associated products. The organic wastes available from the household if composted can be used as manure for the crop. The existing waste land can be made productive through banana cultivation. For Kudumbsree units as well as self help groups, this is an appropriate income generation programme. One important point to be emphasized in the cultivation process is to minimize the use of chemical fertilizers and pesticides in the field. The focus should be on organic methods.

Coconut farming

Though the name Kerala is linked much with the “Kera” (coconut), a pride of every Keralite, the status of *kera* is getting bleak over the years. It is facing a severe crisis across Kerala. One of the major issues is the disease like *Kattuveezhcha (Rootwilt) and* coconut mite attack. Lack of good quality seed materials and higher charges of coconut pluckers are another threat for the sustenance of the crop. On the other hand, coconut and coconut products have great market in India and abroad. Nearly 30 different products are currently made out of coconut and its palms. It is one of the highly benefitting commercial crops. To revive this crop, there needs to be multi pronged approaches such as controlling of diseases, supply of new seedlings, irrigation facilities, training on coconut climbing etc. Along with these new employment opportunities, new business ventures could be generated.

Tuber Crops

Tubers are one of the nutrient rich food supplements that are in great demand for consumption. Cultivation of tubers is a best strategy to increase productivity by utilizing the wasteland as well as inter-space between crops. This crop could also be cultivated in existing mono-cropping areas. Tubers have other advantage such as, it can be grown organically and is one of the food crops category that is free from pesticide contamination. Farmers can use organic waste for cultivating tubers. It is also relatively free from diseases which are major threat in many other crops. Cultivation of tubers also improves soil quality through better aeration as well as addition of organic matter by way of decomposing leaves and plant materials. Tuber crop promotion is an important activity in the watershed area.

Vegetable Cultivation

Keralites are fully depending on other states for vegetables. These vegetables that arrive from the neighboring states are highly contaminated with toxic compounds through the pesticide applications. As a result, the Keralites are increasingly getting affected with diseases. Though Kerala is blessed with suitable environment (rich soil, availability of water, prolonged monsoon, etc) for the production of many vegetables, there is an apparent lacking of interest among people to cultivate vegetables. Vegetable cultivation is an easy job for those who are interested.

A variety of vegetables could be cultivated either in rooftops, carry bags, back yards or in pots. It could also be upgraded to commercial level. People could cultivate them on group basis also on lease land or on own lands. Vegetable cultivation is also an important activity to conserve our traditional varieties of vegetables. Promotion of vegetable cultivation is an important component in the programme.

Livelihood Activities

Tailoring Unit.

It is a much demanded and profitable craft that can be practiced at home and its circumstances. The benefit of this program should be made available to those young ladies who have been trained in this craft. The selection of beneficiaries of this must be selected through Self-help groups from BPL, SC, Landless people etc.

Poultry Unit:

Landless people, SC/ST, OBC, BPL etc. should get the benefits of this. The self-help groups can select the beneficiaries.

Rabbit Culture:

The rabbit culturing is turning out to be a very lucrative business now as the demand for rabbit meat is ever on the increase. The self-help groups can select the people who are going for the rabbit keeping

Goat Rearing:

It is an important employment source that can be embraced very profitably by low income group people. As the gestation period is short and the number of the lambs is usually two or more in a single litter, goat rearing can bring in a profit that is two or three times bigger than the invested amount. Women's self-help groups can select the eligible people for goat rearing.

Hot Box:

Fire wood is the chief source of fuel for cooking. Hence, hot box is the ideal one for saving fire wood and time and for preventing people, especially the female folk, from contracting the diseases caused by smoke. When items are half cooked, they can be taken away from the fire and kept in the hot boxes for forty five minutes to become properly cooked ones. Women can look to other things in the meantime.

Coconut climbing devices:

The shortage of coconut climbers is a big problem faced by farmers now. Coconut climbing device is the solution for that problem and increasing the income from that job. But the use of this device demands special training for the climbing labors. The self-help groups can select the labors for such training.

Cattle shed.

Clean cattle sheds are indispensible for rendering the cattle- keeping a profitable and attractive venture. Hence this program envisages a plan to provide clean and hygienic cattle sheds to all those farmers who are involved in cattle keeping.

II.20 Annual Action Plan

Sl No.	Physical progress	Unit	Target									
			1st year		2nd year		3rd year		4th year		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
I	**Soil and Moisture Conservation**											
a	Contour bunding	Rm	7496	14,16,360	11767	22,23,960	11166	21,09,408	16504	31,18,944	46933	88,68,672
b	Others(Sliding Protection/Erosion Control)	Nos					1	3,15,000			1	3,15,000
II	**Vegetative and Engineering Structures**											
a	Gully plugging	M^3	196	1,55,232	924	7,31,808	886	7,01,712	828	6,55,776	2834	22,44,528
b	**Others**											
	Compost Pit	Nos	246	1,72,200	625	4,37,500	1107	7,74,900	690	4,83,000	2668	18,67,600
	Biogas plant(portable)	Nos	44	5,94,000	140	1,890,000	60	8,10,000	122	1,647,000	366	4,941,000
	NADP Compost Tank	Nos	5	25000	60	300000	50	250000	30	150000	145	725000
	Deenabendu Model Biogas	Nos	4	1,38,000	7	2,37,000	1	30,000	1	30,000	13	4,35,000
III	**Water Harvesting Structures**											
a	Ground water recharging	Nos	240	17,84,400	437	30,70,400	460	33,90,000	506	37,94,800	1643	12,039,600

b	Farm ponds	Nos	4	1,00,680	5	260000	2	200000	-	-	11	5,60,680
c	Check dam	Nos	1	1,12,000	1	1,25,500	3	3,76,500	1	1,25,500	6	7,39,500
d	Percolation Tank	Nos	1	56500	-	-	1	40,000	1	10000	3	1,06,500
e	Rain water harvesting tank	M^3	75	3,75,000	77	410000	29	150000			181	935000
f	Well renovation	Nos	45	3,25,,000	127	7,70,000	52	3,60,000	123	7,05,000	347	21,60,000
g	**Others** Stream Protection	M	630	15,83,900	2414	54,99,800	660	18,89,600	320	6,77,100	4024	96,50,400
IV	**Livelihood**											
a	Revolving Fund	Nos		12,82,400		13,75,100		12,35,500,		12,35,500		51,28,500
	Seed Money for Major Livelihood Assests		11	5,49,600	10	6,47,700	11	5,29,540	10	5,29,540	42	22,56,380
	Beneficiaries	Nos		879		2121		1431		1318		5749
V	**Production System and Micro Enterprises**											
a	Area	ha	17.94	12,21,120	37.25	28,43,030	22.97	20,35,200	23.69	20,35,200	101.86	81,40,800
b	Beneficiaries	Nos		1154		1984		1570		1268		5976

II.21. EXPECTED OUTCOMES

Projects under IWMP are a multi disciplinary which include Natural Resource Management, Production System, Micro enterprises and Livelihood activities. The project conceives to bring in holistic and sustainable development in the concerned areas. This programme mainly focus on activities which create employment opportunities, enhance income, decrease migration, increase productivity, which would ensure sustainable livelihood opportunities for the community. The expected outcomes are given in the table below.

Intervention area	Activities	Outcomes
Soil and Moisture Conservation	Adoption of suitable soil and moisture conservation measures like contour bunding, Terracing, Gully Plugging, Afforestation, Biofencing, Stream Bank protection etc	Rain water will be conserved to recharge Ground Water Level. Valuable Top Soil source in about 2415 ha of land will be protected from erosion
Water Harvesting Structure	Well recharge, Pond and Neerurava protection, Check dams, Public well renovation, Rainwater tank, Rain pits	water conservation in about 1685 ha of the project area Problem of drinking water in the watershed area gets substantially solved. 182 M^3 of rain water will be additionally collected in the project area.
Energy and agri Extension Supporting Activities	Compost Pits-2813 Nos Biogas plants 366 Nos Hot Boxes-706 Nos	Organic manure at a rate of about 16,000 tons per year can be additionally produced in the area Promotion of non conventional energy

		for daily cooking needs.
Agri & Horticulture	<u>Additional area under cultivation</u> Vegetable-9.256 ha Elephant foot yam-15.2 ha Banana cultivation-25.34 ha Colocacia-5.14 ha Tapioca cultivation-25.6 ha Coconut cultivation-9.62 ha Ginger-1.284 ha Turmeric Cultivation-6.72 ha	Organic crop production from an extent of about 98 ha of the watershed area can be enhanced substantially
Livelihood Activities	Increase in the Clean and strong cattle shed	livestock population shall be increased by 41,40 Nos 260 Nos of additional cattle sheds will be maintained.
Increase of Job Opportunities	Erecting/installing Engineering structure for NRM Diversification of cultivation in the watershed area for PSM	creates 10,850 man labour days
	Micro enterprises development in the watershed areas Supply of supporting equipment for the labourers	305 Nos 229 Nos

Additional area that can be brought under irrigation

Name of watershed	Open well (Renovation)		Ponds (Renovation)		Total area
	No	Area (ha)	No	Area (ha)	
Seethathodu	102	20	2	1	21
Mamoodu	188	41	3	1.5	42.5
Kavummoola thodu	40	8	2	1	9
Madathumoozhi	6	2	5	2.5	4.5
Mulamkunnilpadi	13	3	0	0	3

Consolidated Area Expected to be Brought under Irrigation

Name of watershed	Existing area under irrigation (ha)	Additional area expected to be brought under irrigation (ha)	Total area (ha)
Seethathodu	466	21	487
Mamoodu	147	42.5	189.5
Kavummoola thodu	338	9	347
Madathumoozhi	295	4.5	299.5
Mulamkunnilpadi	359	3	362

II.22. Exit Protocol

Watershed Development Fund is the main source of financial assistance for the implementation of the project. People's contribution is one of the mandatory conditions for the selection of villages for watershed project. The contribution to WDF shall be a minimum 10 % of the cost of NRM works executed on private land. In case of SC/ST, small and marginal farmers, the minimum contribution shall be 5 % of cost of NRM works executed on their land. Such contributions would be accepted either in cash at the time of execution of works or as voluntary labour. Each watershed committee should begin a bank account in a nationalized bank for the project fund. In addition to this account, the committee should begin a second account under the title, Watershed Development Fund in a nationalized bank. The user charges collected from the beneficiaries of the watershed, the Share from the beneficiaries, the income from the public assets, contributions and other source of income should be deposited with the WDF account. The WDF can be utilized as stipulated in the Guidelines for the maintenance of the assets created under the project and for meeting the expenses need for the general development of the watershed area after the project period, At least 50% of this fund should be set apart for such needs and the balance can be utilized as revolving fund for giving loans to those who have paid for creating the fund.

The Secretary of the Watershed Committee (WC) shall maintain a separate account of the income and expenditure of the WDF. Rules for operation of the fund should be prepared by the Watershed Committee (WC) and rectified by the Gram Sabha. The WDF bank account will be operated jointly by the President of the Gram Panchayat and any implementing officers at the Grama Panchayat level as designated through necessary Govt. Orders. At the same time, the guidelines required for envisaging a system for the management and utilization of the WDF may be evolved by the concerned Nodal Ministry.

II.23. The Process of DPR Preparation

2012 January 7

Agreement between Grameena Patana Kendram and the Block Panchayat with regard to the preparation of the Detailed Project Report of the IWMP signed.

2012 February 3

Details of the IWMP were explained to the elected members of the Block Panchayat in the meeting held at the Block Panchayat. It was decided to familiarize all the members with the boundaries of the project area.

2012 February 6, 7, 8

A field visit was organized according to the decision mentioned above. The visit team included the ward members and the presidents of the Chittar, Ranni-Perunad, and Vadasserikkara Panchayats. Two teams from the TSO led the field visits.

2012 February 22

A block level training programme was conducted to explain the concept of the IWMP. The BDO familiarized the project to the participants. TSO members made a presentation of the details of the project as well as of the formation of neighborhood groups. Elected members of the Grama Panchayats and Block Panchayat were the participants.

2012 March 8

Panchayat level Watershed Committee was constituted in the Chittar Grama Panchayat. President, Elected members, Assistant Engineer, Village extension officer and Assistant agricultural officer participated in the meeting. TSO members explained

the IWMP project. The watershed committee was formed in this meeting. It was also decided to form neighborhood groups consisting 50 families to start the DPR preparation.

2012 March 14

The Seethathodu Watershed Committee meeting was held with the Grama Panchayat President in chair. The meeting decided to form neighborhood groups of 50 families each. TSO team was present in the meeting.

Ranni-Perunnad watershed Committee met at 2 pm at Ranni-Perunad. president of the Grama Panchayat precided the meeting. The meeting was attended by elected members, secretary of the LSG etc. The TSO representative explained the IWMP project. The Committee decided to form neighborhood groups.

A meeting was held at Vadasserikkara Panchayat at 3 pm to discuss the details of the IWMP project. The Vadasserikkara watershed committee was formed in this meeting. Panchayat secretary, elected members of the LSG, Agriculture Officer etc participated in the meeting. It was decided to form neighborhood groups comprising 50 families each. TSO team explained the guidelines

2012 April 11

A field visit by the TSO was conducted to the areas of the wards (7,8,9,10,11,12, 13) belonging to the of Seethathodu Panchayat and a plan was formulated for neighborhood group formation with the help of cadastral map.

2012 April 12

A field visit was conducted by the TSO team to all the wards (1, 2, 4, 10, 12, 13) belonging to the watershed area from the Chittar Grama Panchayat and a plan was formulated for neighborhood group formation.

On the same day by 1.30 another meeting was held at Vadasserikkara Panchayat and made a field visit to the wards 4, 5, 6, 7, 8 that belong to the watershed area and prepared a plan with the aid of cadastral map for NHG formation.

2012 April 13

A field visit was conducted by the TSO team to all the wards (1, 2, 3, 4, 10, 11, 12, 13,14, 15)belonging to the watershed area from the Ranni-Perunnad Grama Panchayat and a plan was formulated for neighborhood group formation.

Collection of Maps and Digitization

Since the resurvey has not been completed in the Ranni-Perunnad, Chittar and Vadasserikkara Panchayats, the cadastral maps were not available. Under the circumstances, map from the State Land Use Board was used for delineating the watershed boundaries. Elected members, Government Officers and local people have helped in this process.

Delineation of watershed boundaries

A field visit was conducted in all the 4 Panchayats and in the Seethathodu, Mamoodu, Kavummoola thodu, and Madathumoozhy and Mulakunnilpadi watersheds. The elected members related to the watershed area were familiarised with the ridgeline (watershed boundary) of the watersheds. Details of the watershed were shared. The digitization of maps at Grama Panchayat level and watershed level was done by this.

Workshop at Grama Panchayat Level

Different workshops were held at Panchayat level and Block level to familiarize the Panchayat members with IWMP and the concept of cluster approach in watershed development programme. Elected Members and local volunteers participated in the workshop. Doubts about the projects as expressed by some of the participants were cleared in the meeting. Block Development

Officer (BDO) and representatives of the PIA participated in the workshop. The TSO explained the project. On the request of the Grama Panchayats two additional programmes were conducted at the Ranni Block office for the members who were notable to participate in the other programmes due to various reasons. This workshop was useful enough to educate the members in the concept of watershed based development. It generate a feeling ownership among the Panchayat members with regard to their involvement in the programme.

Panchayat level watershed development committee

A half day meeting was held in each Panchayat to form the Panchayat level watershed development committees. Members of the Panchayat, Block development Officer, Representatives of the PIA and the representatives of the TSO participated.

A field survey was completed at this stage covering all the wards of the Panchayat that fall in each watershed. It was to demarcate the boundaries of the project area and to share the information on how to form self help groups or neighborhood groups in each of the wards. This field study helped to understand the soil and water issues of the watershed area also.

Participatory Rural Appraisal

Several PRAs were conducted in various parts of the Ranni-B area. All these PRAs were notable with people's participation. In these PRAs, social and resource maps, historic timelines, agricultural timelines and trends, institutional pattern, income and expenditure of the families, inflow and outflow of income commodities/resources, climate change etc were discussed. Local people raised agricultural problems and suggested many possible solutions. All these information were much useful for the preparation of the DPR.

Focus Group Discussion FGD

Separate group discussions were held to elicit problems faced by the different groups of the watershed community. This FGD could reveal core issues faced by them and elicit valuable suggestions for improving the situation. This special groups include, farmers, women, laborers, people living in extreme conditions, people living in colonies, victims of natural calamities etc.

PNP (Plot-wise Net Planning)

Each and every plot in the project area was visited, discussions were held with farmers, assessment of problems of each plot was done and activities most suitable for each of them were planned.

Transect Walk

A transect walk was conducted across the watershed to identify problems and opportunities with regard to different slopes locations of the watershed. Ward members also participated in the transect walk which enhanced insight into the problems faced by the people as well as the quality and status of natural resources of the watershed area.

Formation of Self Help Groups

Self Help Groups were formed in each grama Panchayat portion covered under the project. This was done after organizing each 50 neighbouring families into one Neighborhood Group. Two facilitators were selected from each ward and were given training for this kind of a community organization. Elected members and TSO team together with the facilitators completed the formation of self help groups. This process enabled the TSO to build up the maximum community support for the preparation of this project report.

Preliminary data collection

After forming the SHGS, a detailed socio-economic survey was conducted to understand the situation of each family of the watershed. Also, one to one interviews were conducted with farmers, agriculture laborers, and livestock farmers.

Secondary data collection

Secondary data were collected from the offices of the Grama Panchayat, Departments of Agriculture, Animal husbandry Diary extension etc. for the preparation DPR.

Water Resource Survey

An extensive survey of the water sources (River, streams, springs, Gullys etc) of the watershed was conducted to assess their existing status. This enabled the TSO to suggest more relevant and befitting development measures for the area.

Land Use Map

A detailed map depicting the land use pattern of the watersheds in the project area has been prepared.

Preliminary Activities

This watershed project envisages many activities which are beneficial to local people. The above described procedure has contributed much in attracting public participation to the programme. One of the major issues with the previous watershed projects was the lack of people's participation. People's participation is the key success factor of any watershed.

Preparation of Detailed Project Report

The DPR was prepared after processing all the above mentioned information and consulting all stake holders. The systematic surveys and application of GIS have helped to prepare the DPR in a more scientific way. The elected members have cooperated well in the process of preparing the DPR especially for mobilizing people for participating in various activities. The SLNA, Block Panchayat President and committee, BDO etc extended their whole hearted help and support for preparing this DPR.

Social Audit

Social audit is an important process in the IWMP project. A social audit team will be constituted later on under the guidance of SLNA. The social audit report will be placed in the Gramasabha and will be discussed by the people and the same needs to be approved.

II.24.SUMMARY AND CONCLUSION

The Watershed cluster is located in Ranni Block of the Pathanamthitta District. Seethathodu Chittar, Ranni-Perunnadu and Vadasserikkara are the four Panchayats with areas included in the watershed. The cluster is comprised of five micro watershed namely Seethathodu, Mamoodu, Kavummoola thodu, Madathumuzhi and Mulakunnilpadi.

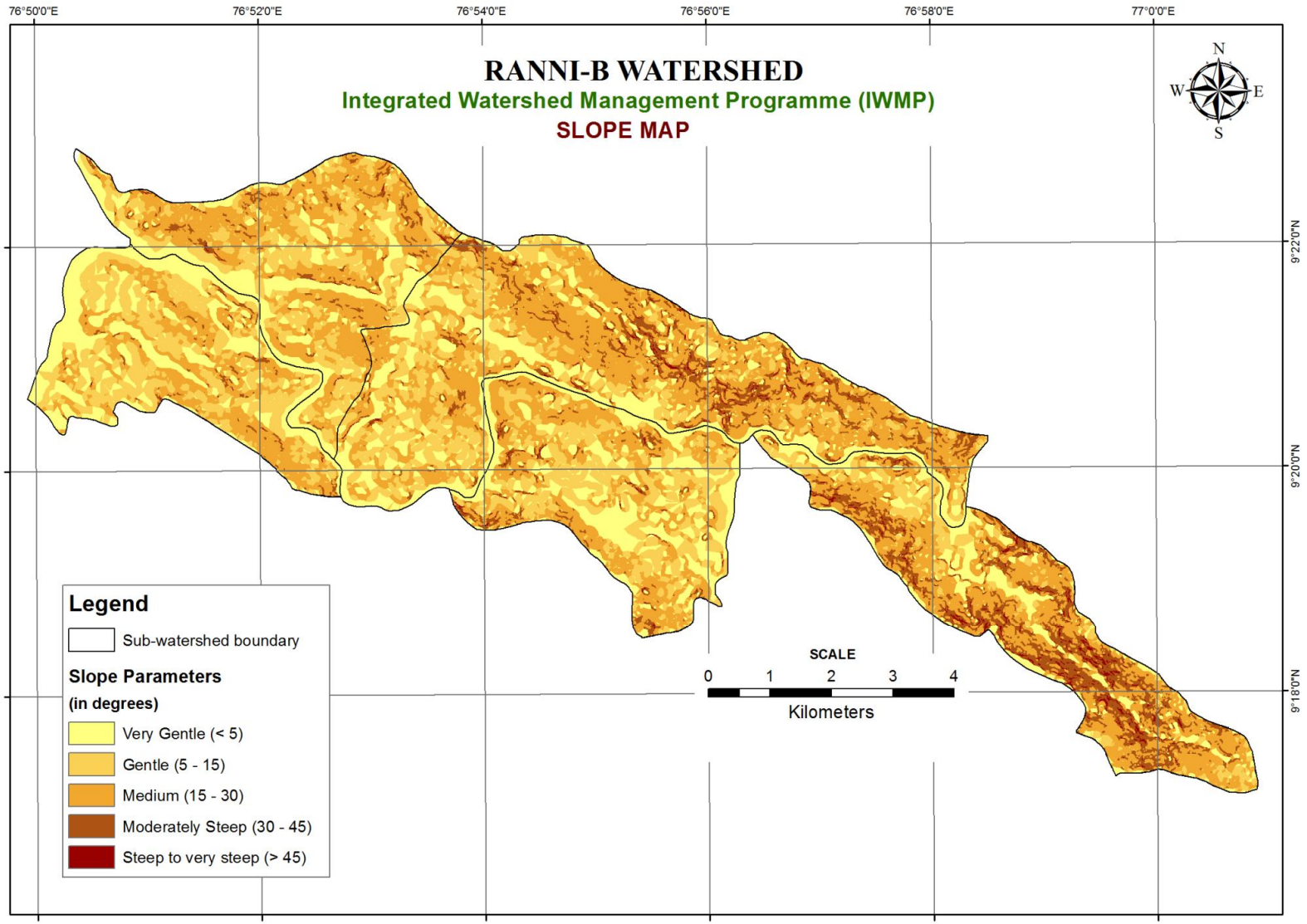
Ranni Block is part of the Western Ghats, which is recently declared as a world heritage site by IUCN. Total area of the watershed is 6884 hectares. There are 7959 households in the project area and the total population is 28272. The total project cost is 814.08 lakhs.

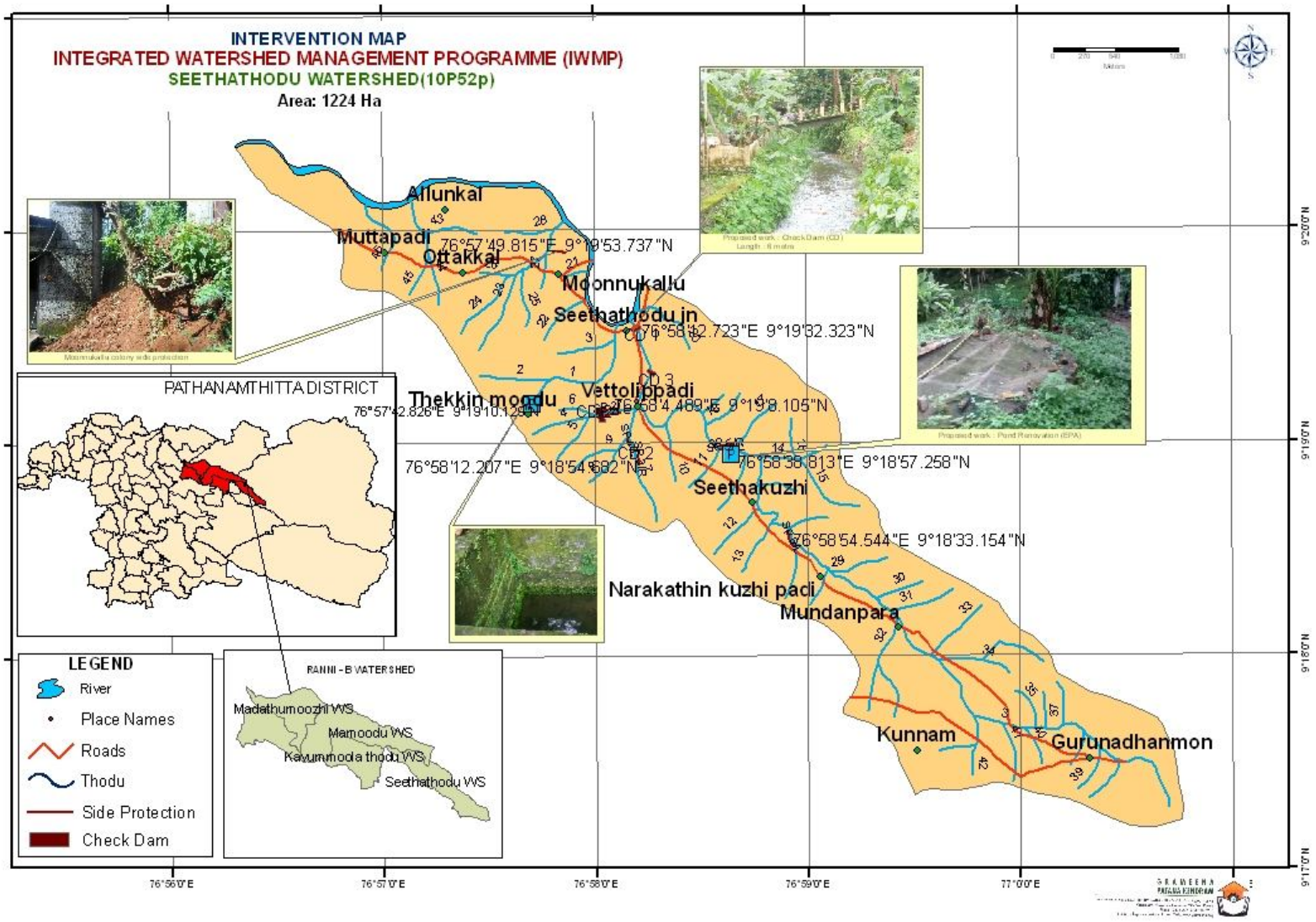
State Department of Rural Development is the nodal department for the implementation of IWMP in Kerala. State Level Nodal Agency (SLNA) is coordinating and providing guidelines for the effective planning and implementation of the individual IWMP projects. District Planning Committee (DPC) is responsible for approving the DPR at the district level. A District Level Coordination Committee-DLCC- has been constituted to facilitate integration of technology as required under IWMP. A Watershed Cell Cum Data Centre (WCDC) is working under the Project Manager(PD, PAU) at the district level to assist the DLCC in the matter.

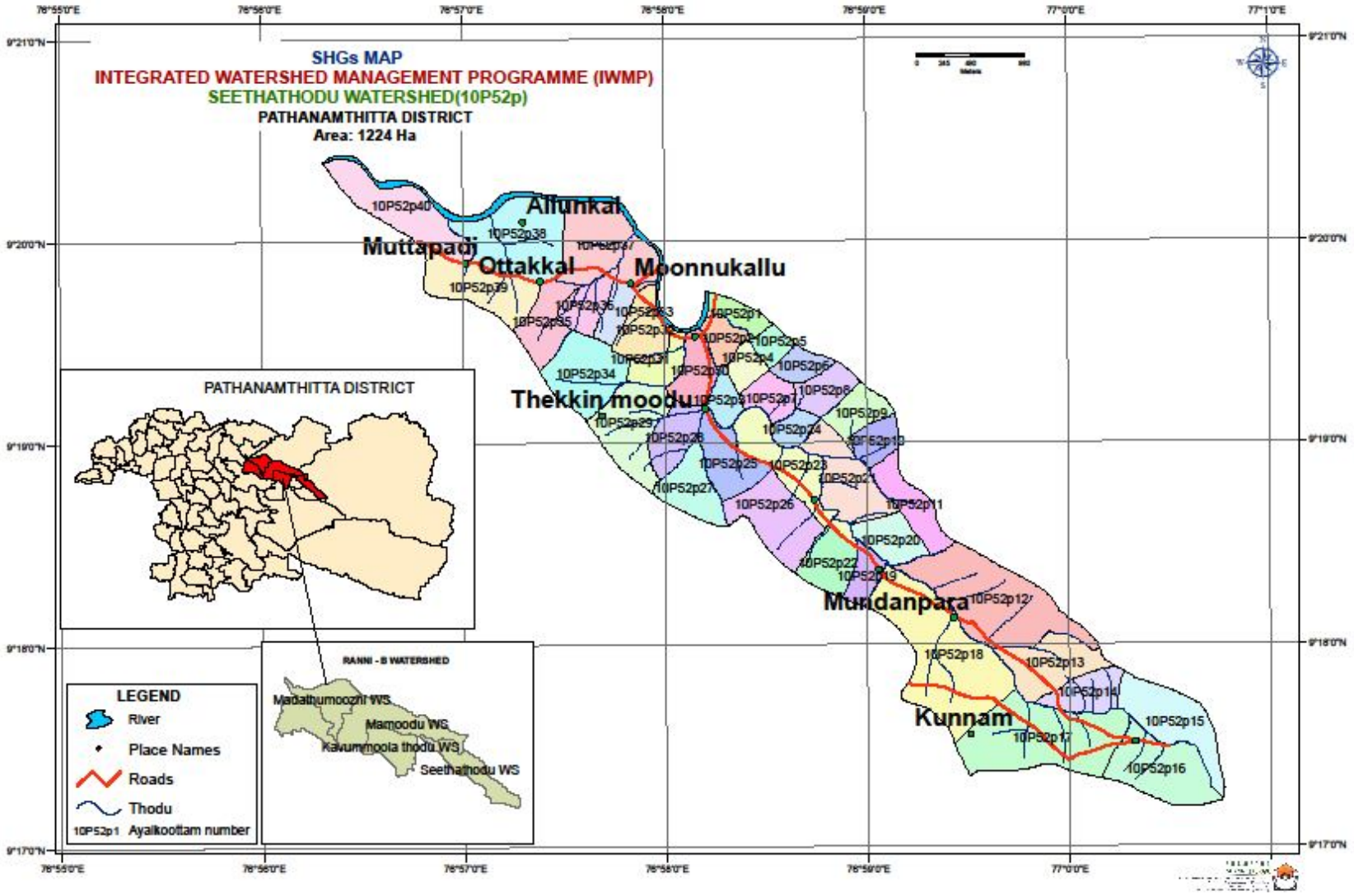
The Ranni Block Panchayat is the Programme Implementing Agency (PIA) of the project. A Block Level Coordination Committee (BLCC) has been formed for ensuring the coordination of line technologies and for the timely implementation of the project and to provide help to the PIA in technical and administrative matters related to the project. A separate Watershed

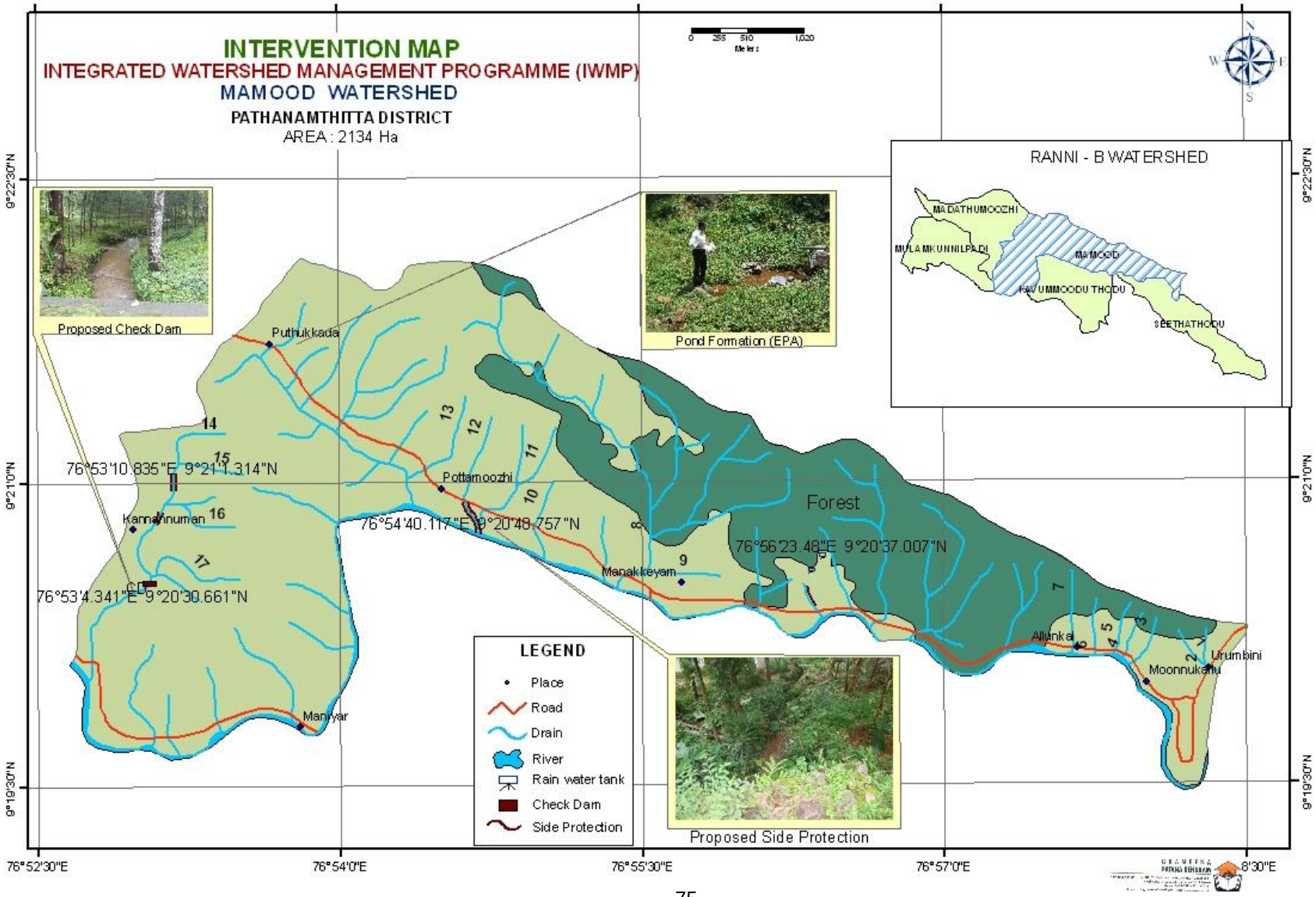
Development Team (WDT) has been formed under the PIA. Grameena Patana Kendram is the Technical Support Organisation (TSO). Preparation of the DPR involved village level meetings and participatory discussions with people, elected representatives, officials and other stakeholders. A situational analysis was undertaken using secondary data and information collected from different sources. A Logical Framework Analysis was done at the project level for identifying the important problems (through problem tree analysis) as well as for the purpose of assessing the present situation. PRA techniques like transect walk, social mapping, resource mapping, seasonal calendar, etc., were employed in each micro watershed area. GIS and remote sensing devices have been made use of in the preparation of DPR. GIS Software was used for the preparation of maps. In depth interviews with officials, farmers, labourers, entrepreneurs of micro-enterprises etc. were also undertaken. Field level verification of the identified interventions was undertaken by the DPR preparation team.

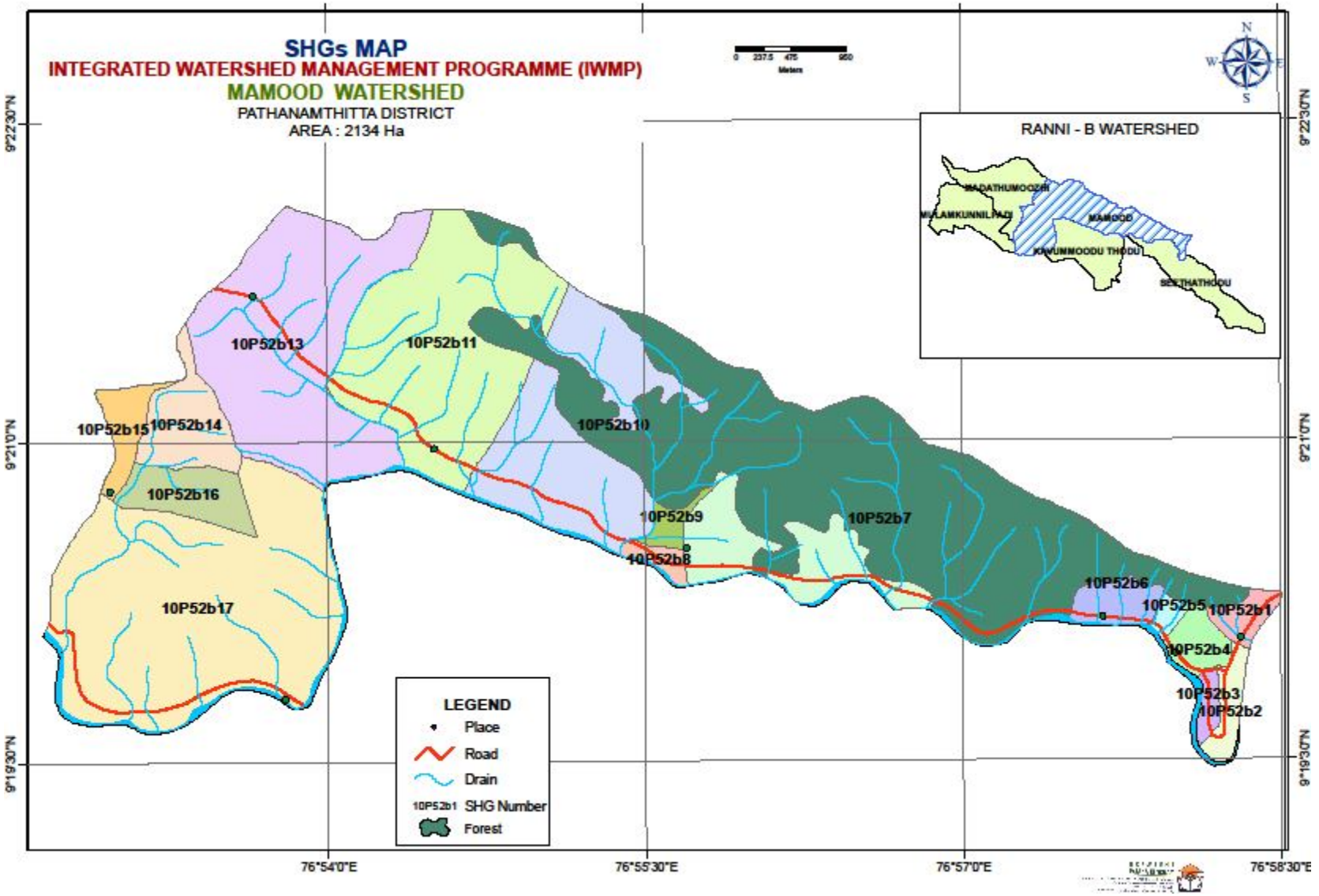
Most of the micro watersheds in the project area share common problems because of the similarities existing among the micro watersheds. The interventions proposed for the area covered under this project of IWMP are expected to help in restoring the ecological balance of the project area, in conserving the natural resources and in improving the livelihood opportunities of the people

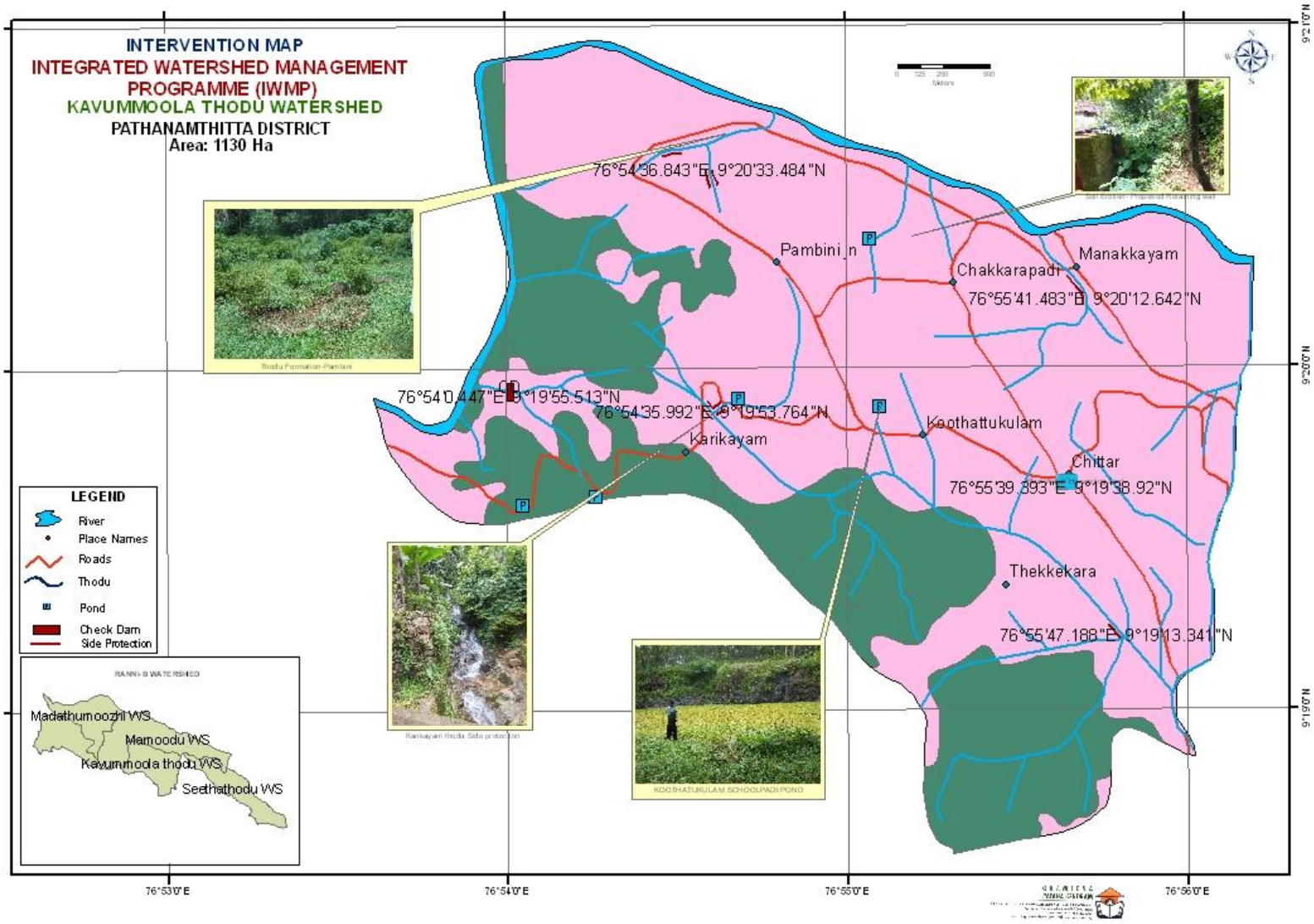

RANNI-B WATERSHED
Integrated Watershed Management Programme (IWMP)
SLOPE MAP
76°50'0"E
76°52'0"E
76°54'0"E
76°56'0"E
76°58'0"E
77°0'0"E
9°22'0"N
9°20'0"N
9°18'0"N
N
W
E
S
Legend
Sub-watershed boundary
Slope Parameters
(in degrees)
Very Gentle (< 5)
Gentle (5 - 15)
Medium (15 - 30)
Moderately Steep (30 - 45)
Steep to very steep (> 45)
SCALE
0 1 2 3 4
Kilometers

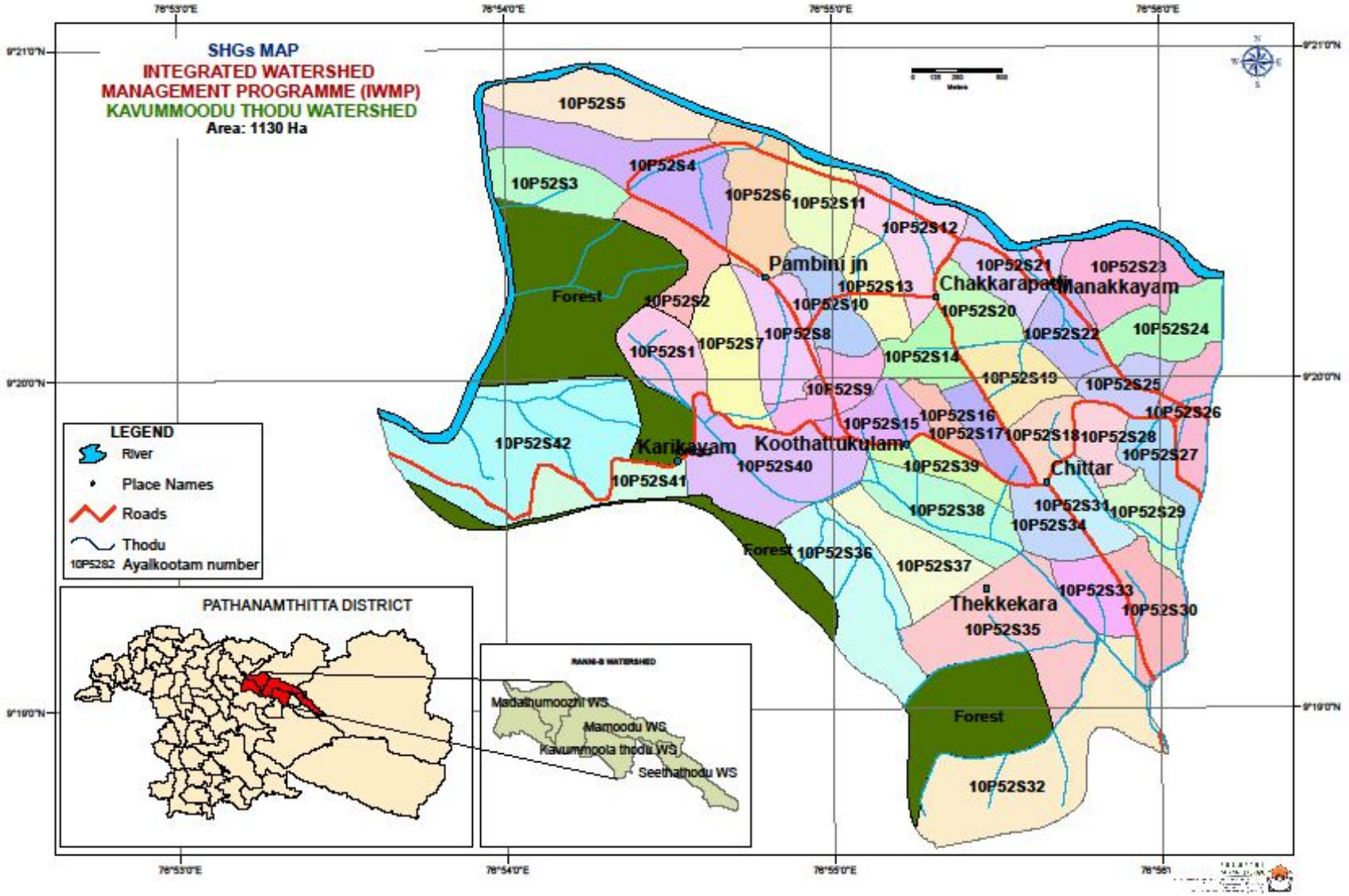

INTERVENTION MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
SEETHATHODU WATERSHED(10P52p)
Area: 1224 Ha
Allunkal
Muttapadi
Ottakkal
Moonnukallu
Seethathodu jn
76°57'49.815"E 9°19'53.737"N
76°58'12.723"E 9°19'32.323"N
Vettolippadi
Thekkin moodu
76°58'4.489"E 9°19'8.105"N
76°58'12.207"E 9°18'54.682"N
76°58'38.813"E 9°18'57.258"N
Seethakuzhi
76°58'54.544"E 9°18'33.154"N
Narakathin kuzhi padi
Mundanpara
Kunnam
Gurunadhanmon
PATHANAMTHITTA DISTRICT
76°57'42.826"E 9°19'10.129"N
RANNI - B WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
LEGEND
River
Place Names
Roads
Thodu
Side Protection
Check Dam
76°56'0"E
76°57'0"E
76°58'0"E
76°59'0"E
77°0'0"E
9°20'0"N
9°19'0"N
9°18'0"N
9°17'0"N

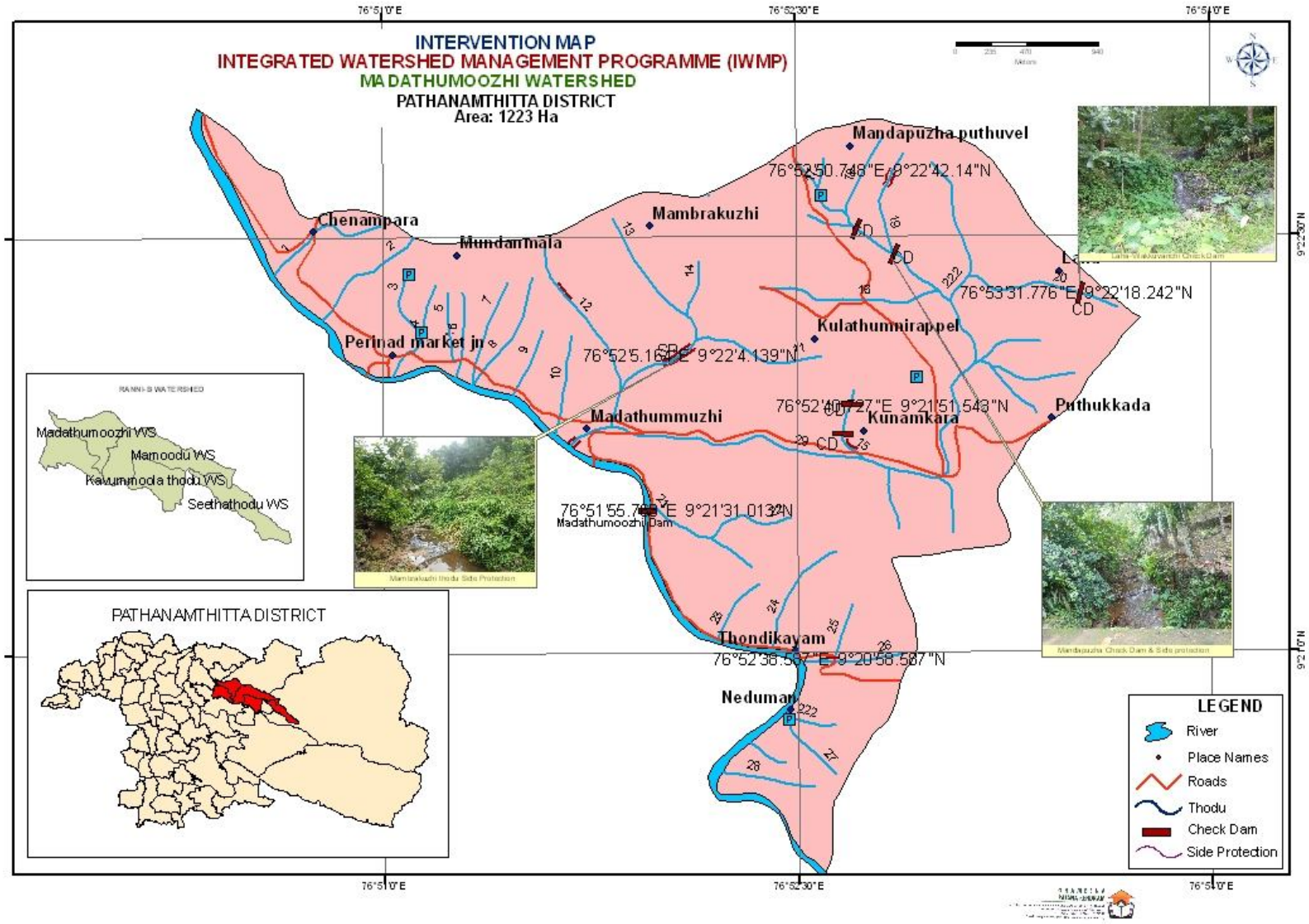

SHGs MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
SEETHATHODU WATERSHED(10P52p)
PATHANAMTHITTA DISTRICT
Area: 1224 Ha
Allunkal
Muttapadi
Ottakkal
Moonnukallu
Thekkin moodu
Mundanpara
Kunnam
PATHANAMTHITTA DISTRICT
RANNI - B WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
LEGEND
River
Place Names
Roads
Thodu
10P52p1 Ayaikoottam number

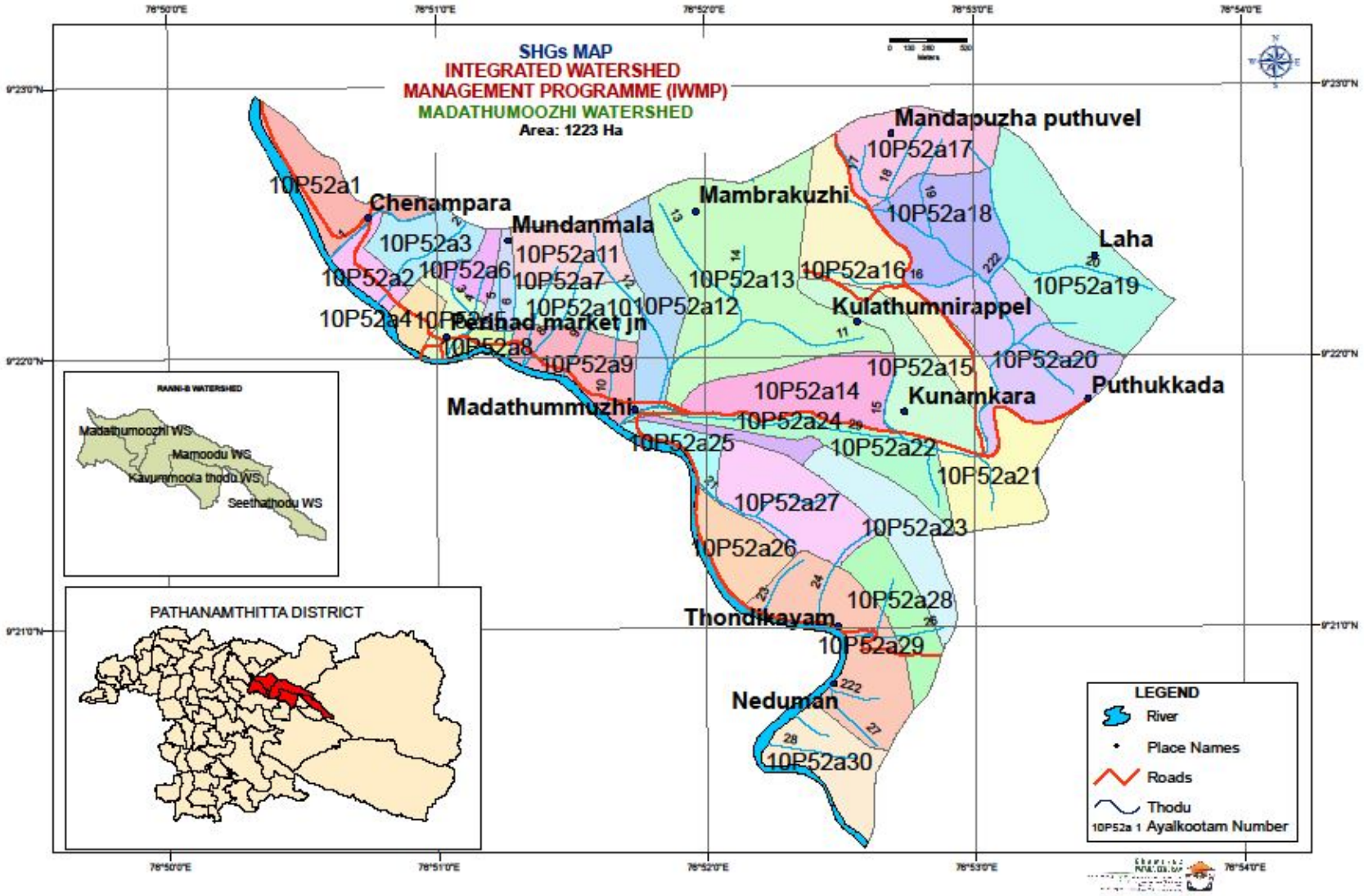

INTERVENTION MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
MAMOOD WATERSHED
PATHANAMTHITTA DISTRICT
AREA : 2134 Ha
RANNI - B WATERSHED
MADATHUMOOZHI
MULAMKUNNILPADI
MAMOOD
KAVUMMOODU THODU
SEETHATHODU
Proposed Check Dam
Pond Formation (EPA)
Proposed Side Protection
Puthukkada
Pottamoozhi
Manakkeyam
Allinkal
Urumbini
Moonnukallu
Maniyar
Kannamnuman
Forest
76°53'10.835"E 9°21'1.314"N
76°54'40.117"E 9°20'48.757"N
76°56'23.48"E 9°20'37.007"N
76°53'4.341"E 9°20'30.661"N
LEGEND
Place
Road
Drain
River
Rain water tank
Check Dam
Side Protection
9°22'30"N
9°21'0"N
9°19'30"N
76°52'30"E
76°54'0"E
76°55'30"E
76°57'0"E

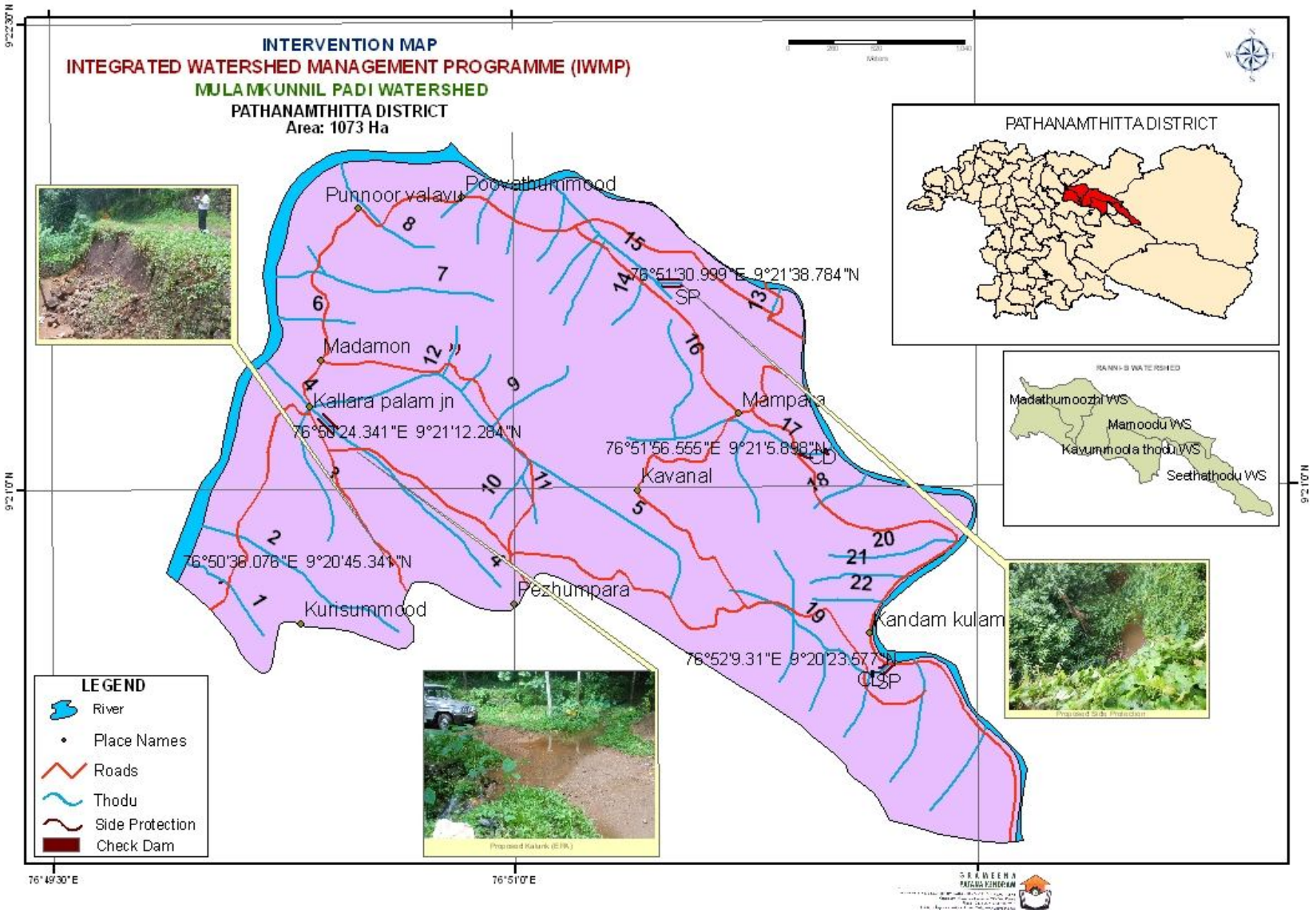

SHGs MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
MAMOOD WATERSHED
PATHANAMTHITTA DISTRICT
AREA : 2134 Ha
RANNI - B WATERSHED
MADATHUMOOZHI
MULAMKUNNILPADI
MAMOOD
KAVUNMOODU THODU
SEETHATHODU
10P52b13
10P52b11
10P52b15
10P52b14
10P52b10
10P52b16
10P52b9
10P52b7
10P52b8
10P52b6
10P52b5
10P52b1
10P52b17
10P52b4
10P52b3
10P52b2
LEGEND
Place
Road
Drain
10P52b1 SHG Number
Forest
9°22'30"N
9°21'0"N
9°19'30"N
76°54'0"E
76°55'30"E
76°57'0"E
76°58'30"E

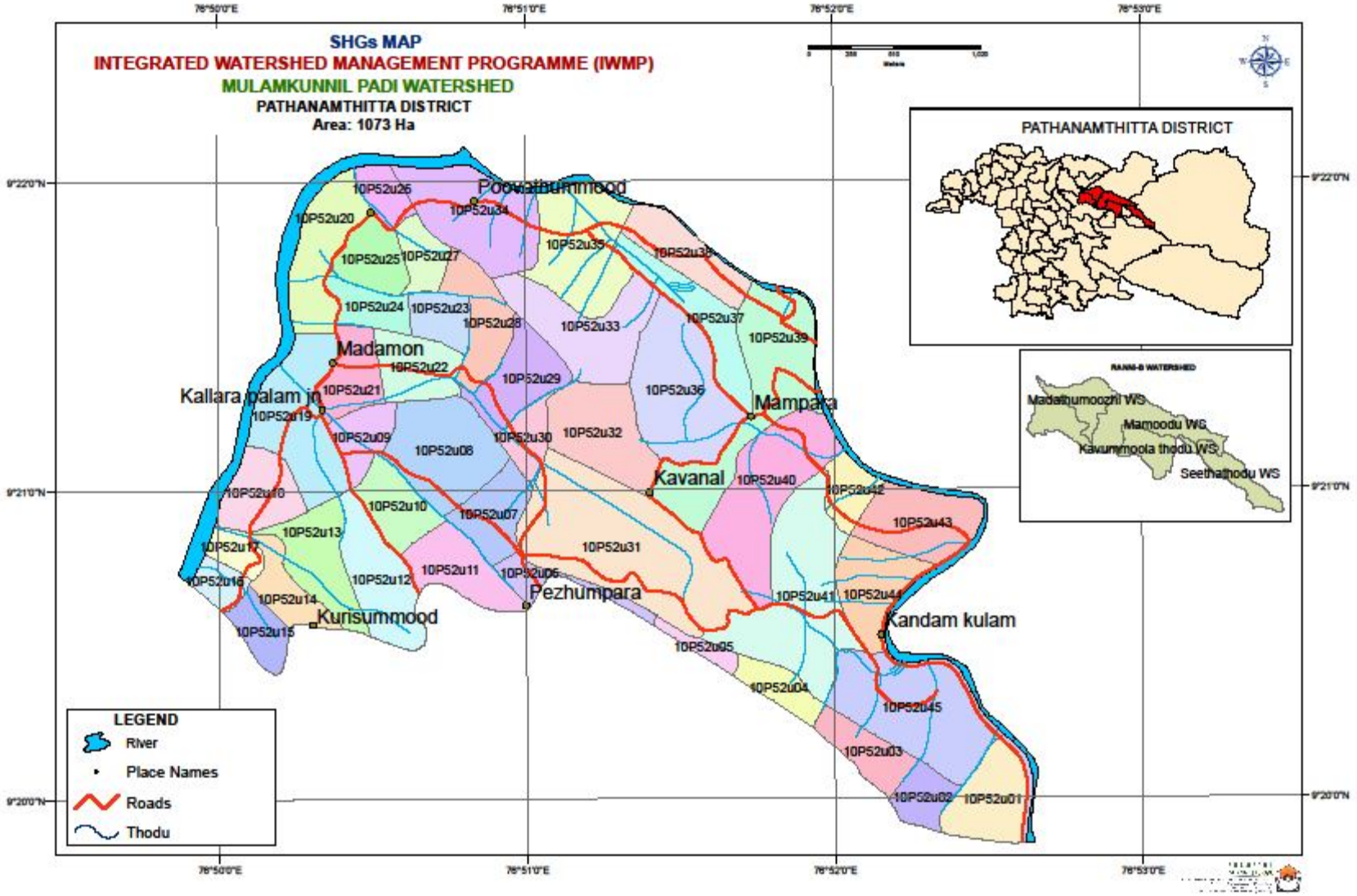

INTERVENTION MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
KAVUMMOOLA THODU WATERSHED
PATHANAMTHITTA DISTRICT
Area: 1130 Ha
76°54'36.843"E 9°20'33.484"N
Pambini_n
Chakkarapadi
Manakkayam
76°55'41.483"E 9°20'12.642"N
76°54'10.447"E 9°19'55.513"N
76°54'35.992"E 9°19'53.764"N
Karikayam
Koothattukulam
Chittar
76°55'39.393"E 9°19'38.92"N
Thekkekara
76°55'47.188"E 9°19'13.341"N
LEGEND
River
Place Names
Roads
Thodu
Pond
Check Dam
Side Protection
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
76°53'0"E
76°54'0"E
76°55'0"E
76°56'0"E
9°21'0"N
9°20'0"N
9°19'0"N


SHGs MAP
INTEGRATED WATERSHED
MANAGEMENT PROGRAMME (IWMP)
KAVUMMOODU THODU WATERSHED
Area: 1130 Ha
LEGEND
River
Place Names
Roads
Thodu
10P52S2 Ayalkootam number
PATHANAMTHITTA DISTRICT
RANNI-B WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
10P52S5
10P52S4
10P52S3
10P52S6
10P52S11
10P52S12
Pambini jn
10P52S21
10P52S23
10P52S13
Chakkarapathi
Manakkayam
Forest
10P52S2
10P52S10
10P52S20
10P52S22
10P52S24
10P52S1
10P52S7
10P52S8
10P52S14
10P52S19
10P52S25
10P52S9
10P52S26
10P52S16
10P52S15
10P52S17
10P52S18
10P52S28
10P52S42
Karikayam
Koothattukulam
10P52S27
10P52S40
10P52S39
Chittar
10P52S41
10P52S38
10P52S31
10P52S29
10P52S34
Forest
10P52S36
10P52S37
Thekkekara
10P52S33
10P52S30
10P52S35
Forest
10P52S32
76°53'0"E
76°54'0"E
76°55'0"E
76°56'0"E
9°21'0"N
9°20'0"N
9°19'0"N


INTERVENTION MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
MADATHUMOOZHI WATERSHED
PATHANAMTHITTA DISTRICT
Area: 1223 Ha
Mandapuzha puthuvel
Chenampara
Mundanmala
Mambrakuzhi
Perinad market jn
Kulathummirappel
Madathummuzhi
Kunamkara
Puthukkada
Thondikayam
Neduman
Madathumoozhi Dam
RANNI-3 WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
PATHANAMTHITTA DISTRICT
LEGEND
River
Place Names
Roads
Thodu
Check Dam
Side Protection


SHGs MAP
INTEGRATED WATERSHED
MANAGEMENT PROGRAMME (IWMP)
MADATHUMOOZHI WATERSHED
Area: 1223 Ha
Mandapuzha puthuvel
10P52a17
10P52a1
Chenampara
Mambrakuzhi
10P52a18
Mundanmala
Laha
10P52a3
10P52a11
10P52a2
10P52a6
10P52a7
10P52a13
10P52a16
10P52a19
10P52a4
10P52a10
10P52a12
Kulathumnirappel
Perinad market jn
10P52a8
10P52a9
10P52a15
10P52a20
10P52a14
Puthukkada
Kunamkara
Madathummuzhi
10P52a24
10P52a25
10P52a22
10P52a21
10P52a27
10P52a23
10P52a26
10P52a28
Thondikayam
10P52a29
Neduman
10P52a30
RANNI-B WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
PATHANAMTHITTA DISTRICT
LEGEND
River
Place Names
Roads
Thodu
10P52a 1 Ayalkootam Number


INTERVENTION MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
MULAMKUNNIL PADI WATERSHED
PATHANAMTHITTA DISTRICT
Area: 1073 Ha
PATHANAMTHITTA DISTRICT
RANNI-3 WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
Punnoor valavu
Poovathummood
Madamon
Kallara palam jn
76°50'24.341"E 9°21'12.284"N
76°51'30.999"E 9°21'38.784"N
SP
Mampara
76°51'56.555"E 9°21'5.898"N
CD
Kavanal
Pezhumpara
76°50'36.076"E 9°20'45.341"N
Kurisummood
Kandam kulam
76°52'9.31"E 9°20'23.677"N
CDSP
LEGEND
River
Place Names
Roads
Thodu
Side Protection
Check Dam
76°49'30"E
76°51'0"E
9°22'30"N
9°21'0"N


SHGs MAP
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
MULAMKUNNIL PADI WATERSHED
PATHANAMTHITTA DISTRICT
Area: 1073 Ha
PATHANAMTHITTA DISTRICT
RANNI-B WATERSHED
Madathumoozhi WS
Mamoodu WS
Kavummoola thodu WS
Seethathodu WS
Poovathummood
Madamon
Kallara palam jn
Mampara
Kavanal
Pezhumpara
Kurisummood
Kandam kulam
LEGEND
River
Place Names
Roads
Thodu

Detailed Estimate of EPA Works

1.Name of work proposed protection wall in ward-2, Panniyar, Chittar Grama Panchayat (Kavummoolathodu watershed)

1) Earth work excavation in ordinary soil and depositing with load up to 50 m and left up to 1.5 m.

1 x 18.0 x 1.10 x 0.50	= 9.90
1 x 16.0 x 0.65 x 0.65 x 0.50	=5.20
1 x 8.0 x 1.60 x 0.70	= 8.96
	24.06

2) Dry Rubble masonry including all cost of materials, labour, etc complete as per standard specification
For foundation

1 x 18.0 x 1.10 x 0.50	= 9.90
1 x 16.0 x 0.65 x 0.65 x 0.50	=5.20
1 x 8.0 x 1.60 x 0.70	= 8.96
	24.06

For retaining wall

$1 \times 18.0 \times \frac{(0.50+1.00)}{2} \times 2.00$	= 27.00
$1 \times 16.0 \times \frac{(0.50+0.6)}{2} \times 1.20$	=10.56
$1 \times 8.0 \times \frac{(0.5+1.50)}{2} \times \frac{(2.5+3.5)}{2}$	= 24.00
	85.62
Say 8.6 m^3 @ 1726.45/m^3	143436

3) Cement concrete 1 : 2 : 4 20 mm b/s using 20 mm (nominal size) land granite stone for reinforcement watering, curing etc complete for left

4) 1 x 8.0 x 1.0 x 0.1 = 0.80 m^3
Say 0.8 m^3 @ 64.35/10dm^3 = 5180.00

2.Name of work – Side Protection work for Seethathodu Bridge in ward 8 of Seethathodu Grama Panchayat under IWMP Scheme 2012

DETAILED ESTIMATE

1) Earth work excavation in ordinary soil and depositing on bank with initial load up to 50 m and left up to 1.5 m. including breaking clouds, watering, ramming and sectioning of spoil bank etc complete.

1	58.50	1.10	0.50	32.18
Total				32.18
Say	33m^3	@ 117/10m^3		Rs. 3686.00

2) D R Masonry for foundation & superstructure of side walls including all cost of materials etc complete.

For foundation

for

1	58.50	1.10	0.50	32.18
1	58.50	$\frac{(0.50+0.90)}{2}$		73.71

Super structure

Total			105.89
Say	106	m^3 @ Rs 1726/m^3	182956.00

3) C C 1 : 3 : 6 using 20 mm metal including all watering curing material & conveyance cost and labour charges including all form work etc.

For coping

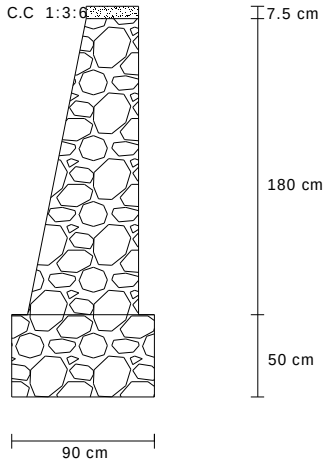
1	58.50	0.50	0.075	2.19
Say	2200 dm^3 @ Rs	57.60/10dm^3		Rs. 12672.00

199314.00

15185.00

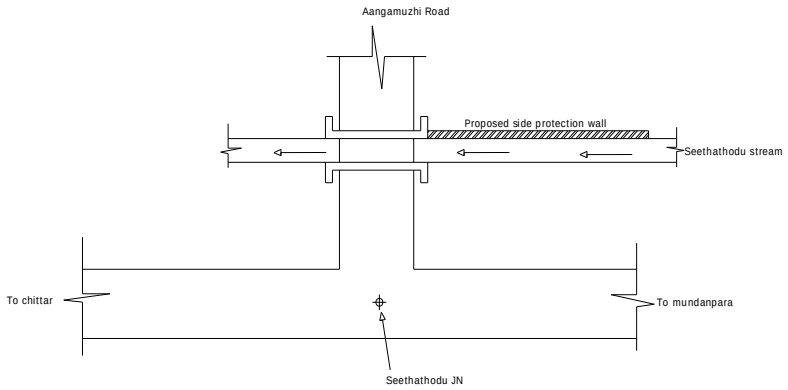
214500.00

(Rupees Two Lakh Fourteen Thousand and Five Hundred only)



SECTIONAL ELEVATION OF SIDE PROTECTION WALL FOR SEETHATHODU BRIDGE

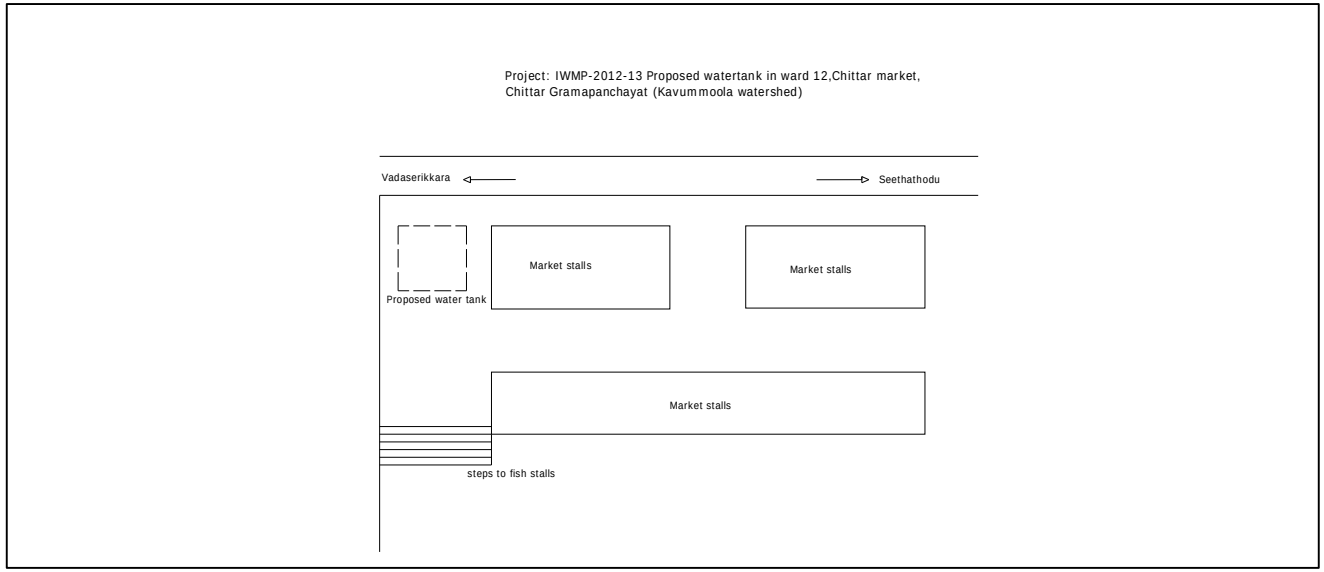
LOCATION PLAN FOR PROPOSED SIDE PROTECTION WALL FOR SEETHATHODU BRIDGE



3. Construction of ferrocement water tank in Chittar Market, Chittar Grama Panchayat (25,000 Ltr Capacity)

Estimate

5)	Supplying and farocement Tank of capacity 22000 litres @ the rate Rs. 5/litre	110000.00
	Lumpsam for conveyance	3000.00
	Add Tax and others	7000.00
		120,000.00



4. Name of work :-IWMP Construction of side protection wall to the natural drain near Maniyar-Mampara road is ward No : VIII of Vadasserikkara Grama Panchayat

Detailed Estimate

1. Earth work excavation in O/S and depositing on bank with initial lead up to 50 m and lift up to 1.5 m for side cutting

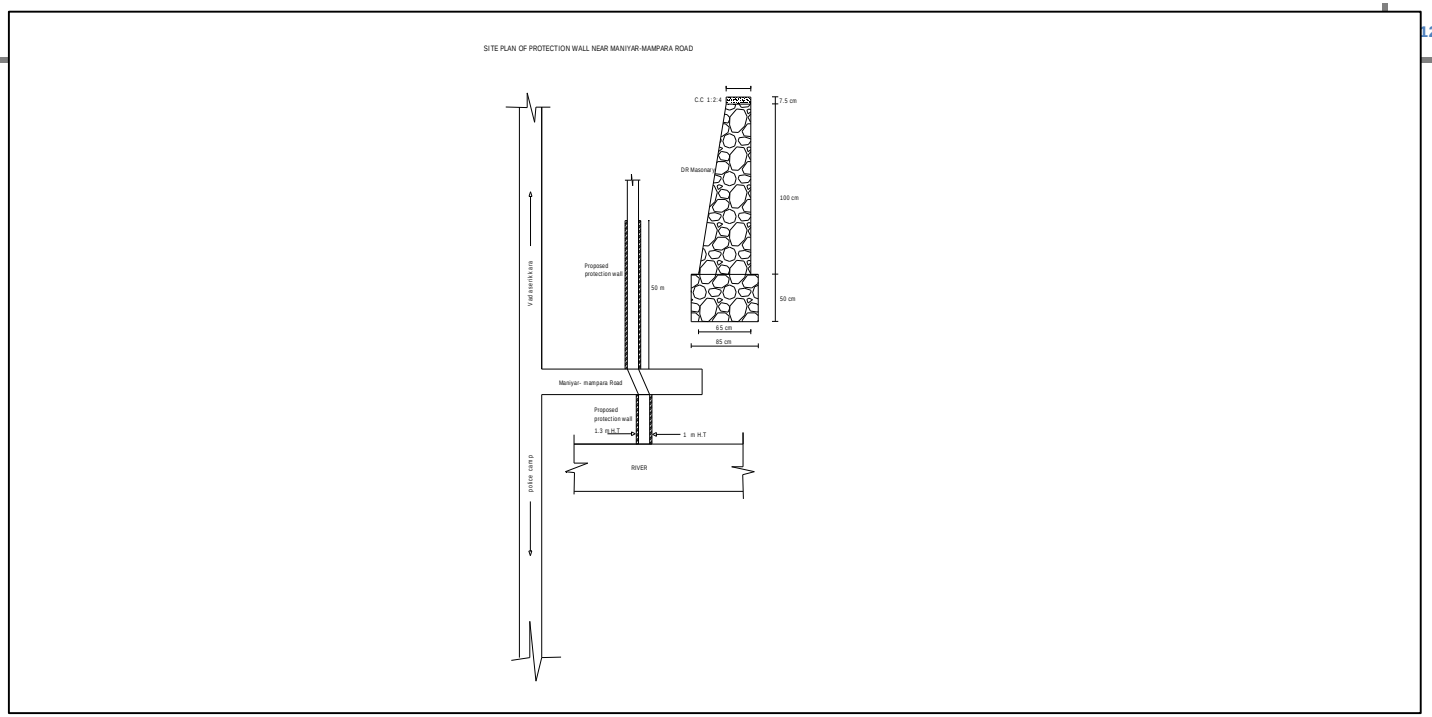
   2 x 40.00 x 0.70 x 1.00 = 56.00 m^3
   1 x 12.50 x 0.70 x 1.00 = 8.75
   1 x 12.50 x 0.75 x 1.30 = 12.14
   76.94
   Say 80 m^3 @ Rs. 909/10 m^3 - Rs 7272/-

2. Earth work excavation in h/s and depositing on bank with initial lead up to 50 m and lift up to 1.5 m for foundation of retaining wall.

   2 x 40.00 x 0.80 x 0.50 = 32.00 m^3
   1 x 12.50 x 0.80 x 0.50 = 5.00
   1 x 12.50 x 0.85 x 0.50 = 5.31
   42.9 m^3
   Say 44 m^3 @ Rs : 2129/10 m^3 - Rs 9368/-

3. D. R Masonry for foundation and super structure of retaining wall including all cost and conveyance of materials labour etc complete for foundation

   Foundation
   2 x 40.00 x 0.80 x 0.50 = 32.00 m^3
   1 x 12.50 x 0.80 x 0.50 = 5.00



5. <u>Name of work : IWMP – Construction of side protection wall and steps to the natural drain near forgin pady colony in ward No : VIII of Vadasserikkara Grama Panchayat.</u>

Detailed Estimate

1. Earth work excavation in h/s and depositing on bank with initial lead and lift including heat banking

O/s side cutting	-	2 x 11.50 x 0.75 x 1.00	= 17.25
Extra for steps	-	3 x 2.20 x 1.30 x 1.00	= <u>8.58</u>
			25.83 m^3
Say 26 m^3 @ Rs : 909/10 m^3		-	Rs 2363/-

2. Foundation

2 x 11.50 x 0.80 x 0.50	=	9.20 m^3
Foundation for steps	=	3.90 m^3
Foundation of cross band 1 x 1.00 x 0.30 x 0.30 x 0.30	=	0.09
		13.19

Say 14.00 m^3 @ Rs : 2129/10 m^3 - Rs 2981/-

3. Dry rubble masonry for foundation and super structure of side wall with 100 Head land

Foundation

2 x 11.50 x 0.80 x 0.50 = 9.20 m^3

Super structure

$2 \times 11.50 \times \frac{0.60 + 0.50}{2} \times 1.00 = 12.65$

Foundation of step

3 x 2.00 x 1.30 x 0.50 = 3.90

Side and wall of step

$3 \times 2 \times 1.20 \times \frac{(0.65 + 0.50)}{2} 1.00 = 3.96$

29.71

Say 30 m^3 @ Rs : 1839/10 m^3 - Rs 55170/-

4. Random rubble in cement mortar 1:8 for steps with 100 m head load

I st step	- 3 x 1.00 x 1.20 x 0.20	= 0.72
II nd step	- 3 x 1.00 x 0.90 x 0.20	= 0.54
III rd step	- 3 x 1.00 x 0.60 x 0.20	= 0.36

DATA

1. Item No : 2

DR masonry

100m head load

1.05 m^3	Rubble	1726.40
		112.35
		1838.75/ m^3

Total

Rate = 1838.75/ m^3

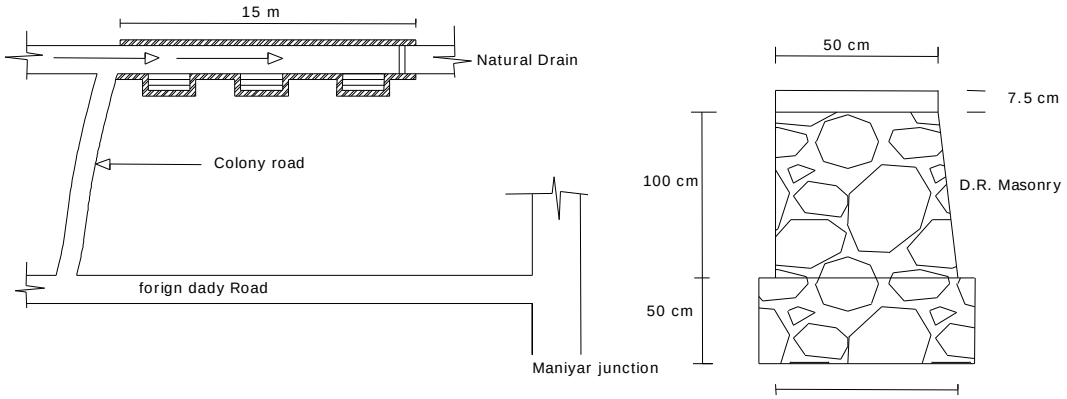
2. Item No : 3

R. R Masonry in cement mortar 1:8		3047.85
1 m^3 Rubble 107/ m^3		107.00
0.3 m^3 Dry sand		32.10
54 Kg cement		2.80
Total		3189.75/ m^3
Rate =	3189.75/ m^3	

3. Item No : 4

C. C 1:2:4 using 20 m m b/s stone		64.75
0.009 m^3 20 m m metal	107/ m^3	0.96
0.0045 Sand	107/ m^3	0.48
3.3 Kg cement	52/mT	0.17
Rate 66.36/10d m^3		66.36/10d m^3

Site plan of side protection wall and steps near forign pady colony



4. Reinforcement for

S S

2 x 40.00 x $\frac{0.60 + 0.50}{2}$ x 1.00 = 44.20

1 x 12.50 x $\frac{0.60 + 0.50}{2}$ x 1.00 = 6.87

1 x 12.50 x $\frac{0.60 + 0.50}{2}$ x 1.30 = 9.34

105.52

Say 30 m^3 @ Rs : 1839/10 m^3 - Rs 55170/-

4. C C 1:2:4 using 20 m m nominal size b/s for top belt including all cost and conveyance of materials, labour etc complete.

2 x 40.00 x 0.50 x 0.075 = 3.00 m^3

2 x 12.50 x 0.50 x 0.075 = 0.93 m^3

3.93

Say 3930d m^3 @ Rs : 64.75/10d m^3 - Rs 25447/-

5. Bailing out water with 5 Hp engine and pumb set including all cost and conveyance and labour etc complete

8 Nos @ Rs : 1312/E - 10496/-

Total 2,30,361/-

Tax. Ep unfor seen if any 11639/-

Grand Total Rs : 2,42,000/-

Say 1.80 m^3 @ Rs : 3190/ m^3 - Rs 742 /-

5. Cement concreat 1:2:4 using 20 m m b/s for top belt including all cost, watering, curing etc. complete with 10 m head load.

Top of R. wall	-	2 x 11.50 x 0.50 x 0.075	=	0.86
Side walls of steps	-	3 x 2 x 1.30 x 0.50 x 0.075	=	0.2
Over steps	-	3 x 4 x 1.00 x 0.30 x 0.075	=	0.27

Say 1.5 m^3 @ Rs 66.35/10d m^3 - Rs 9953/-

6. Bailing out water with 5 H. P Engine pumb set including conveyance exaction fuels and oils etc. complete at the time of construction

Say 5 Nos @ Rs : 1312/day	-	Rs 6560 /-
Total		82769.00
Add taxes and unfor seen if any		5231
Total cost		88,000/-

. Name of work: IWMP. 2012-2013 Side protection work of Eravallupuzha thodu to Ranni Perunadu Grama Panchayat ward no. 14

Detailed Estimate

1. Earth work excavation to head load for foundation for protection work the slit depositing the bank with initial lead up to 50 m and lift up to 1.50 m including breaking, clouding etc complete

2 x 20.00 x 0.20 x 0.50	=	19.00
1 x 90.00 x 0.95 x 0.50	=	42.75
		61.75

Say 62.00 m^3 @ Rs : 2356/ m^3 - Rs 14607.00 /-

2. Dry Rubble masonry for foundation and super structure including all cost conveyance labour charge etc complete.

Foundation		
2 x 20.00 x 0.95 x 0.50	=	19.00
1 x 90.00 x 0.95 x 0.50	=	42.75
Super structure		
2 x 20.00 x $\frac{(0.75+0.50)}{2}$ x 1.50	=	37.50
1 x 90.00 x $\frac{(0.75+0.50)}{2}$ x 1.50	=	84.37
		183.62

Say 184.00 m^3 @ Rs : 1726/ m^3 - Rs 317684.00

3. C C 1 : 3 : 6 20 m m b/s used for top belt of the retaining wall including all cost of materials conveyance labour charge watering curing etc.

2 x 20.00 x 0.50 x 0.075	=	1.50
1 x 90.00 x 0.50 x 0.075	=	3.375
		4.875

Say 4875d m^3 @ Rs : 57.61/10d m^3 - Rs 28083.00

4. Earth work filling using earthwall and conveyed from places at own choice 5 km long

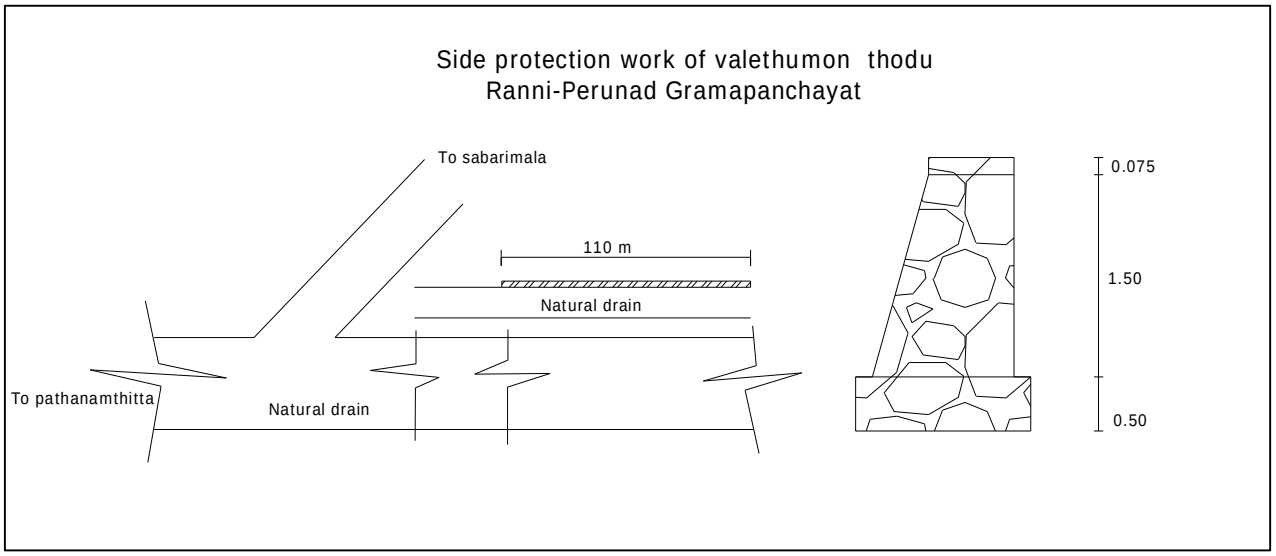
1 x 20.00 x $\frac{(1.50+0.40)}{2}$ x 1.90	=	24.70
1 x 90.00 x $\frac{(1.30+0.40)}{2}$ x 1.30	=	99.45
		124.15
Deduct earthwork Qty		60
		64.15

Say 64.50 m^3 @ Rs : 2505/10 m^3 - Rs 16157.00

Rs 376433.00

Tax and unfor seen if any 23565.00

4,00,000.00



7.Name of work IWMP 2012-2013 water tank No. 4 Laha road side- Perunadu Grama Panchayat (Mamoodu watershed)

Detailed Estimate

Apprendix A water tank

1. Earthwork excavation in hard soil for and depositing the split at places at places and point out by depth
   1 x 4.00 x 3.00 x 0.50 = 6.00
   Say 6.00 m^3 @ Rs : 2064/10 m^3 - Rs 1208.00
2. Random Rubble Masonry in cement mortar 1:8 for foundation and basement
   Foundation 1 x 4.00 x 3.00 x 0.50 = 6.00
   Basement 1 x 3.90 x 2.90 x 0.45 = 5.09
   11.09
   Say 11.09 m^3 @ Rs : 2909/10 m^3 - Rs 31999.00
3. Cement concrete 1 :2 : 4 20 m b/s used for including all cost conveyance labour charge, watering, curing etc complete.

   1 x 3.80 x 2.80 x 0.15 = 1.60
   Say 1600dm^3 @ Rs. 64.75/10dm^3 Rs.10360.00
4. Cement concrete 1 : 1½ : 3 using b/s for reinforcement work including all cost of materials conveyance labour charge etc complete.

   1 x 3.80 x 2.80 x 0.15 = 1.60
   1 x 12.60 x 0.15 x 1.00 = 1.89
   3.49 m^3
5. Reinforcement R. C. C work placed a position
   Say 3.50 m^3
   Say 472.50 g @ Rs.6339/all Rs.29952.00

6. Plastering 1 : 3 12 mm thick one coat
   1 x 3.50 x 2.50 = 8.75
   Side wall 1 x 12.00 x 1.00 = 12.00

20.75

Say 20.75 m^2@ Rs: 1838/10 m^2 - Rs 3814.00

7. Pointing Random Rubble masonry with cement mortar 1 : 4

   1 x 13.20 x 0.45 = 5.94

   Say 5.94 m^2@ Rs: 496/10 m^2 - Rs 479.00

8. Jungle stone packing around the water tank at depressions

   1 x 12.40 x 2.00 x 0.30 = 7.20

   Say 7.20 m^3@ Rs: 496/ m^3 - Rs 3671.00

9. Cement concrete 1 : 4 : 8 40 mm b/s used including all cost conveyance labour charge etc.

   1 x 12.00 x 3.00 x 0.10 = 3.60

   Say 3.60 m^3@ Rs : 4530/10 m^3 - Rs 16908.00

10. Cement concrete 1 : 2 : 4 20 mm b/s using for wearing coat including all cost conveyance labour charge, watering, curing etc complete

    1 x 12.00 x 3.00 x 0.08 = 2.70

    Say 2.700dm^3@ Rs : 64.75/10dm^3 - Rs 16908.00 Rs. 17483.00

    142391.00

Appendix B

1. Earthwork excavation in hard soil and depositing the split at places pointed out by dept

   1 x 6.50 x 0.60 x 0.50 = 1.95

   Say 2. 00dm^3@ Rs: 2356/10dm^3 - Rs 471.00

2. Dry Rubble masonry for foundation and super structure including all cost conveyance labour charge etc. complete

   1 x 6.50 x 0.60 x 0.50 = 1.95

   1 x 6.50 x $\frac{(0.75+1.50)}{2}$ x 1.50 = 6.09

   8.04

   Say 8.50 m^3@ Rs: 1726/m^3 - Rs 14671.00

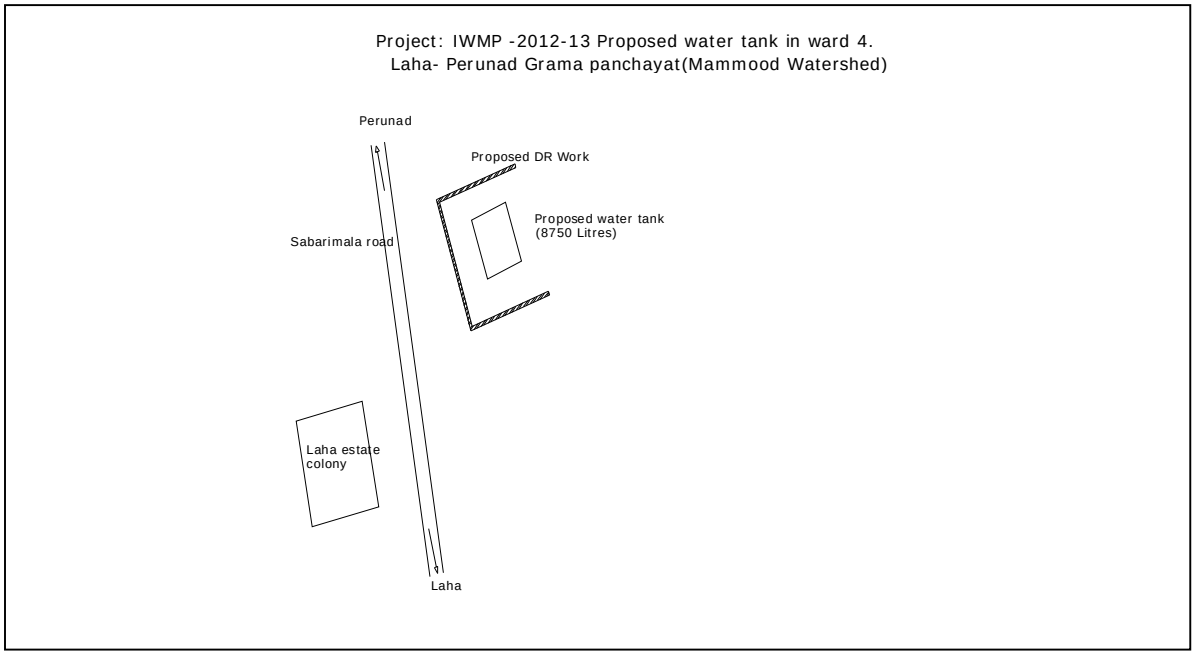
3. C C 1 : 3 : 6 20 mm b/s used for top belt at retaining wall including all cost conveyance labour charge etc. complete

1 x 6.50 x 0.50 x 0.075	=	0.243	
Say 243dm^3@ Rs: 57.61/10dm^3		-	Rs 1400.00
			16542.00

Abstract of Estimate

Appendix	A. Water tank	Rs.	142391.00
	B. Protection work	Rs.	16542.00
			158933.00
Tax			2058.00
			11125.00

1,72,000.00



8.Name of work :- Construction of Pond in Seethakuzhi in ward 10 Seethathodu Grama Panchayat, under Seethathodu watershed IWMP scheme 2012

DETAILED ESTIMATE

Appendix –A- Construction of pond

1. Earthwork excavation in hard soil and depositing on bank with initial lead up to 50m and lift up to 1.5 m including breaking clouds, watering, ramming and sectioning of spoil bank etc complete.

Initial depth						
(0m to 1.5m)	1	8.50	8.50	1.50	108.38	
Total					108.38 m^3	
Say		109.00 m^3 @			2064.00/10m^3	Rs. 22,498

2. Excavating in ordinary rock 50% & hard soil 50% and depositing on bank including breaking clods, watering, ramming and sectioning of spoil bank, Stacking serviceable material for measurements and disposal of unserviceable material as directed.

First depth	1	8.50	8.50	1.50	108.38	
Total					108.38 m^3	
Say		109.00m^3 @ Rs			3393.00/10m^3	Rs. 36,984

3. Excavating in ordinary rock 50% & hard soil 50% and depositing on bank including breaking clods, watering, ramming and sectioning of spoil bank, Stacking serviceable material for measurements and disposal of unserviceable material as directed.

Second depth	1	8.50	8.50	0.55	39.74	
Foundation	1	27.00	1.95	0.60	31.59	
Total					71.33 m^3	
Say		72.00 m^3 @ Rs			3544.00/10m^3	Rs.25,517

4. Bailing out water with (5HP) engine and pump set including conveyance to the side and errection, cost of fuel, lubricating oil and other stores, pay of staff etc complete

			33 days		
Say	33.00	day	@Rs	1312 /day	Rs. 43296.00

5. DR Masonry for foundation & superstructure of side walls including all cost of materials etc complete

For foundation	1	27.00	1.95	0.60	31.59	
For	2	8.50	(1.75+0.6)/2	3.55	70.91	
Super structure	2	(5+7.3)/2	(1.75+0.6)/2	3.55	51.31	
Total					153.81 m^3	
Deduction						
For C C belt	2	8.50	1.18	0.15	3.00	
	2	5+7.3)/2	1.18	0.15	2.18	
Total					5.18 m^3	
Total Quantity					148.63	
Say	150.00 m^3@ Rs				1726/m^3	Rs. 258,900.00

6. Cement concrete 1 : 2 : 4 20 mm metal for reinforced cement concrete work including all watering, materials, conveyance cost and labour charges but excluding the cost of reinforcement work etc.

C.C Belt	2	8.50	1.18	0.15	3.00	
	2	5+7.3	1.18	0.15	2.18	
					5.1800 m^3	
Say		5200.00 dm^3 @ Rs			64.75/10dm^3	Rs.33,670

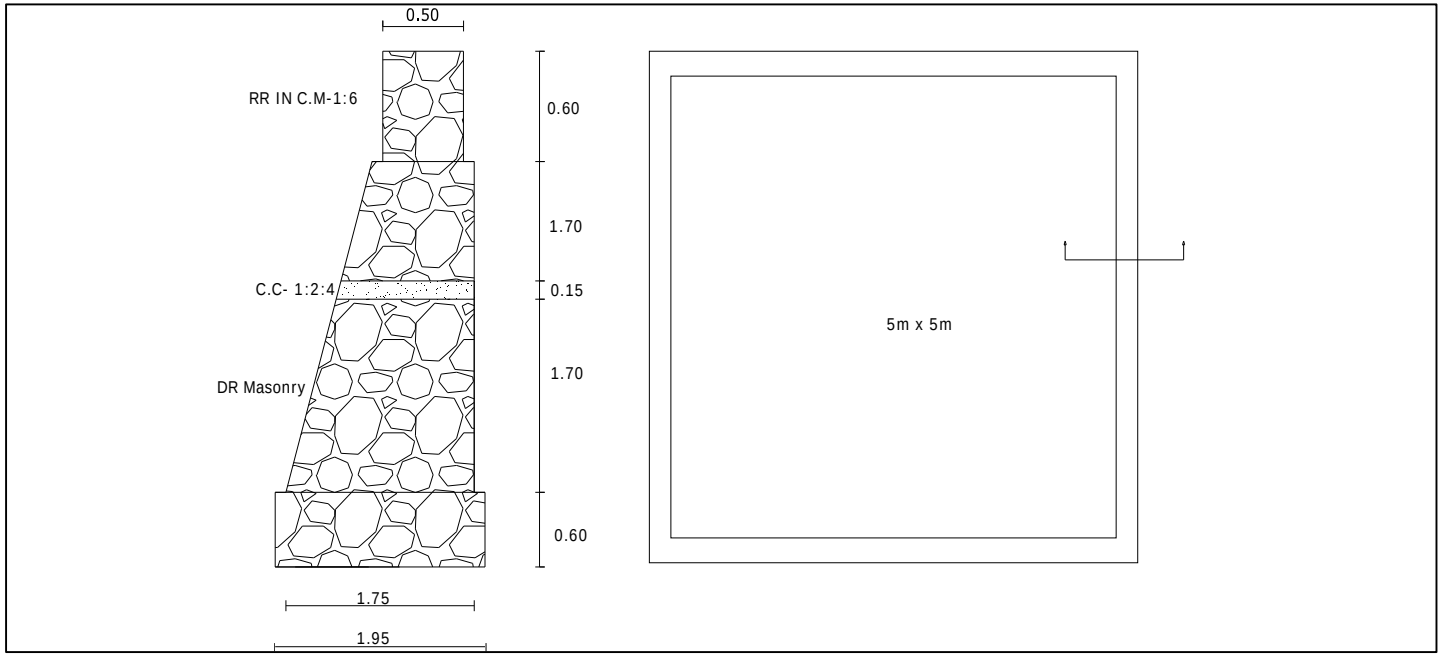
7. RR in cement mortar 1 :6 including all cost of material, watering, curing etc. complete

For top protection						
Wall	2	8.40	0.50	0.60	5.04	
	2	5.00	0.50	0.60	3.00	
Total					8.04 m^3	
Say	8.04 m^3 @ Rs				3022.00/m^3	Rs. 24385.00

8. Plastering with cement mortar 1 : 4 15mm thick one coat, including all cost of material, labour charge etc complete.

	1	27.80	0.70	19.46	
				19.4600 m^2	
Say		20.00	m^2 @ Rs	1862.00/10m^2	Rs. 3,724.00
				TOTAL	Rs. 44897
				Unforceen & Taxes	Rs. 20026
				GRAND TOTAL	Rs. 4,69,000.00

(Rupees Four Lakh and Sixty nine Thousand only)



9.Name of work :- IWMP 2012-2013 Side protection wall construction of slab across the in Ranni Perunadu Grama Panchayat ward No.12

Detailed Estimate

1. Earthwork excavation in hard soil for foundation

1 x 7.00 x 1.00 x 0.50	=	3.50
1 x 6.00 x 1.05 x 0.50	=	8.40
1 x 8.00 x 1.15 x 0.50	=	4.60
1 x 15.00 x 1.15 x 0.50	=	8.62
1 x 10.00 x 1.30 x 0.50	=	6.50
1 x 7.00 x 1.10 x 0.50	=	3.85
		35.47

Say 35.50 m^3@ Rs: 2356/m^3 - Rs 8364.00

2. Dry Rubble masonry for foundation and super structure including all cost conveyance labour charge etc. complete

Foundation

1 x 7.00 x 1.00 x 0.50	=	3.50
1 x 6.00 x 1.05 x 0.50	=	8.40
1 x 8.00 x 1.15 x 0.50	=	4.60
1 x 15.00 x 1.15 x 0.50	=	8.62
1 x 10.00 x 1.30 x 0.50	=	6.50
1 x 7.00 x 1.10 x 0.50	=	3.85
		35.47

Super structure

1 x 7.00 x $\frac{(0.70+0.50)}{2}$ x 1.60	=	7.28
1 x 6.00 x $\frac{(0.85+0.50)}{2}$ x 1.70	=	18.36
1 x 8.00 x $\frac{(0.95+0.50)}{2}$ x 1.90	=	11.02

1 x 15.00 x $\frac{(0.95+0.50)}{2}$ x 1.90 = 20.66

1 x 10.00 x $\frac{(1.10+0.50)}{2}$ x 2.20 = 17.60

1 x 7.00 x $\frac{(0.90+0.50)}{2}$ x 1.80 = 8.82

119.21

Say 119.50 m^3@ Rs: 1726/m^3 - Rs 206257.00

3. C C 1 : 3 : 6 20 mm b/s used for top belt at retaining wall including all cost materials conveyance labour charge, watering, curing etc. complete

   Total length of the R/w

   63.00 x 0.50 x 0.075 = 2.3625

   Say 2362.50 dm^3@ Rs: 57.61/10dm^3 - Rs 13610.00

4. Filling earth contraction own earth cut and conveyed from source at availability at the retaining wall including all cost materials conveyance labour charge etc

   1 x 35.00 x $\frac{(1.00+0.40)}{2}$ x 1.50 = 36.75

   1 x 20.00 x $\frac{(1.25+0.40)}{2}$ x 1.50 = 24.75

   61.75

   Deduct Earthwork Qty 35.47

   26.05 m^3

   Say 26.50m^3@ Rs: 2505/10m^3 - Rs

5. R C C 1 : 2 : 4 20 mm b/s used for foil slab across the thodu including all cost materials conveyance labour charge etc complete

   1 x 2.90 x 1.10 x 0.10 = 0.319

   Say 319.00 dm^3@ Rs: 78.52/10dm^3 - Rs. 2505.00

6. Reinforcement R C C work placed a position including all cost materials conveyance labour charge etc

   5mmØ

   21 x 1.05 = 22.05

9 x 2.85 = 25.65
47.70
47.70 x 0.395 = 18.84
Say 19kg @ Rs: 6339/all - Rs. 1204.00

7. Plug and providing 50mmØ GI pipe for hard soil including all cost materials conveyance labour charge etc
   - 6 x 1.00 = 6.00
   - 2 x 2 x 3.00 = 12.00
   27.00
   Say 27.00m @ Rs: 453/m - Rs. 4590.00
   Name Board Ls = 3000.00
   246168.00
   Tax and unfor seen 16322.00
   262490.00

10.Name of work :- IWMP 2012-2013 Side protection wall to the natural drain Athampanamkuzhi, Valumannilpadi road in ward. VI of Vadasserikkara Grama Panchayat

1. Earthwork excavation in hard soil and depositing on bank with initial lead and lift including neat damking etc.
   Side cutting - 2 x 60.00 x 0.75 x 1.50 = 90.00
   Foundation - 2 x 60.00 x 0.85 x 0.50 = 51.00
   Total 141.00 m^3
   Say 141 m^3 @ Rs: 1511/10m^3 - Rs. 21305.00
2. Dry Stone masonry for foundation and super structure of side protection wall

   Foundation - 2 x 60.00 x 0.85 x 0.50 = 51.00
   Super structure - 2 x 60.00 x $\frac{(0.65+0.50)}{2}$ x 1.00 = 69.00
   Total = 120.00m^3
   Say 120m^3 @ Rs: 1341/10m^3 - Rs. 160920.00
3. Cement concrete 1 :2 : 4 using 20 mm b/s for top belt including all cost watering, curing etc complete.
   2 x 60.00 x 0.50 x 0.075 = 4.50 m^3

Say 4.50m^3 @ Rs: 54.00/10dm^3 - Rs. 24300.02

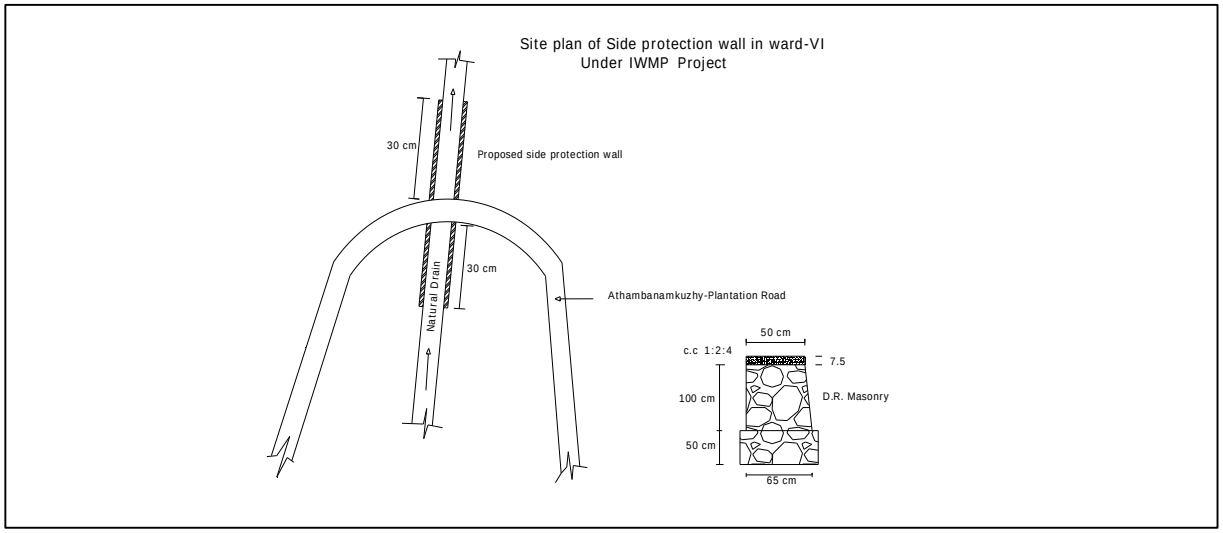
4. Bailing out water with (5HP) engine and pump set including conveyance to the side and errection, cost of fuel, oil etc complete at the time of construction. 8 days

   Say 8 days @ Rs: 1233/day - Rs. 9864.00

   Total 216389.00

   Add Taxes and unfor seen items 11611.00

   228000.00



11. <u>Name of work :- IWMP 2012-2013 proposed retaining wall in ward XI near temple Vayaranmaruthi, Perunadu Grama Panchayat (Madathumoozhy watershed)</u>

1. Earthwork excavation in ordinary soil and depositing on bank with lead up to 50m and lift up to 1.5 m

1	60.00	0.50	1.00	30.00	$10m^3$	1263	37.89

2. Chipping in hard rock (Where blasing is prohibited) measured in the solid depositing and stracking materials for measurement within the initial lead up to 50m and lift up to 1.5 m

1	60.00	1.10	0.20	13.20	$10m^3$	11071	14614
Say		13.20 m^3					

3. Providing dowel barts of 90 cm long 20mm dia iron steel baring 60 cm deep holes bending 'L' shape fix the iron steel in the whole (60cm inside the whole and 60 cm outside the whole) by filling with cement grout.

120					Each	351	42120

4. C C 1 : 2 : 4 using 20mm (nominal size) hard granite broken stone including watering, curing etc. complete.

1	60.00	1.00	0.20	12.00	$10dm^3$	54	64800.00

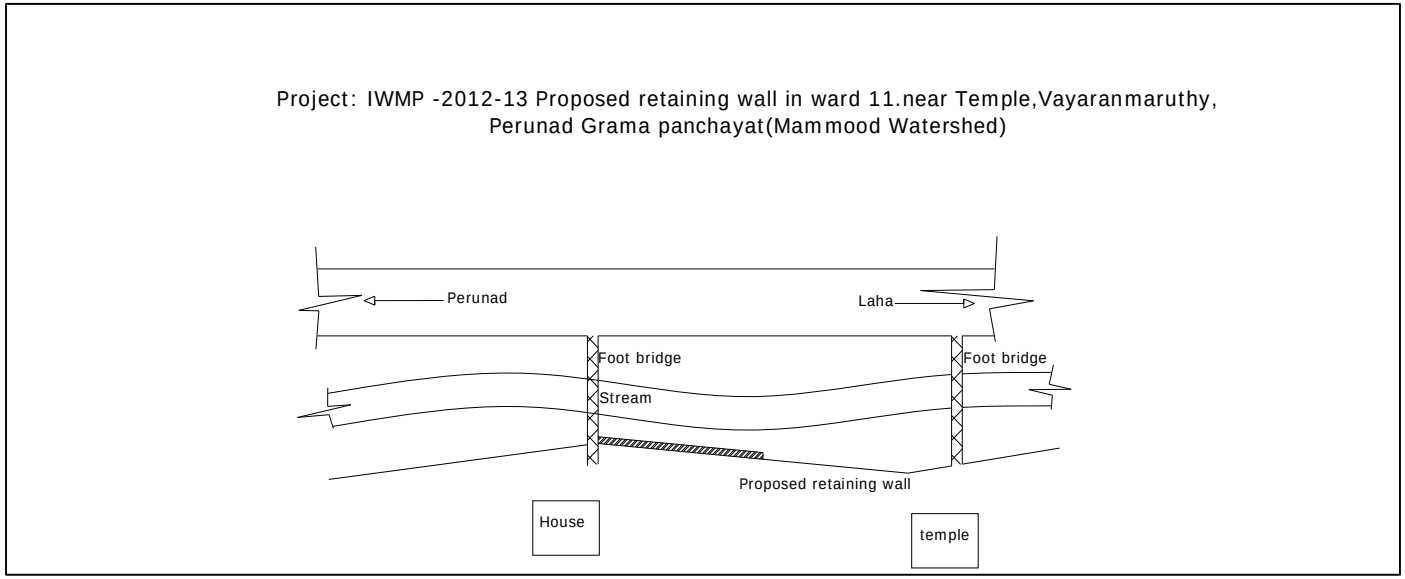
5. Dry Rubble masonry including all cost of conveyance labour charge etc. complete as per standard specification
   For super structure

1	60.00	$\frac{(0.50+1.00)}{2}$	1.80	90.00	m^3	1726	139806

6. C C 1 : 3 : 6using 20mm (nominal size) hard granite broken stone including watering, curing etc. complete

1	60.00	0.50	0.075	2.25	$10dm^3$	59.89	13430

Say total **2,95,000/-**



12.Name of work :- IWMP 2012-2013 proposed retaining wall in ward XI near Ganapathi Palaikal house, Vayaranmaruthy Perunadu Grama Panchayat (Madathumoozhy watershed)

1. Earthwork excavation in ordinary soil and depositing on bank with lead up to 50m and lift up to 1.5 m

1	55.00	0.50	1.00	27.50	$10m^3$	1263	2250.00

2. Chipping in hard rock (Where blasing is prohibited) measured in the solid depositing and stracking materials for measurement within the initial lead up to 50m and lift up to 1.5 m

1	55.00	1.10	0.20	12.10	$10m^3$	80.66	9760.00
Say		12.10 m^3					

3. Providing dowel barts of 90 cm long 20mm dia iron steel baring 60 cm deep holes bending 'L' shape fix the iron steel in the whole (60cm inside the whole and 60 cm outside the whole) by filling with cement grout.

110					Each	367	31570.00

4. C C 1 : 2 : 4 using 20mm (nominal size) hard granite broken stone including watering, curing etc. complete.

1	55.00	1.00	0.15	8.25	$10m^3$	54	44580

5. Dry Rubble masonry including all cost of conveyance labour charge etc. complete as per standard specification

For super structure

1	55.00	$\frac{(0.5+1.00)}{2}$	1.55	63.94	m^3	1726	110360

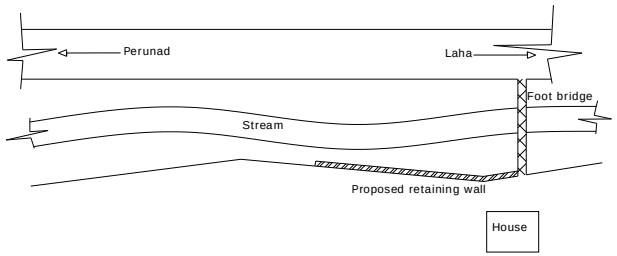
6. C C 1 : 3 : 6using 20mm (nominal size) hard granite broken stone including watering, curing etc. complete

1	55.00	0.50	0.075	2.00	$10dm^3$	5969	10080.00

Say 2.00 m^3

Total Cost 254135

Project: IWMP -2012-13 Proposed retaining wall in ward 11.near Ganapathy palackal House,Vayaranmaruthy, Perunad Grama panchayat(Mammood Watershed)



13.Name of work :- IWMP 2012-2013 proposed retaining wall in ward XI near Ganapathi Palaikal house, Vayaranmaruthy Perunadu Grama Panchayat (Madathumoozhy watershed)

1. Earthwork excavation in ordinary soil and depositing the soil at places points out by dept officials at size as per standard specification

1	45.00	1.10	0.50	24.75 m^3	1263	3126
Say	23.00 m^3					

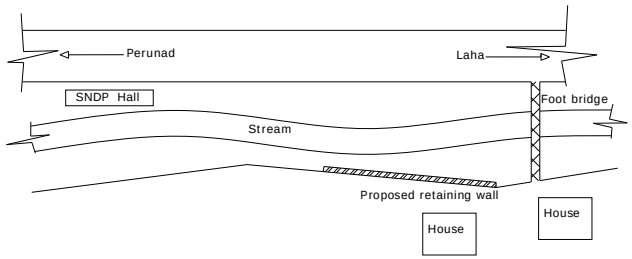
6) Dry Rubble masonry including all cost of materials, labour conveyance etc. complete as per standard specification

For super structure							
1	45.00	1.00	0.50	24.75	m^3	1726	153338
For super structure							
1	45.00	0.50	0.075	1.00			
Say	92.25 m^3	88.84					

7) C C 1 : 3 : 6 using 20mm (nominal size) hard granite broken stone including watering, curing etc. complete

1	45.00	0.50	0.075	1.69	$10m^3$	594	10079
Say	1.70 m^3	166543					

Project: IWMP -2012-13 Proposed retaining wall in ward 11.near SNDP Hall,Vayaranmaruthy.
Perunad Gramapanchayat (Madathumoozhy watershed



Draft Estimates and Unit Cost

Name of work Side protection using stone masonry

Grama Panchayath Ranni Perinadu
District Pathanamthitta

Item No	Description	No	L	B	D	Qty	Rate	Unit		Amount
1	Clearing light jungle including uprooting of thick vegetation and small trees of girthupto 30cm and removal of rubbish upto a distance of 150 m outside the periphery of the area cleared.	1	200.00	1.10		220	396.00	100	m^2	871.20
2	Earth work excavation in ordinary soil and depositing on bank with initial lead up to 50m and lift upto 1.5m including breaking clods, watering, ramming and sectioning of spoil bank, etc. complete.	1	200.00	1.10	0.15	33	1326.00	10	m^3	4375.80
3	Earth work excavation in hard soil and depositing on bank with initial lead up to 50m and lift upto 1.5m including breaking clods, watering, ramming and sectioning of spoil bank, etc. complete.	1	200.00	1.10	0.30	66	2474.00	10	m^3	16328.40
4	Dry rubble masonry including all costs of material, labour, conveyance, and all other incidental charges involved etc complete as per standard specification									
	Foundation	1	200.00	1.10	0.45	99				
	Super structure	1	200.00	0.73	1.00	146				
	Total					245	1754.00	1	m^3	429730.00

5	Random rubble masonery in cement morter 1:6 (one coat cement and six sand) using 72kg of cement /1m3 masonery for wall with hammer dressed close finished joints without pinnings and pointing the exposed faces of masonery with the same morter simultaneously during the course of construction, including cost and conveyance of all materials, labour charges etc. complete	1	200.00	0.58	0.50	58	3342.00	1	m^3	193836.00
6	Plastering with cement morter 1:4, 12mm thick one coat using 54kg of cement /10m2 plastering, floated hard and trowelled smooth including cost and conveyance of all materials labour charges etc. complete	1	200.00	0.55		110	1993.00	10	$10m^2$	21923.00
7	Back filling the available earth during the course of construction including consolidation, etc. complete.	1	200.00	0.50	1.50	150	974	10	m^3	14610.00
										681674.40
	Unforeseen, if any									**25.60**
	Grand Total									**681700.00**

Data

Side protection using stone masonry

Sl.no.	Description	Number	Rate	Amount	
1	Clearing light jungle including uprooting of thick vegetation and small trees of girthupto 30cm and removal of rubbish upto a distance of 150 m outside the periphery of the area cleared.				
	Unskillled labour	1	377	377.00	
	Add 5 % overhead charges			**18.85**	
	Total			**395.85**	
	Say			**396.00**	**100m^2**
2	Earthwork excavation in ordianary 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-				
	Unskilled	3.35	377	1262.95	
	Add 5 % overhead charges			**63.15**	
	Total			**1326.10**	
	Say			**1326.00**	**10m^3**
3	Earthwork excavation in hard 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				
	Unskilled	6.25	377	2356.25	
	Add 5 % overhead charges			**117.81**	
	Total			**2474.06**	
	Say			**2474.00**	**10m^3**

4	Dry rubble masonry including all costs of material, labour, coneyance, and all other incidental charges involved etc complete as per standard specification				
	Rubble	1.05	420	441.00	
	Conveyance - Rubble	1.05	561	589.05	
	Labour				
	Mason	0.8	471	376.80	
	Unskilled	0.7	377	263.90	
				1670.75	
	Add 5 % overhead charges			**83.54**	
	Total			**1754.29**	
	Say			**1754.00**	**m^3**
5	Random rubble masonery in cement morter 1:6 (one coat cement and six sand) using 72kg of cement /1m3 masonery for wall with hammer dressed close finished joints without pinnings and pointing the exposed faces of masonery with the same morter simultaneously during the course of construction, including cost and conveyance of all materials, labour charges etc. complete				
	Blasted rubble	1	420	420	
	Sand	0.3	2777	833	
	Cement	0.072	5940	428	
	Conveyance - Rubble	1	561	561.00	
	Conveyance - Sand	0.3	625	187.50	
	Conveyance - cement	0.072	375	27.00	
	rubble mason	0.7	471	330	
	Unskilled	0.35	377	132	
	Unskilled	0.7	377	264	
				3182.50	
	Add 5 % overhead charges			**159.13**	
	Total			**3341.63**	
	Say			**3342.00**	**m^3**

6	Plastering with cement morter 1:4, 12mm thick one coat using 54kg of cement /10m2 plastering, floated hard and trowelled smooth including cost and conveyance of all materials labour charges etc. complete				
	materials				
	Sand	0.15	2777	417.00	
	Cement	0.054	5940	321.00	
	Conveyance - Sand	0.15	625	93.75	
	Conveyance - cement	0.054	375	20.25	
	labour				
	Mason	0.9	471	424.00	
	Unskilled	0.55	377	207.00	
	Unskilled	1.1	377	415.00	
				1898.00	
	Add 5 % overhead charges			**94.90**	
	Total			**1992.90**	
	Say			**1993.00**	**$10m^2$**
7	Back filling the available earth during the course of construction including consoilidation, etc. complete.				
	Rate for $10m^3$				
	Conveying the available earth-Head Load 100m	10	71	710.00	
	Consolidating the available earth-unskilled labour	0.7	377	263.90	
				973.90	
	Say			**974**	**$10m^3$**

Detailed Estimate

Item No.	Description	No	L	B	D	Qty	Rate	Unit	Amount
1	Clearing light jungle including uprooting of thick vegetation and small trees of girthupto 30cm and removal of rubbish upto a distance of 150 m outside the periphery of the area cleared.	1	7.00	5.00		35 m^2	396.00	100 m^2	138.6
2	Earth work excavation in liquid mud and depositing on bank with initial lead up to 50m and lift upto 1.5m including breaking clods, watering, ramming and sectioning of spoil bank, etc. complete.								
	bed	1	5.00	5.00	0.45	11.25 m^3	1591.00	10 m^3	1789.875
3	Earth work excavation in hard soil and depositing on bank with initial lead up to 50m and lift upto 1.5m including breaking clods, watering, ramming and sectioning of spoil bank, etc. complete.								
		1	5.00	0.75	1.50	5.625 m^3	2474.00	10 m^3	1391.625
4	Earth work excavation in hard soil(liquid mud) and depositing on bank with initial lead up to 50m and lift upto 1.5m including breaking clods, watering, ramming and sectioning of spoil bank, etc. complete.								
		2	4.70	0.45	0.45	1.9035			

		2	5.00	0.90	0.60	5.40			
	Total					7.3035	m^3	2969.00	10 m^3	2168.409
5	Dry rubble masonry including all costs of material, labour, coneyance, and all other incidental charges involved etc complete as per standard specification									
	Foundation Retaining wall	2	5.00	0.90	0.60	5.40				
	Bed Foundation	1	5.00	5.00	0.45	11.25				
	Check dam	1	5.00	1.125	0.75	4.2188				
	Additional foundation top and bottom of bed	1	0.45	5.00	0.45	1.0125				
	Total					21.881	m^3	1754.00	1 m^3	38379.71
6	Random rubble masonery in cement morter 1:6 (one coat cement and six sand) using 72kg of cement /1m3 masonery for wall with hammer dressed close finished joints without pinnings and pointing the exposed faces of masonery with the same morter simultaneously during the course of construction, including cost and conveyance of all materials, labour charges etc. complete	2	5.00	0.63	1.50	9.375	m^3	3342.00	1 m^3	31331.25
7	Plastering with cement morter 1:4, 12mm thick one coat using 54kg of cement /10m2 plastering, floated hard and trowelled smooth including cost and conveyance of all materials labour charges etc. complete	2	5.00	0.55		5.50	m^2	1993.00	10 m^2	1096.15
8	Vibrated R C.C 1 : $1^1/_2$: 3 using 20mm nominal size broken stone including all costs of material labour conveyance, watering, curing and all other incidental charges involved etc complete, but excluding cost of reinforcement as per standard specification and as directed by departmental officers at site.	1	8.17	5.00	0.075	3.0638	m^3	76.50	10 dm^3	23437.69

9	Reinforcement for R.CC work, bent,tied ,and placed in position including all cost of materials ,labour conveyance ,and, all other incidental charges involved etc. complete as per standard specification and as directed by dept officers at site	1				1.8383 qtls	6662.00	qtls	12246.42
									111979.73
	Unforeseen, if any								**20.27**
	Grand Total								**112000**

Data

Name of work **Construction of a Checkdam**

Sl.No.	**Description**	**Number**	**Rate**	**Amount**	
1	Clearing light jungle including uprooting of thick vegetation and small trees of girthupto 30cm and removal of rubbish upto a distance of 150 m outside the periphery of the area cleared.				
	Unskillled labour	1	377	377.00	
	Add 5 % overhead charges			**18.85**	
	Total			**395.85**	
	Say			**396.00**	**100m^2**
2	Earthwork excavation in ordianary 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-				
	Unskilled	3.35	377	1262.95	
	Add 20 % extra for liquid mud			**252.59**	
	Add 5 % overhead charges			**75.78**	

	Total			**1591.32**	
	Say			**1591.00**	**10m^3**
3	Earthwork excavation in hard 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				
	Unskilled	6.25	377	2356.25	
	Add 5 % overhead charges			**117.81**	
	Total			**2474.06**	
	Say			**2474.00**	**10m^3**
4	Earthwork excavation in hard 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				
	Unskilled	6.25	377	2356.25	
	Add 20 % extra for liquid mud			**471.25**	
	Add 5 % overhead charges			**141.38**	
	Total			**2968.88**	
	Say			**2969.00**	**10m^3**
5	Dry rubble masonry including all costs of material, labour, coneyance, and all other incidental charges involved etc complete as per standard specification				
	Rubble	1.05	420	441.00	
	Conveyance - Rubble	1.05	561	589.05	
	Labour				
	Mason	0.8	471	376.80	
	Unskilled	0.7	377	263.90	
				1670.75	
	Add 5 % overhead charges			**83.54**	
	Total			**1754.29**	

	Say			**1754.00**	**m^3**
6	Random rubble masonery in cement morter 1:6 (one coat cement and six sand) using 72kg of cement /1m3 masonery for wall with hammer dressed close finished joints without pinnings and pointing the exposed faces of masonery with the same morter simultaneously during the course of construction, including cost and conveyance of all materials, labour charges etc. complete				
	Blasted rubble	1	420	420	
	Sand	0.3	2777	833	
	Cement	0.072	5940	428	
	Conveyance - Rubble	1	561	561.00	
	Conveyance - Sand	0.3	625	187.50	
	Conveyance - cement	0.072	375	27.00	
	rubble mason	0.7	471	330	
	Unskilled	0.35	377	132	
	Unskilled	0.7	377	264	
				3182.50	
	Add 5 % overhead charges			**159.13**	
	Total			**3341.63**	
	Say			**3342.00**	**m^3**
7	Plastering with cement morter 1:4, 12mm thick one coat using 54kg of cement /10m2 plastering, floated hard and trowelled smooth including cost and conveyance of all materials labour charges etc. complete				
	materials				
	Sand	0.15	2777	417.00	
	Cement	0.054	5940	321.00	
	Conveyance - Sand	0.15	625	93.75	
	Conveyance - cement	0.054	375	20.25	
	labour				

	Mason	0.9	471	424.00	
	Unskilled	0.55	377	207.00	
	Unskilled	1.1	377	415.00	
				1898.00	
	Add 5 % overhead charges			**94.90**	
	Total			**1992.90**	
	Say			**1993.00**	**10m^2**
8	Vibrated R C.C 1 : $1^1/_2$: 3 using 20mm nominal size broken stone including all costs of material labour conveyance, watering, curing and all other incidental charges involved etc complete, but excluding cost of reinforcement as per standard specification and as directed by departmental officers at site.				
	broken stone-20mm	0.009	942.00	8.48	m3
	sand	0.0045	2777.00	12.50	m3
	conveyance of b. s	0.009	561.00	5.05	m3
	do-conveyence of sand	0.0045	625.00	2.81	m3
	do-conveyence of cement	0.00432	375.00	1.62	t
	labour			0.00	
	mason	0.002	471.00	0.94	E
	man	0.01	377.00	3.77	E
	women	0.035	377.00	13.20	E
	total			48.36	
	Add 5% OH			2.42	
	cost of cement	0.00432	5940.00	25.66	t
			Total	76.44	
	Say			**76.50**	**/ 10dm^3**
9	Reinforcement for R.CC work, bent,tied ,and placed in position including all cost of materials ,labour conveyance ,and, all other incidental charges involved etc. complete as per standard specification and as directed by dept officers at site				

	tore steel	1	5210	5210.00	q
	Iron wire	0.45	87.00	39.15	Kg
	Conveyance of steel	1	375.00	37.50	t
	Blacksmith	1	500.00	500.00	each
	man	1.48	377.00	557.96	each
	Total			6344.61	
	Add 5% OH			317.23	
	Total			6661.84	
	Total			**6662.00**	**Qtl**

Gully plugging

Detailed Estimate

Item No.	Description	No.	L	B	D	Qty	Rate	Unit		Amount
1	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	4.24	0.80	0.15	0.5088	1326	10	m^3	67.47
2	Construction of gully plugs using picked up stones including conveyance labour etc.	1	3.00	0.55	1.00	1.65	792.00	1	m^3	1306.8
										1374.27
	For I m^3 of Gully plugging									832.89
	Unforseen items if any									67.11
	Total									**900.00**

Data

Sl.no.	Description	Number	Rate	Amount	unit
1	Earthwork excavation in ordianary 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-				
	Unskilled	**3.35**	**377**	1262.95	
	Add 5 % overhead charges			63.15	
	Total			1326.10	
	Say			**1326.00**	**10 m^3**
2	Construction of gully plugs using picked up stones including conveyance labour etc.				
	Picking up of available stones and conveying to the site by head load- unskilled labour	**0.5**			
	gully plugging - unskilled labour	**1.5**			
	Total	**2**	**377**	754.00	
	Add 5 % overhead charges			37.70	
	Total			791.70	
	Say			**792.00**	**m^3**

RAIN WATER PIT (compatibility mode)

Detailed Estimate

Item No	Description	No	L	B	D	Qty	Rate	Unit	Amount
1	Clearing grass and other overgrowths of vegetation and small trees of girth upto 30cm and removal of rubbish upto a distance of 150m outside the periphery of the area cleared.	100	0.75	0.60		45	188.50	100 m^2	84.83
2	Earthwork excavation in ordianary 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	100	0.75	0.60	0.45	20.25	1263	10 m^3	2557.58
3	Earthwork excavation in hard 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	100	0.75	0.60	0.15	6.75	2356	10 m^3	1590.3
	Total								4232.71
	Unforeseen, if any								**67.29**
	Grand Total								**4300**

Data

Sl.No.	Description	Number	Rate	Amount	Unit
1	Clearing grass and other overgrowths of vegetation and small trees of girth upto 30cm and removal of rubbish upto a distance of 150m outside the periphery of the area cleared.				
	Unskillled labour	**0.5**	377	**188.5**	100 m^2
2	Earthwork excavation in ordianary 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				
	Unskilled	**3.35**	377	**1263**	10 m^3
3	Earthwork excavation in hard 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				
	Unskilled	**6.25**	377	**2356**	10 m^3

Data

Name of work **Contour Stone Bunding with collected jungle stones.**

Sl No.	Description	Number	Rate	Amount	
1	Contour bunding using collected jungle stones of size 15 to 22 cms. stones laying with 1 in 5 batter and filling the back of stone packing with earth so as to get a top width of 45 to 50 cms. Including foundation of 15 to 20 cms.				
	Out turn fixed for a man mazdoor (@25% work load fixed for bund with quarrying)			2.090	
	Man days required for 100m2 bund			47.840	
	Cost for bunding @377/E	47.840	377	18036.00	/100M^2
	Add 5 % overhead charges			901.80	
	Total			18937.80	
	Say			189.00	/m^2

Name of work **Bio fencing**

Sl.no.	Description	Number	Rate	Amount	
1	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.				
	Labour charges for colecting stems	4	3	12.00	
	Labour charges for planting	4	1.5	6.00	
				18.00	**/ m**

Name of work **Planting CO3 grass**

1	Planting CO_3 grass @ 3nos/m including all cost,conveyance and including all labour charges for planting the grass				
	cost of grass seedling	3	1.5	4.50	
	Labour charges for planting	3	0.66	1.98	
				6.48	
	Say			**6.50**	**/ m**

Name of work **Planting congo signal or Napiear grass**

1	Planting congo signal or napiear grass at 20 cm c/c including all cost,conveyance and including all labour charges for planting the grass				
	cost of grass seedling	5	0.9	4.50	
	Labour charges for planting	5	0.66	3.30	
				7.80	**/ m**

Detailed Estimate

Name of work **Terracing (for one cent)**

Item No.	Description	No	L	B	D	Qty	Rate	Unit		Amount
1	Clearing grass and other overgrowths of vegetation and small trees of girth upto 30cm and removal of rubbish upto a distance of 150m outside the periphery of the area cleared.	1	10.00	4.05		40.46	198.00	100	m^2	80.11
2	Earth work excation in all classes of soil for terracing and using the spoil for forming bunds where ever required including all leads and lifts etc. complete.	1	10.00	2.02	0.30	6.069	1471.00	10	m^3	892.75
3	Consolidating the filled up parts of the bund where ever required.	1	8.09	0.30	1.20	2.9131	277.00	10	m^3	81.00
										1053.86
	Unforeseen, if any									**46.14**
	Grand Total									**1100.00**

DATA

Name of work Terracing (for one cent)

Sl.no.	Description	Number	Rate	Amount	
1	Clearing grass and other overgrowths of vegetation and small trees of girth upto 30cm and removal of rubbish upto a distance of 150m outside the periphery of the area cleared.				
	Unskillled labour	0.5	377	**188.50**	

	Add 5 % overhead charges			**9.43**	
	Total			**197.93**	
	Say			**198.00**	**/ 100 m^2**
2	Earth work excation in all classes(50% ordinary soil and 50% hard so) of soil for terracing and using the spoil for forming bunds where ever required including all leads and lifts etc. complete.				
	For Ordinary soil - 70 %(2.9625*.7)	2.07375			
	For hard soil - 30 %(5.475 *0.3)	1.6425			
	Total Unskilled	3.71625	377	**1401.00**	**/ 10 m3**
	Add 5 % overhead charges			**70.05**	
	Total			**1471.05**	
	Say			**1471.00**	**/ 10 m3**
3	Consolidating the filled up parts of the bund where ever required.	0.7	377	263.90	
	Add 5 % overhead charges			**13.20**	
	Total			**277.10**	
	Say			**277.00**	**/ 10 m3**

WELL RECHARGING UNIT

Detailed estimate (For tiled roof)

No	Description	Nos.	Quantity	Unit	Rate	Amount. R
	Pipe and fittings					
1	160 mm 2.5/Kg PVC Gutter	1	18	Meter	75	1350.00

	Pipe					
2	63 mm 4.0/KG PVC Pipe ISI	1	15	Meter	52	780.00
3	160 mm End Cap	2		Each	185	370.00
4	PVC Bent 160mm	1		Each	160	160.00
5	PVC Reducer – 160 X 63 mm	1		Each	350	350.00
6	PVC Bent 63mm	5		Each	27	135.00
7	63 mm Tee	1		Each	55	55.00
8	63 mm offset	1		Each	45	45.00
9	63 mm End Cap	1		Each	185	185.00
10	63 mm Tank connector	1		Each	260	260.00
11	160 mm GI Clamp	37		Each	25	925.00
12	63 mm Steel Clamp	4		Each	5	20.00
13	Nails, screws, Solvent cement etc	L.S				150.00
	Filter Unit					
1	P.V.C.Barrel	1			1250	1250.00
2	40 mm Metal	1	0.084	M^3	659	55.36
3	20 mm Metal	1	0.042	M^3	942	39.56
4	12 mm Metal	1	0.042	M^3	996	41.83
5	Sand	1	0.042	M^3	2777	116.63
6	Charcoal	3		Kg	7.27	21.81
7	Cement and other materials	L.S				200.00

	Labour					
1	Plumber	3		Each	471	1413.00
2	Helper	1		Each	377	377.00
						8300.20
	Unforeseen items if any					99.80
	Total					8400.00