

Ministry of Rural Development
Government of India
INTEGRATED WATERSHED MANAGEMENT PROGRAMME
(IWMP 2010-2011)



IWMP-V
Pattambi E2
Detailed Project Report

Government of Kerala,
Pattambi Block Panchayth

TSO:FlameKerala,Sulthan Batherly,Wayanad,Kerala



**INTEGRATED
WATERSHED
MANAGEMENT
PROGRAMME
2010-2011**

**DETAILED
PROJECT
REPORT**



**PATTAMBI & OTTAPPALAM
BLOCK PANCHAYATHS**

Acknowledgement

We express our sincere Gratitude to the people of IWMP-V **PATTAMBI E2** Project which covers Ongallur, Vallapuzha and Chalavara Grama Panchayaths for their priceless cooperation, support and participation especially elected members, women, farmers and labours in the preparation of DPR by providing authentic information covering all aspects of in-depth information and baseline data.

With the deep sense gratitude we are presenting the Detailed Project Report of IWMP projects of Pattambi & Ottapalam Block Panchayaths, Palakkad, Kerala. We have adopted different development activities in the project for helping the poor and marginalized people with environment sensitivity and Gender concern. As from our inception into the project we have given due importance to promote economically viable and people friendly structures for the future sustainability. The dedication and commitment of the partners, VWCs technical team members and executive committee was commendable, without their whole hearted support we could never been in this position. The guidance and support provided by Pattambi and Ottapalam blocks, SLNA, PAU Palakkad, WCDC, WDT Members, Panchayath Raj Institutions, Government, Non government departments and other development organizations are worth to mention here. We are very positively looking towards the coming years where there will be more new initiatives under Integrated Watershed Management Programmes with peoples' participation and supervision.

V. Vasantha
President

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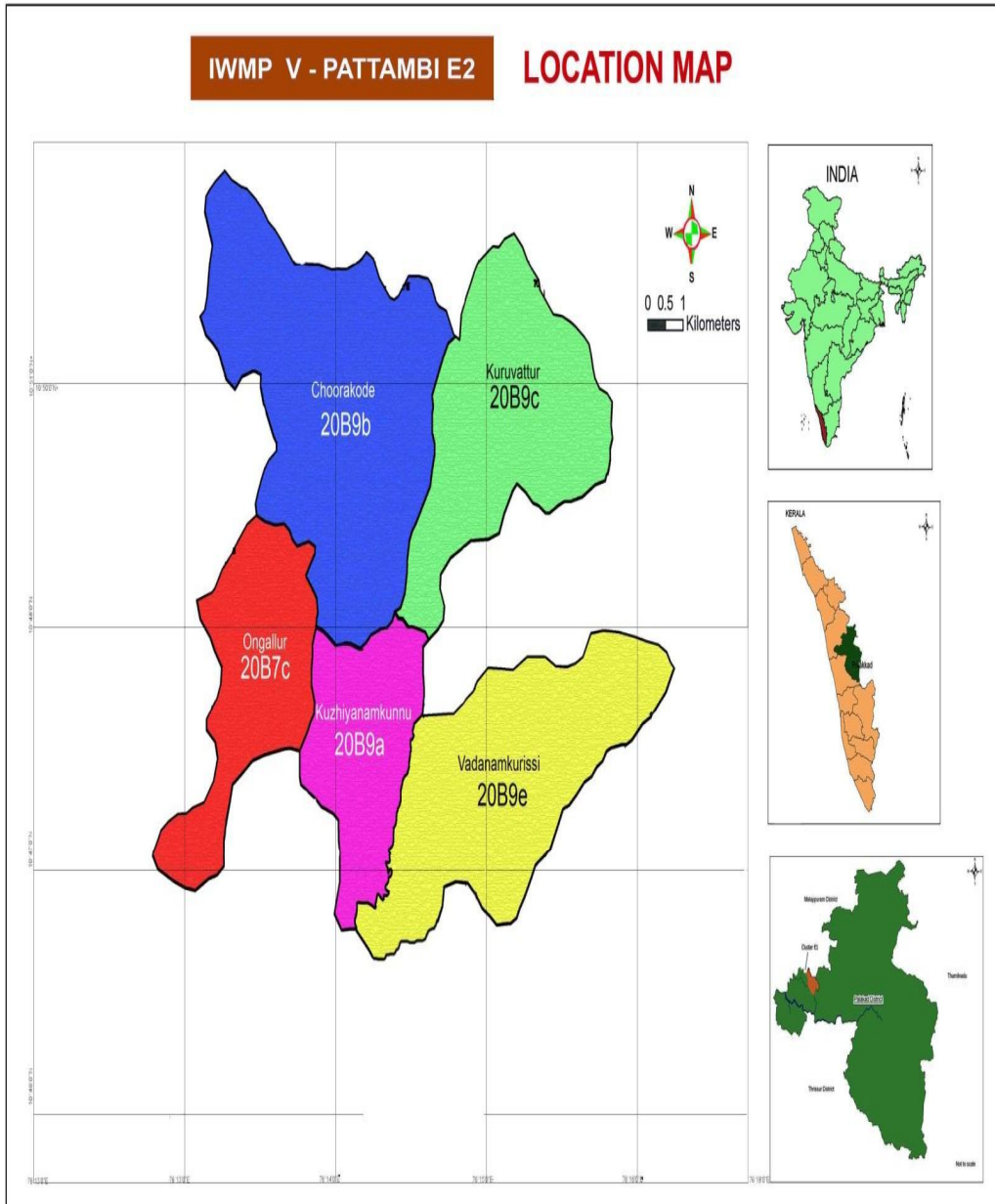
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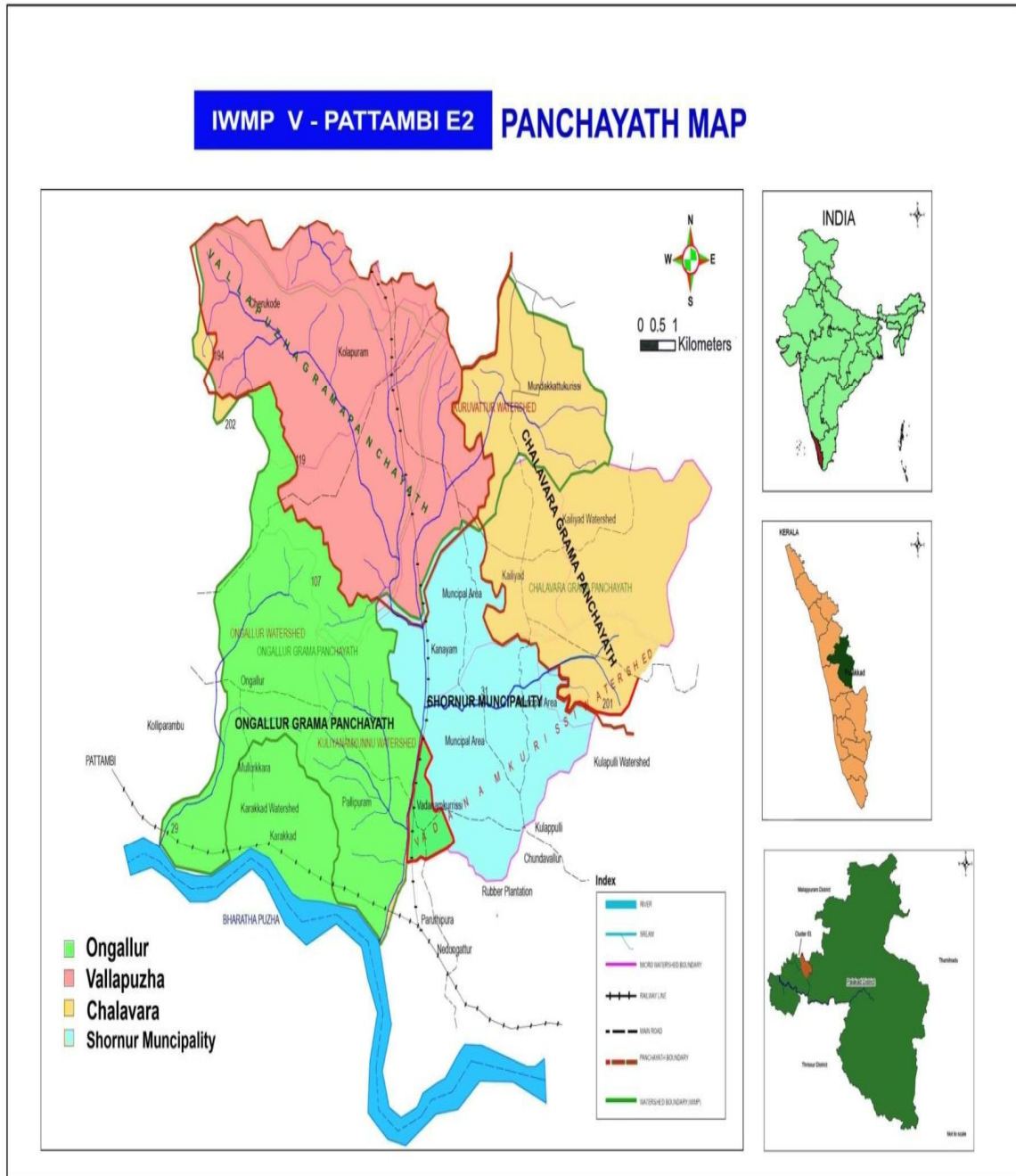
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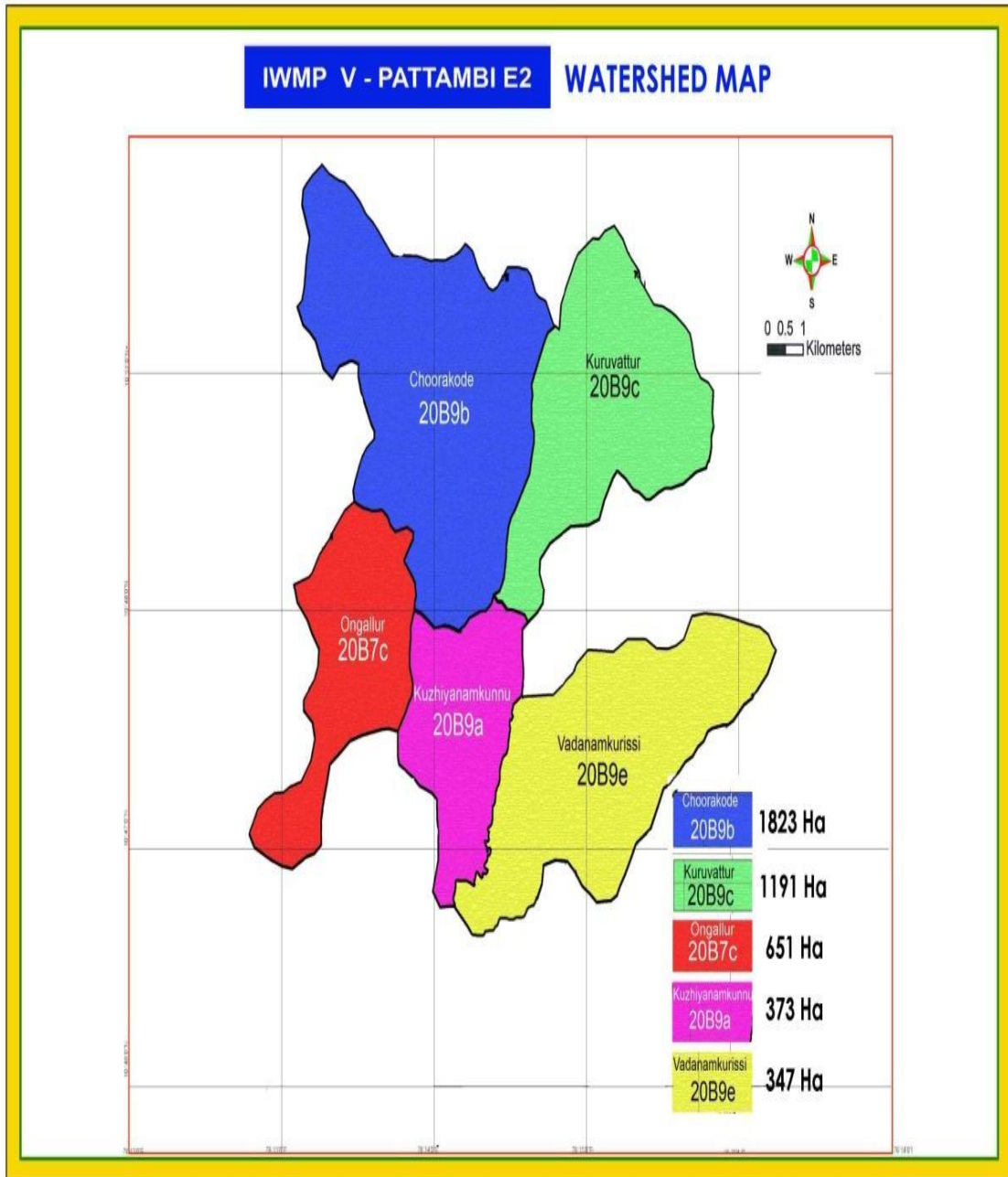
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ABBREVIATIONS	
AAP	Annual Action Plan
APL	Above Poverty Line
BLCC	Block Level Coordination Committee
BPL	Below Poverty Line
BRGF	Backward Regions Grant Fund
CEO	Chief Executive Officer
DLCC	District Level Coordination Committee
DPC	District Planning Committee
DPR	Detailed Project Report
EPA	Entry Point Activities
FGD	Focus Group Discussion
FLAME	Forum for Learning Action Monitoring & Evaluation
GIS	Geographic Information System
GP	Grama Panchayath
GW	Ground Water
IEC	Information, Education and Communication
IT	Information Technology
IWMP	Integrated Watershed Management Programme
LFA	Logical Framework Analysis
LSGD	Local Self Government Department
LSGI	Local Self Government Institutions
LSS	Livelihood Support System
MCM	Million Cubic Meters
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoU	Memorandum of Understanding
MSL	Mean Sea Level
NGO	Non-Governmental Organization
NRAA	National Rainfed Areas Authority
NRHM	National Rural Health Mission
NRM	Natural Resource Management
OBC	Other Backward Caste
PIA	Project Implementing Agency
PRA	Participatory Rural Appraisal
PRIs	Panchayath Raj Institution
PS&M	Production System and Microenterprises
SC	Scheduled Caste
SHG	Self Help Group
SLNA	State Level Nodal Agency
SPSP	State Perspective and Strategic Plan
ST	Scheduled Tribe

TSO	Technical Support Organization
UG	User Group
VEO	Village Extension Officer
WC	Watershed Committee
WCC	Watershed Coordination Committee
WCDC	Watershed Cell cum Data Centre
WDT	Watershed Development Team
WW	Women Welfare







CHAPTER.1

Introduction

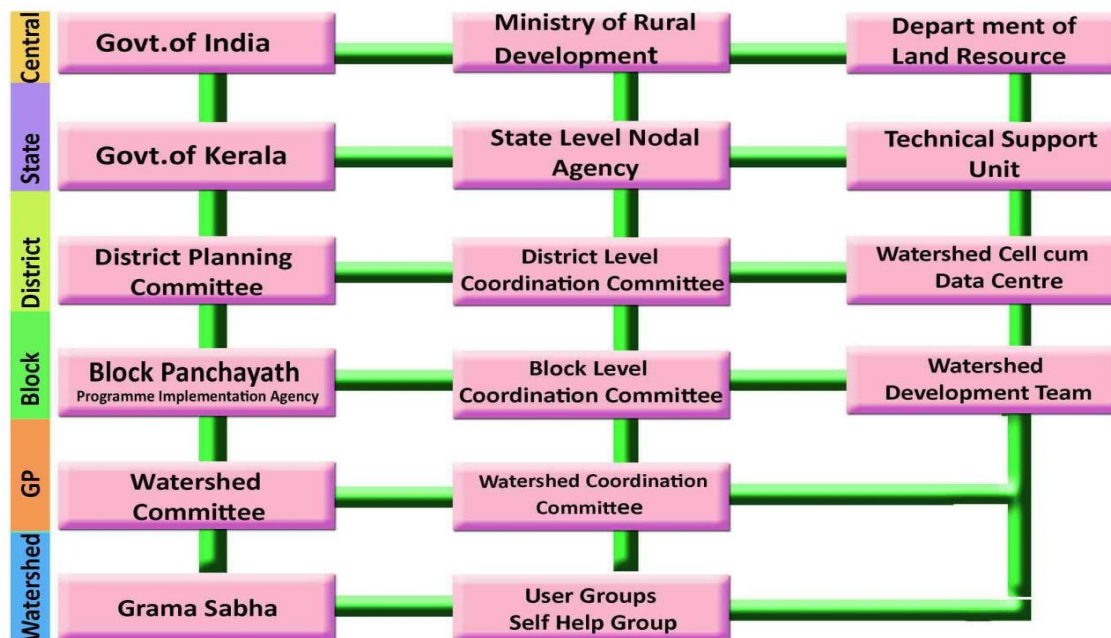
I.1. Project back ground

Kerala falls in the humid tropical climatic region, where the main favorable climatic factor is the rainfall. The average annual rainfall of the State is 3000 mm, of which 65-70% receives during southwest monsoon. Intolerable and exhausted human interventions and other geographical factors are adversely affecting the climate. Irregular and uneven rain fall, mismanagement of water, lack of soil and water conservation measures are the main causative factors for water scarcity. It leads to high shortage of water in the summer season which affects production and productivity, degradation of land and biomass etc. Conservation of resource trinity is the essential need of present scenario. In this juncture the integrated watershed management is an effective mechanism to tackle the issues by adopting systematic and scientific conservation methods.

Integrated Watershed Management Programme (IWMP) is mainly aims at conservation, restoration and sustained utilization of the natural resources. It implies that the wise use of soil, water, bio mass and obtains optimum production with minimum disturbance of environment. The basic objective of watershed management is to dissolve the problems of soil, water and biomass. The sustainability of the programme can be ensured through the formation, and strengthening of viable people's structures like Watershed committees, user groups and SHGs. Integrated Watershed Management Programme is a people planned, people lead and people owned project.

State	District	Taluk	Block	Project	Micro Watershed			Grama Panchayat	Included Ward			Total Area IN HECTOR	Ireatable Area IN HECTOR	Project Amount LAKH	
					SINO	Name of Watershed	Code No.		Area In Hector	Panchayaths	Partly				Fully
Kerala	Palakkad	Pattambi	Pattambidi & Ottapalam	IWMP V - Pattambidi E2	1	Ongallur	20B7C	651	Ongallur,	Ongallur	21	4,5,13,14,15 17,18,20.	5084	4385	657.75
					2	Kuzhiyanamkunn	20B7C	373	Chalavara,	Ongallur,	11	6,7,9,10			
					3	Choorakode	20B9b	1823	Vallapuzha	Vallapuzha	1,2,4, 15	3,9,10,11,12, 13,14, 16			
									Ongallur	3	-				
					4	Kuruvattur	20B9c	1191		Vallapuzha	4,15	5,6,7,8			
					Chalavara	1,2	14,15								
					5	Vadanamkurisi	20B9e	347	Ongallur, Chalavara		12	8,11			

I.2. Organizational Setup



I.3. Funding Pattern

Sl. No.	Particulars	Percentage of Fund	Amount
01.	Administration Cost	10.00%	65,77,500.00
02.	Monitoring	1.00%	6,57,750.00
03.	Evaluation	1.00%	6,57,750.00
04.	Entry Point Activities	4.00%	26,31,000.00
05.	Institution & Capacity Building	5.00%	32,88,750.00
06.	DPR	1.00%	6,57,750.00
07.	Watershed Development Works	56.00%	3,68,34,000.00
08.	Livelihood Activities	9.00%	59,19,750.00
09.	Production System & Micro Enterprises	10.00%	65,77,500.00
10.	Consolidation Phase	3.00%	19,73,250.00
Total		100.00%	6,57,75,000.00

I.4. Watershed wise allocation

Watershed Name	%	Ongallur	Kuzhiyanamkunnu	Choorakkode	Kuruvattur	Vadanamkurissi	Total
Unit Rate		15000	15000	15000	15000	15000	
Hector in Each Watershed		651	373	1823	1191	347	4385
Total Amount		9765000	5595000	27345000	17865000	5205000	65775000
Administration Cost	10%	976500	559500	2734500	1786500	520500	6577500
Monitoring	1%	97650	55950	273450	178650	52050	657750
Evaluation	1%	97650	55950	273450	178650	52050	657750
Entry Point Activities	4%	390600	223800	1093800	714600	208200	2631000
Institution & Capacity Building	5%	488250	279750	1367250	893250	260250	3288750
DPR	1%	97650	55950	273450	178650	52050	657750
Watershed Development Works	56%	5468400	3133200	15313200	10004400	2914800	36834000
Livelihood Activities	9%	878850	503550	2461050	1607850	468450	5919750
Production System & Micro Enterprises	10%	976500	559500	2734500	1786500	520500	6577500
Consolidation Phase	3%	292950	167850	820350	535950	156150	1973250
Total		9765000	5595000	27345000	17865000	5205000	65775000

CHAPTER- 2

General Description of Project area

II.1. History

The project area spreads in Pattambi and Ottapalam block Panchayaths. Pattambi and Ottapalam are the major townships of Palakkad district. These places are historically well known in India by the presence of eminent political and social leaders like K R Narayanan, former president of our nation, E M Sankaran Namboothiripad, the first Chief Minister of Kerala and E P Gopalan, a famous socialist leader etc. Pattambi is well known for its cultural importance by situating in the banks of river Bharathappuzha, historical name was 'Nila'. Nethirimangalam was the old name of Pattambi. A cultural combination of Malapurmam Thrissur and Palkkad obviously differentiating the area from other places of Palakkad. It is a junction that connects roads from Ottapalam, Perumbilavu, Perinthalmanna and Thrissur. The main tributary is Thootha puzha that leads to Bharatapuzha. Malayalam is official language and Hindi, Tamil, English are also familiarizing due to significant number of migrants from other districts and states.

II.2. Profile of the area

II.2.1. Location

State	District	Taluk	Block	Panchayath	Revenue Village
Kerala	Palakkad	Pattambi & Ottapalam	Pattambi & Ottapalam	Ongallur, Vallapuzha & Chalavara	Vallapuzha Marathoor I Vadanamkurissi Chalavara Vadanamkurissi II

II.2.2. Boundaries of the Watershed

NORTH	Kulukkallur Watershed
SOUTH	Bharathapuzha
EAST	Shornur Municipality
WEST	Kolliparambu, Pattambi

II.2.3. Geographical Coordinates

Longitude	76°12'4.755"E	76°18'36.887"E
Latitude	10°46'19.53"N	10°54'51.45"N

II.2.4. Criteria for Selection

No	Criteria	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)	20 to 40 % (5)	
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/	15	-66.7 & below (15)	33.3 to -66.6 (10)		0 to -33.2 (0)
	DPAP/ DDP Block		DDP Block	DPAP Block	Non DPAP/ DDP Block	Above 70 % (Reject)
VII	Area under rain-fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80% (5)	Fully covered (0)
VIII	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	
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)
	Cluster approach in the hills (more than one contiguous micro watersheds in the project)		Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)

II.2.5. Weightage

Project name	Weightage												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
IWMP-PATTAMBI- V – E2	10	10	5	10	5	15	15	10	15	15	10	15	135

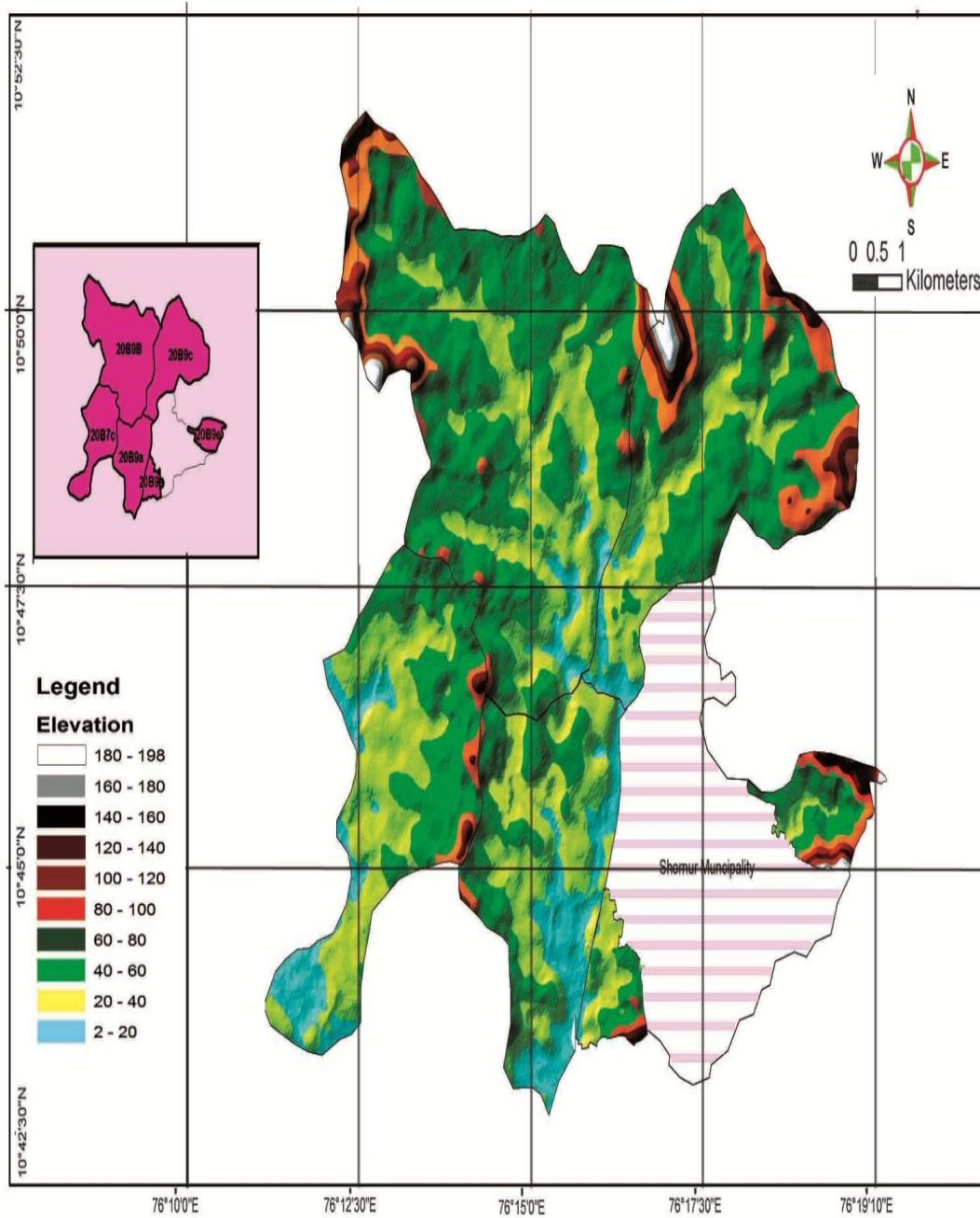
II.3. Physiography

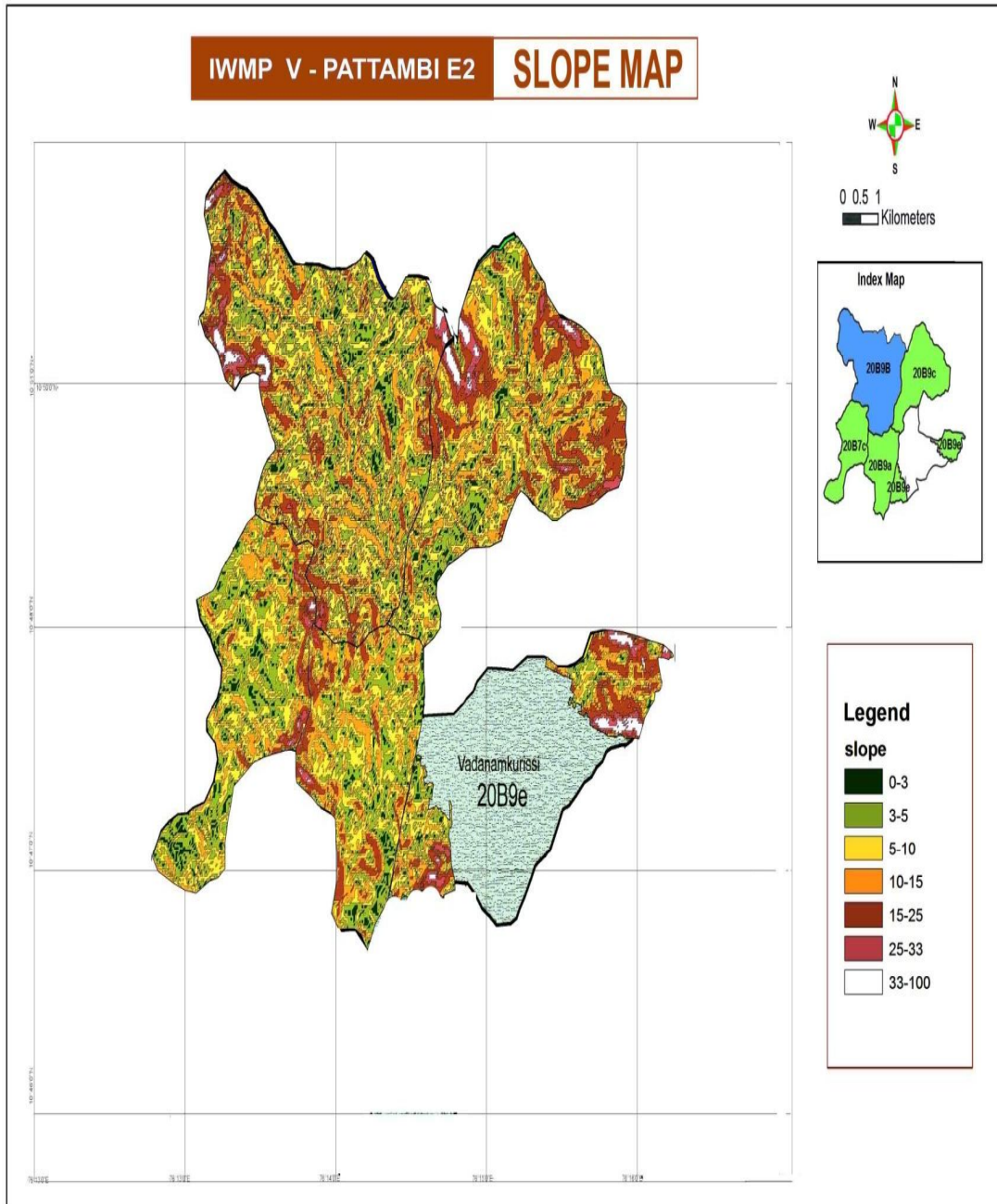
Palakkad district is divided mainly into three geographical regions namely highlands, midlands and lowlands. Pattambi and Ottapalam blocks belong to mid land division. The project area is drought prone area due to the irregular and uneven rain fall in the past. Land degradation is occurring in a drastic rate due to the unscientific land management practices. More than 50 Km streams (water bodies) are flowing in the cluster. The watersheds are the basin of Bharathapuzha and this is the major water resources.

Physiographic details

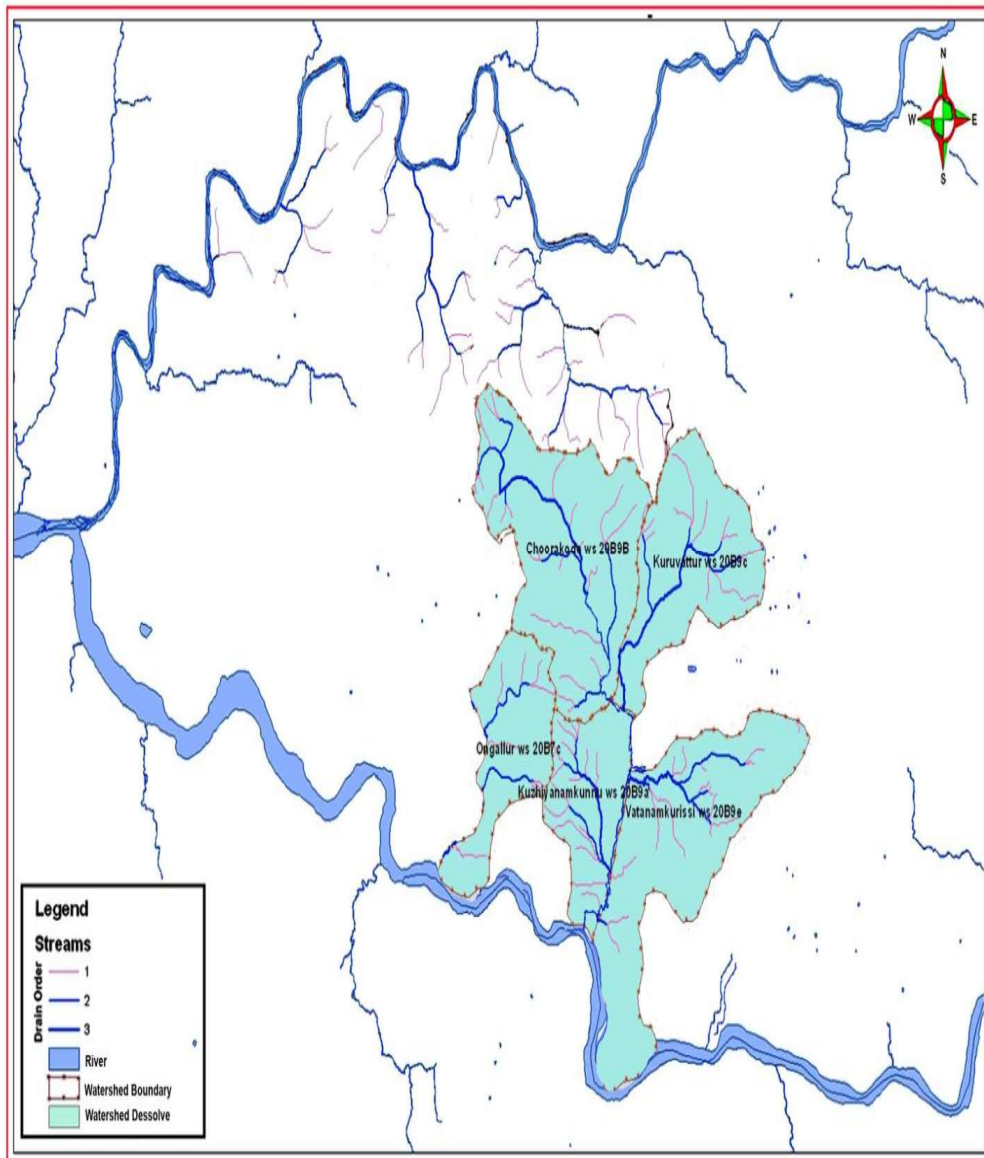
Project Name	Physiography	Relief	Major Drainage
IWMP-PATTAMBI V –E2	20 – 600 MSL	Midland	Bharathapuzha

IWMP V PATTAMBI E2 RELIEF MAP





IWMP V- Pattambi E2 Stream Network Map



II.4. Water Sources

Watershed	Streamlet	Ponds
Ongallur	8	20
Kuzhiyanamkunnu	15	15
Choorakode	22	71
Kuruvattur	11	46
Vadanamkurissi	14	11
Total	70	163

II.5. Climate

The district has a tropical humid climate with hot wind. The district receives maximum rainfall during the South West monsoon followed by the North East monsoon. The other months receive considerably less rainfall. The temperature is pleasant from December to February. The annual rainfall varies from 1757.6 to 2849.5 mm based on long term normal. The block receives on an average of 2348 mm of rainfall annually. Major rainfall is received during June to September in the South West monsoon (71%). The North West monsoon contributes about 18%. The maximum temperature ranges from 28.1 to 39.5 whereas the minimum temperature ranges from 22.2 to 25.30. The average annual maximum temperature is 32.30 and the average annual minimum temperature is 23.40. The wind is predominantly from West and East during morning as well as in the evening hours. The wind speed is high during August (13.6 kmph). The humidity is higher during the monsoon period ie, from June to September. It is around 90% during this period. All through the year, the humidity is high during the morning.

Table 3.

MONTHLY AVERAGE OF MAXIMUM TEMPERATURE												
YEAR/MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	33.7	34.1	36.1	34.7	34.5	29.8	29.7	29.1	30.8	30.4	32.3	31.0
2001	33.1	34.2	35.2	34.5	33.0	29.4	29.3	29.5	31.6	31.1	31.8	31.9
2002	33.1	34.8	37.0	35.6	33.3	30.1	30.1	28.8	31.5	31.2	31.9	32.9
2003	33.5	35.2	35.2	34.8	33.7	31.3	29.5	30.2	31.1	31.3	31.9	32.6
2004	33.6	35.5	36.6	34.8	30.5	29.7	29.5	29.5	30.9	31.3	32.0	32.9
2005	33.9	35.1	36.3	34.0	34.1	30.6	29.0	30.0	29.8	31.3	31.5	32.2
2006	33.5	34.8	35.3	35.2	33.4	30.3	29.5	30.1	30.0	31.0	31.4	32.1
2007	33.1	34.5	36.5	36.4	34.0	30.3	28.5	29.6	29.4	30.5	32.1	32.1
2008	32.7	33.9	33.9	34.1	33.9	30.3	29.6	30.1	30.4	31.8	32.5	32.3
2009	33.3	35.7	35.6	34.6	33.4	31.0	28.9	30.7	30.4	32.2	32.1	32.8
2010	33.7	35.8	37.1	35.7	33.9	30.8	29.5	29.4	30.7	30.5	30.7	31.0
Average	33.4	34.9	35.9	34.9	33.4	30.3	29.4	29.7	30.6	31.1	31.8	32.2

MONTHLY AVERAGE OF MINIMUM TEMPERATURE (°C)												
YEAR/MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	21.9	21.7	23.3	24.8	24.8	23.1	22.7	22.6	23.1	22.3	21.4	18.8
2001	21.1	22.1	23.2	24.2	23.7	22.8	22.5	23.3	23.3	23.2	22.6	20.7
2002	21.2	21.6	23.8	24.8	24.3	22.6	23.4	23.3	23.2	23.7	23.2	19.7
2003	21.0	22.8	23.9	24.5	25.7	24.0	23.4	23.8	23.2	23.6	22.5	20.4
2004	20.8	21.3	23.7	25.1	24.2	23.5	23.5	23.2	23.5	23.2	22.3	20.9
2005	20.7	20.9	23.7	24.3	24.6	23.7	23.3	23.1	23.4	23.5	22.5	20.9
2006	21.0	20.5	23.3	24.5	24.8	24.0	23.5	23.5	23.4	23.5	23.2	21.3
2007	20.2	20.8	23.8	24.7	24.7	24.1	23.4	23.4	23.6	23.2	21.6	21.1
2008	19.6	21.6	22.1	24.8	24.9	23.8	23.7	23.9	23.3	23.4	22.8	20.5
2009	19.9	20.8	23.7	24.8	24.5	23.7	22.9	23.7	23.8	23.8	23.4	22.7
2010	21.4	22.9	24.2	25.3	25.7	24.2	23.5	23.6	23.6	23.4	23.1	21.1
Average	20.8	21.5	23.5	24.7	24.7	23.6	23.3	23.4	23.4	23.3	22.6	20.7

MONTHLY AVERAGE OF MINIMUM TEMPERATURE (°C)												
YEAR/MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	21.9	21.7	23.3	24.8	24.8	23.1	22.7	22.6	23.1	22.3	21.4	18.8
2001	21.1	22.1	23.2	24.2	23.7	22.8	22.5	23.3	23.3	23.2	22.6	20.7
2002	21.2	21.6	23.8	24.8	24.3	22.6	23.4	23.3	23.2	23.7	23.2	19.7
2003	21.0	22.8	23.9	24.5	25.7	24.0	23.4	23.8	23.2	23.6	22.5	20.4
2004	20.8	21.3	23.7	25.1	24.2	23.5	23.5	23.2	23.5	23.2	22.3	20.9
2005	20.7	20.9	23.7	24.3	24.6	23.7	23.3	23.1	23.4	23.5	22.5	20.9
2006	21.0	20.5	23.3	24.5	24.8	24.0	23.5	23.5	23.4	23.5	23.2	21.3
2007	20.2	20.8	23.8	24.7	24.7	24.1	23.4	23.4	23.6	23.2	21.6	21.1
2008	19.6	21.6	22.1	24.8	24.9	23.8	23.7	23.9	23.3	23.4	22.8	20.5
2009	19.9	20.8	23.7	24.8	24.5	23.7	22.9	23.7	23.8	23.8	23.4	22.7
2010	21.4	22.9	24.2	25.3	25.7	24.2	23.5	23.6	23.6	23.4	23.1	21.1
Average	20.8	21.5	23.5	24.7	24.7	23.6	23.3	23.4	23.4	23.3	22.6	20.7

MONTHLY AVERAGE OF RELATIVE HUMIDITY (%) - HOUR-I												
YEAR/MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	75	84	85	87	87	94	93	95	93	94	88	84

2001	81	93	90	90	90	94	94	94	94	94	92	85
2002	85	82	88	87	89	94	94	95	94	94	89	85
2003	74	84	90	90	90	93	95	94	93	94	87	86
2004	80	80	89	90	94	95	94	94	94	92	87	81
2005	83	88	89	91	92	95	95	95	95	94	92	92
2006	83	80	90	89	89	95	95	95	95	94	90	81
2007	82	87	90	88	89	93	96	95	95	94	90	83
2008	87	90	87	86	87	93	93	93	93	92	92	83
2009	80	87	90	90	90	93	96	94	94	94	92	83
2010	79	79	87	86	89	93	95	93	93	94	93	90
	80.8	84.9	88.6	88.5	89.6	93.8	94.5	94.3	93.9	93.6	90.2	84.8
MONTHLY AVERAGE OF RELATIVE HUMIDITY (%) - HOUR-II												
YEAR/MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	36	40	39	53	50	77	70	76	68	71	57	47
2001	41	45	44	55	62	77	74	73	63	68	60	47
2002	43	36	36	51	63	76	72	78	61	70	73	39
2003	34	40	44	55	57	70	77	72	62	69	55	41
2004	38	28	35	53	74	75	74	73	68	65	54	40
2005	40	34	39	57	56	75	83	69	74	70	63	54
2006	42	28	44	49	59	72	76	71	72	70	62	43
2007	39	32	37	46	59	74	83	75	77	68	52	45
2008	38	40	45	55	52	74	72	68	68	64	55	43
2009	34	31	45	56	61	72	81	71	72	62	62	50
2010	40	35	41	53	63	74	77	74	69	73	68	54
	38.6	35.4	40.8	53.0	59.6	74.2	76.3	72.7	68.5	68.2	60.1	45.7

II.6. Geology

The Achaean crystal lines are the major rock types encountered in the project area. Charnockites, hornblende gneiss, migmatites and gneisses occupy a major part of the area. Hard rock of the Achaean crystalline complex exists in Pattambi & Ottappalam with a wide range of rock types of different metamorphic grades. The rock types met within the district can be broadly classified into three groups viz., (i) The granulate group of rocks consisting of charnockites, basic granulites and the khondalites comprising garnet-sillimanite gneiss, calc granulate, crystalline limestone, sillimanite quartzite and associated migmatite gneiss, (ii) The leuco-to mesocratic gneissic group of rocks consisting of schistose, micaceous and amphibolitic rocks intruded by basic and ultramafic dykes and, (iii) the coarse pink pegmatite rich granitic rocks. A tentative geological succession of the rock types is given below:

Recent : Top soil, valley fill and revere alluvium

Sub-recent : Laterite

Archaean : Pegmatites, quartz vein, dolerite, gabbro, granites,
Quartz-mica schist, hornblende biotite gneiss, ultramafics,
Charnockite khondalites and calc- granulate

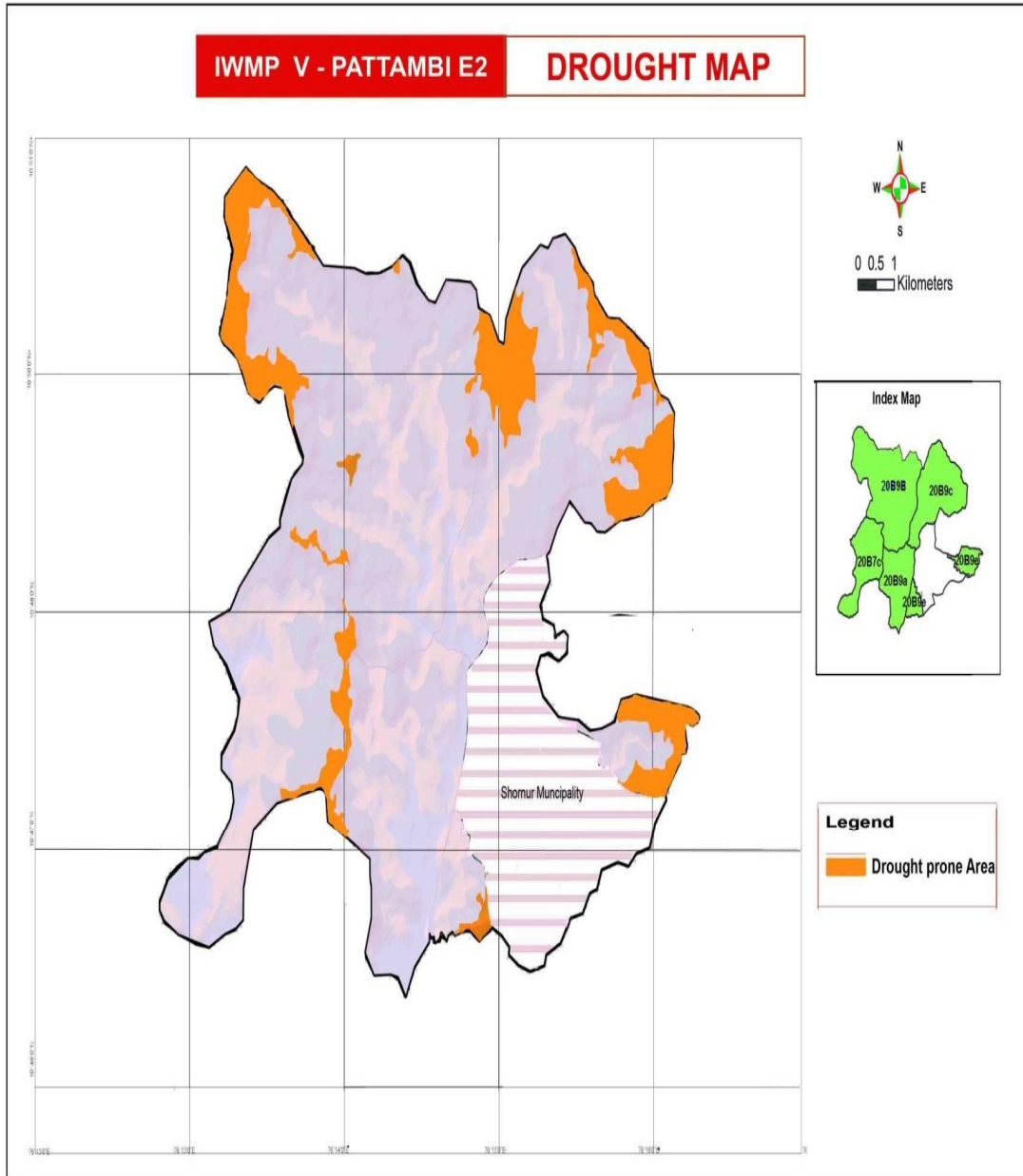
II.7. Ground water

Palakkad district is underlain by rocks of Archaean metamorphic complex. They include the granulate group, the gneisses and the schist above which laterite and alluvium are observed. Intrusive of pegmatite and quartz veins are also common in the northeastern parts of the district. Groundwater occurs in all the geological formation from archaean crystalline (hard rock) to recent alluvium (soft rock). Groundwater occurs in pre-tertiary condition in the laterite, alluvium and weathered crystalline. It is in semi confined to confined condition in the deep fractured rocks.

II.7.1. Comparison of gross draft for all uses of 1999 with 2004

S l. No	Name of Blocks	Net annual Groundwa ter Availability (MCM)	Existing gross ground water draft for irrigation (MCM)		Existing gross ground water draft for domestic & industrial works supply		Existing gross ground water draft for all uses (MCM)	
			As on 31.03.99	As on 31.03.0 4	As on 31.03.99	As on 31.03.0 4	As on 31.03.99	As on 31.03.04
1	Pattambi	35.37	9.67	10.31	9.44	10.03	19.12	20.34
	Ottapalam	30.47	8.47	9.03	5.102	5.25	13.58	14.28

II.7.2. Drought Areas: Mundakkottukurissi, Kaniyaramkunnu, Ramagrimala, Pulimugammala, Kalladipetta, Karkkidachal, Ovungalhod, Vadanamkurissi.



II.8. Drinking Water and Irrigation

The district is drained mainly by Bharathapuzha. Soil erosion is more in the upstream parts of the basin. Dendrite is the common drainage pattern. 75 % of the population is depending on surface water resources for their irrigation needs, mainly from Bharathapuzha, and other tributaries and other water bodies. There are no major irrigation projects in the project area. Farmers are depending small irrigation projects of department and PRIs.

Land irrigability sub classes are 4s- 4sd. Irrigability class limitation is considered as marginal lands

Bharathapuzha is the main river in the project area. Groundwater occurs in all the geological formation from Archaean crystalline (hard rock) to recent alluvium (soft rock). Groundwater occurs in pathetic condition in the, alluvium and weathered crystalline. It is in semi confined to confined condition in the deep fractured rocks.

II.8.1. Existing Area under Irrigation

Name of Watershed	Open well		Tube well		Pond		streamlet		Total (Ha.)
	No	Irrigated (Ha.)	No	Irrigated (Ha.)	No	Irrigated (Ha.)	No.	Irrigated (Ha.)	
Ongallur	56	5	21	53	20	40	8	32	130
Kuzhiyanamkunn	44	4	18	45	15	30	15	60	139
Choorakode	2650	216	62	155	71	142	22	88	601
Kuruvattur	883	70	34	85	46	92	11	44	291
Vadanamkurisi	55	5	15	38	11	22	14	56	121

II.8.2. Existing water supply schemes

Name of Water Supply Scheme	Owner ship	Watersheds
Pambadipadam canal	KWA	Ongallur

II.9. Socio Economic Details

The watershed community is constituted by small and marginal farmers. The major occupations of the people are agriculture and related activities. Major agriculture crops are paddy, Coconut, Rubber, Banana and tuber crops. The agrarian communities are leading miserable life due to the

fluctuation occurring in this sector. 34 % of the people are under BPL category. The new generation is reluctant to come forward in agriculture sector. The People of the watershed area are providing more attention to the quality education. So agriculture and allied sectors are not improved and the income from the farm is not satisfactory.

II.9.1. Demographic Profile of the Watershed

Family	Family			Population				
	Total General	Total SC	Total ST	Total	General	sc	ST	BPL
10418	8958	1460	0	45498	39058	6440	0	15492

II.9.2 Employment Analysis

SI No.	Employment	Male	Female	Total
1	Agriculture	3567	672	4239
2	Business	2062	390	2452
3	Coolie	6012	5671	11683
4	Government	939	1023	1962
5	Non Government	2066	4213	6279
6	MGNREGS	174	2573	2747
7	Student	5386	6271	11657
8	Nil	1628	2851	4479
	Total	21834	23664	45498

(Source: Baseline survey)

II.9.3. Community organization

Sl. No.	Community organization	Nos
1	No of NHGs	176
2	People registered under MGNREGS	917
3	No. of SHGs	74
4	Self employment ventures	18

II.3.4. Micro level Organizations and wage rates in the Watershed

BPL Family	MLOS		Wages Rate (Average/Day)		
	No of SHGs	No of User Group	Unskilled	Skilled	MGNREGS
3873	74	12	350	450	180

II.9.5. Income Analysis

SI No.	Employment	Male	Female	Total
1	Agriculture	3567	672	4239
2	Business	2062	390	2452
3	Coolie	6012	5671	11683
4	Government	939	1023	1962
5	Non Government	2066	4213	6279
6	MGNREGS	174	2573	2747
7	Student	5386	6271	11657

*(Source: Baselinesurvey)***II.9.6. House wise Classification**

SI No	Type of Houses	No. of Families
1	Better Home	3449
2	Partially Better	5435
3	Not Better	1465
4	Temporary Shelter	69
	Total	10418

II.9.7. Social Conditions

SI No	Items	Yes	No	Total
1	Toilet	10324	94	10418
2	Electricity	10327	91	10418

(Source: Baselinesurvey)

II.9.8. Educational institutions

Sl.no	Category	Govt.	Aided & No	Un Aided & No	Total
1	Aganwadies	56	-----	-----	56
2	Lower Primary school	5	14	4	23
3	Upper primary school	7	6	1	14
4	High school	1	-----	-----	1
5	Higher secondary school	2	-----	-----	2
6	College	1	-----	-----	1

II.9.9. Cooking fuel sources

Wood	L.P.G.	L.P.G. + Wood	Biogas + Wood	Electrified + L.P.G + Wood
3125	3750	2083	12	1448

II.9.10. Health**Healthcare facilities in the watershed**

Sl No.	Employment	Male	Female	Total
1	Agriculture	3567	672	4239
2	Business	2062	390	2452

(Source: Baseline survey-TSO)

II.9.11. Transport

Major roads are Pattambi – Palakkad, Pattambi – Cherpulaserri, Vallapuzha – Mulayankavu, Vallapuzha – Vaniyamkulam, Vallapuzha – Kulappulli etc. Private buses and KSRTC are the main means of transportation. Nearly 85% of the roads are motorable. There are about 40 minor road net works in the project area. Bus services and other taxi services are available in the above said roads.

II.9.12. Infrastructure in the Project Area

SI No.	Employment	Male
1	Agriculture	3567
2	Business	2062
3	Coolie	6012
4	Government	939
5	Non Government	2066
6	MGNREGS	174
7	Student	5386
8	Nil	1628
	Total	21834
SI No.	Income	
1	0-5000	
2	5001-10000	
3	10001-25000	
4	25001-50000	
5	50001-100000	
6	Above 100001	
	Total	
Primary health centre & Sub Centre		Ayurveda Dispensary
7		4
SI.N	Infrastructure	Number
1	Aganwadies	46
2	LP School	15
3	UP School	9
4	High School	3

(Source: Primary Survey)

II.10. Agriculture and land use pattern

Majority of the area is under mixed crops. Paddy is the predominant crop in the watershed. Rubber is increasing year by year. Multi cropping is practiced in the middle reach of the watershed Banana, Tapioca, banana, coconut, Arecanut and vegetables are the main inter crops. Cocoa and Nutmeg are also cultivated. But filling up of paddy field is noticed in the area. Total extent of the paddy is 957.47 ha. Mixed crops are cultivating in 2866.66 ha. There are 457.57 ha of cultivable wasteland. Food crop is not much improved. Cultivation People are still depending upon the market for food article. People are cultivating only less food crops. So food shortage is the common phenomenon in the watershed area. Paddy cultivation is decreasing in a drastic rate. Apart from this labor shortage is also occurring.

Majority of the Farmers are practicing chemical farming. Due to this Contamination of the water bodies are noticed in the watershed areas. Details of the agriculture crops and cropping pattern are give blow.

II.10.1. Details of Land use and major Crops

Type	Area in Hecor					Total
	Kuruvattur	Choorakode	Kuzhiyanam kunnu	Ongallur	Vadanamkurrissi	
Cultivable Waste land	38.75	172.08	104.59	35.98	106.17	457.57
Tuber Crop	56.74	29.07	81.01	45.75	12.81	225.38
Mixed Crop	842.38	982.01	329.27	512.54	200.46	2866.65
Paddy Cultivation	195.14	335.01	203.10	190.70	33.52	957.47
Coconut	25.21	78.34	10.04	7.04	6.1	126.73
Built up land	8.77	105.39	3.1	3.36	0.54	121.16

(Source: Dept of Agriculture, Baseline survey, Dept. Land use board)

II.11. Productivity

The detailed study on the production and productivity is reveals that production of the area is very low due to the degradation of land. Soil erosion, unscientific agriculture practices are the main causative factors for the low production. There are 457.47 ha of wastelands in the watershed area. People are not much interested to cultivate paddy. The data of from agriculture department is given below

SI No.	Employment	Male	Female	Total
1	Agriculture	3567	672	4239
2	Business	2062	390	2452
3	Coolie	6012	5671	11683
4	Government	939	1023	1962
5	Non Government	2066	4213	6279
6	MGNREGS	174	2573	2747
7	Student	5386	6271	11657
8	Nil	1628	2851	4479
	Total	21834	23664	45498

SI No.

Income

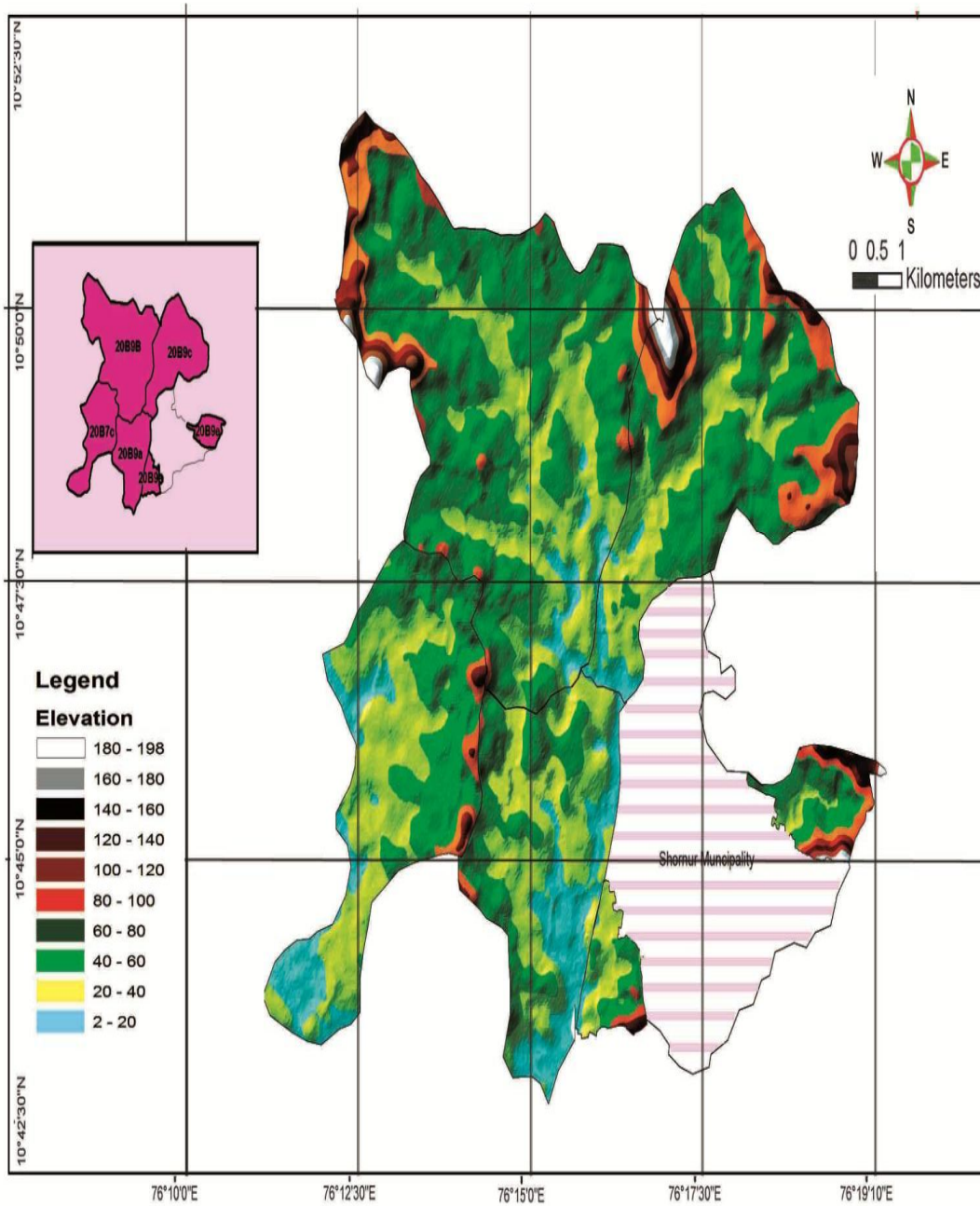
No. of Families

(Source: Primary survey)

II.12.Details of major crops \ vegetation in Micro Watersheds

SI No.	Name of Watershed	Major crops \ vegetation
1	Ongallur	Coconut, Mango, Jackfruit, Mahogany, Wild Jack Ginger, Turmeric, Banana, Guava, Arecanut, Teak, Elephant foot yam, Khamealu, Bamboo, Rubber.
2	Kuzhiyanamkunnu	Paddy, Coconut, Mango, Jackfruit, Mahogany, Wild Jack Pepper, Ginger, Turmeric, Banana, Guava, Arecanut, Teak, Elephant foot yam, Khamealu, Rubber.
3	Choorakode	Mango, Tapioca, Jackfruit, Mahogany, Wild Jack Rubber, Paddy, Ginger, Turmeric, Banana, Guava, Arecanut, Teak, Elephant foot yam.
4	Kuruvattur	Tapioca, Jackfruit, Mahogany, Wild Jack Pepper, Ginger, Turmeric, Paddy, Banana, Guava, Arecanut, Teak, Elephant foot yam, Khamealu, Bamboo, Rubber
5	Vadanamkurissi	Paddy, Coconut, Mango, Jackfruit, Mahogany, Wild Jack Pepper, Ginger, Turmeric, Banana, Guava, Arecanut, Teak, Elephant foot yam, Tapioca, Bamboo, Rubber

IWMP V PATTAMBI E2 RELIEF MAP



II.13.1..Land holding size

Number of Large Farmers	Number of Small Farmers	Number of Marginal Farmers	Number of Landless
385	5499	4480	54
1137	1749	1488	-

II.13.2.Details of Waste Land in the area

Nature of Land	Area (Ha)	Problems	Suggestions
Cultivable	457.57	Less productivity of soil, Water scarcity, Lack of irrigation facility, Drought, Loss of soil moisture, Less availability of labour.	Promotion of bio fertilizers, Increase the productivity, promotion vegetation and Afforestation, Equal distribution of Natural resources and enhance its effective utilization, Systematic water management, Promotion of inter crops and seedlings, Scientific water management

II.13.3. Target fixed for each year

Sl. No	Name of Project	Extent of cultivable waste land	Target fixed for each year							
			1 st year		2 nd year		3 rd year		4 th year	
			Physical (Ha.)	Financial (Lakhs)	Physical (Ha.)	Financial (Lakhs)	Physical (Ha.)	Financial (Lakhs)	Physical (Ha.)	Financial (Lakhs)
1	IWMP -V - Pattambi E2	457.57	18	12.46	32	20.43	32	20.43	18	12.46

II.14. Livestock

Majority of the farmers are rearing local cow breeds. There is only a limited number of Cross breed cows. Goats, buffalo and Poultry are the other animal stock reared by the farmers. Lack of fodder, increase in the price of concentrates, less price for milk, diseases and absence of time bound service of the Veterinary doctors are the main causative factors for the withdrawal of the farmers from this sectors. Primary need of the farmers is to establish milk chilling plant in that area.

II.15 Details of Livestock and Poultry Population in the Project Area

Sl. No.	Watershed Name	Cow	Buffalo	Goat	Poultry	Duckier
1	Ongallur	124	62	4600	10423	37
2	Kuzhiyanamkunnu	32	8	243	2300	12
3	Choorakode	680	194	4690	9700	34
	Kuruvattur	634	50	4200	8500	25
	Vadanamkurissi	41	6	514	3350	18
	IWMP-E2	1511	320	14247	34273	126

(Source: Baseline survey)

11.16 Soil type

The main soil series are Vadanamkurissi- Chengilery- Ottappalam. These series are deep soil formed from alluvial parent material having loam to silty clay loam surface and sandy loam to sandy clay loam sub soil layers. They have dark yellowish Brown to dark grey surface layer and grayish Brown to dark grayish brown subsurface layer. The presence of prominent mottling of varying shade imparts the brownish color to the soil. Apart from this Chengalery series are deep soils formed over alluvial sediments having sandy clay loam to clay loam dark yellowish brown to dark brown surface layer and loam to clay dark yellowish brown to dark reddish brown subsoil Kuttippuram series having loam to silty clay dark yellowish brown to dark gray surface layer and clay loam to silty clay yellowish brown to very dark grayish brown subsoil layers. Other soil series are Karakurissi-Tholannur-Pariyarampatta, Karingathodu- Kinassery- Vettikkal, Kottamala- Mattathukad, Mannur- SSreekrishnapuram, Mukhilmada- Thekkanchira- Thathengalam, Uthrampallam- Paruthikkala. Soil formation has been influenced chiefly by topography and climate. The soils are deep and very deep, well drained loams and clay with fairly high. Soil erosion and related issues are seriously affecting in the project are.

Table: 3.15. Types of Soils in Micro Watersheds

SI No.	Employment	Male	Female	Total
1	Agriculture	3567	672	4239
2	Business	2062	390	2452
3	Coolie	6012	5671	11683
4	Government	939	1023	1962
5	Non Government	2066	4213	6279
6	MGNREGS	174	2573	2747
7	Student	5386	6271	11657
8	Nil	1628	2851	4479

Source: Integrated Watershed Management Programme, Preliminary Project Report (PPR), Palakkad, Department of Land Resources, Ministry of Rural Development, Government of India

II.17. Land capability classification

As per the detailed and technical study The land capability classes are class II, Class III and class IV to VIII.

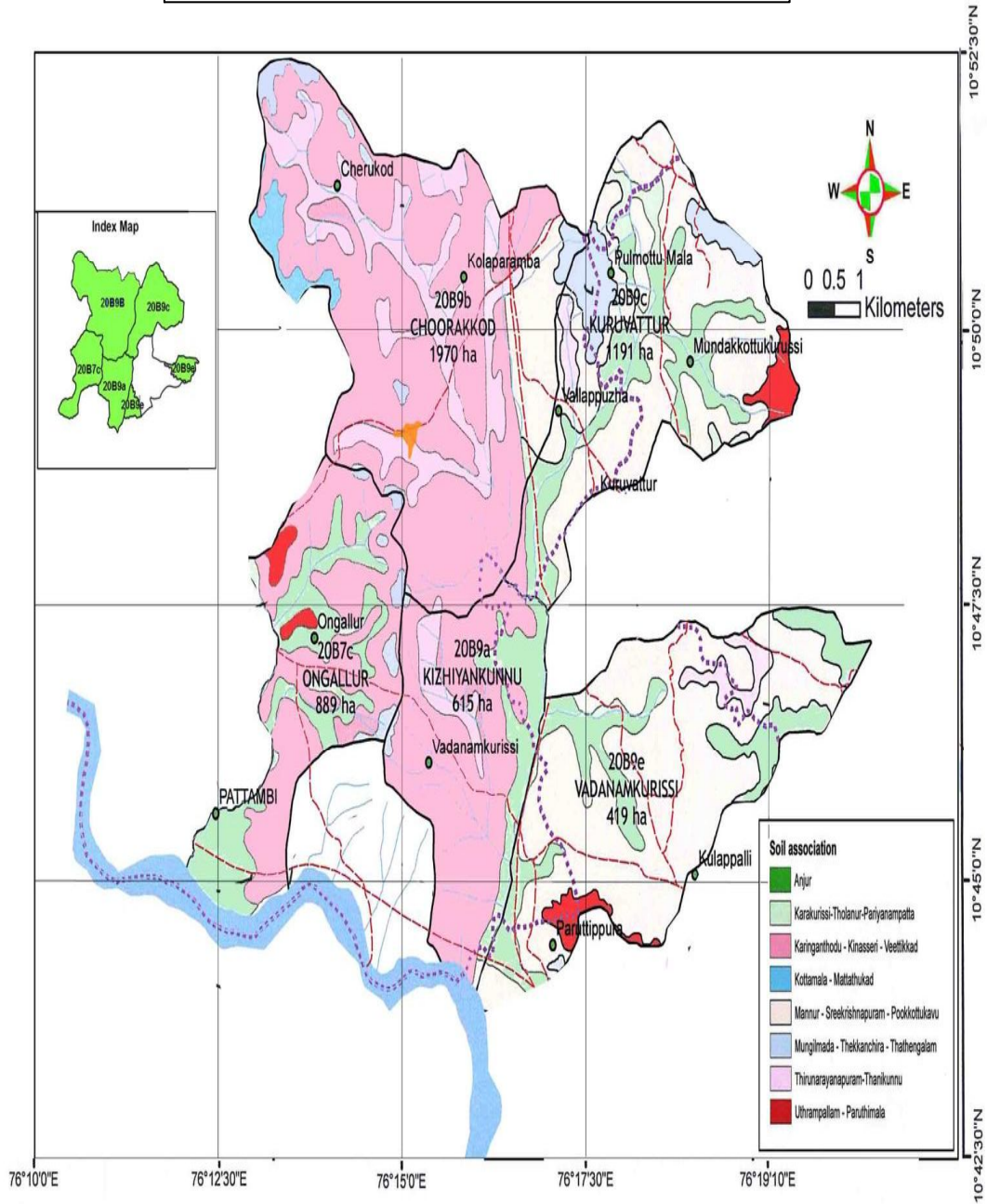
S.I. No	Map symbol	Depth	Texture	Slope	Drainage
1	K 10	vd	gc	g	w
2	K 18	vd	c	g	w
3	K 22	vd	c	g	w
4	K 25	vd	c	g	w

One of the Main problems in the Watershed Area is High level of soil erosion in upper and middle reaches. It affects the agricultural activities and results in low production. Further utilization of more chemical pesticides, manures and synthetic materials are causing degradation of soil. Formation of latterite in the plain land is also leading to soil's deprivation.

II.18. Agro-Climatic Condition

The State is subdivided into four agro-climate zones (South Zone, Central Zone, North Zone, Special Zone on Problem Areas, High Altitude Zone) as per State Land Use Board records. The project area comes under the South Zone. Based on altitude, rainfall, soil and topography, the state has been delineated into thirteen agro-ecological zones. Block Panchayath has been taken as the unit for purposes of delineation. The Pattambi and Ottapalam block is categorized as central mid land zone.

II.19. Soil map



II. 20. Major problems of the watershed

Major Issues and Constraints in the Watershed Area

The issues and constraints are mainly identified through the participatory Rural Appraisal, secondary data review, consultation with experts etc.

II.21.1. Agricultural and Allied Sectors:

- Less awareness about the conservation of soil, water and biomass
- Soil erosion and Low productivity of the soil
- Mono cropping
- Degradation of bio diversity especially the agro biodiversity
- Unfavorable climate changes
- Excessive use of agro chemicals
- Crop diseases and pest attack
- Lack of bio resource based income generation programmes
- Scarcity for fodder
- Fluctuation in market
- Depletion of local seeds and traditional agricultural practices
- Lack of interest of youth to come into the agricultural field
- Low income from agriculture
- Scarcity of agriculture labors
- Unorganized farmers
- Inadequate financing for agricultural sector
- Lack of cultivation of food crops and less food security

II.21.2. Drinking Water / Irrigation:

- Severe drought during summer in upper and middle reach and flood during the monsoon season in lower reach
- Depletion of ground water. Early drying up of water bodies
- Unscientific management of wells ponds and at non irrigation structures
- Water pollution due to Agro chemicals
- Lack of proper functioning of the existing schemes
- Lack of access for potable drinking water

II.21.3. Health and Sanitation

- Occurrence of contagious diseases

II.21.4. Social Sector:

- Unorganized Farmers

- Exploitation of middle man
- Less participation of people in developmental interventions
- Reluctances of women to come in to the main stream of the society
- Disintegration of social values

II.21.5. Financial Sector:

- Indebtedness
- Fluctuation of the price of agricultural produces
- Poor family budgeting

II.22. Capacity Building

II.23. Information, Education & Communication (IEC) Activities

Capacity building of the stake holders is the effective strategy to bring them in the main stream of the society. Technical as well as community trainings will be imparted to the stake holders in various subjects. Soil and water conservation, sustainable agriculture practices, possible income generation activities, bio diversity conservation, agro forestry programme, live stock development are the main topics to be covered.

Village watershed committee has a vital important role in project. The project is aim to bring the community in the main stream of the society. Apart from this systematic and scientific soil and water conservation mechanism has to be initiated through the people. This project will bring a systematic and scientific approach in each and every intervention. It is planned to adopt professional approach to attain timely results. A multi disciplinary WDT has constituted. Linkages and collaboration with various developmental agencies is an effective mechanism for the integration in the project. We are going to practice result based monitoring and evaluation mechanisms in participatory base. People's organizations like WC, SHGs and farmers clubs have vital important role in participatory monitoring and evaluation process.

To attain the same Information, Education and Communication (IEC) is an important component and it has a vital role in creating awareness, mobilizing people and lays the basis for successful implementation of Integrated Watershed Management Programme (IWMP). IEC have vital role to create awareness about IWMP by informing, educating and persuading people about their roles and responsibilities in watershed management.

The main Information, Education & Communication (IEC) activities for the project area are

- Broachers and leaflets
- Printing and placing of watershed maps
- Wall writings
- Posters
- Seminars – water security seminars
- Formation of school health clubs
- Welcome boards
- Street plays

II.23.1. Training Target and Budget

Sl. no	Particulars	Target Group	Training Target and Budget														
			I st year			II st year			III rd year			IV th year			Total		
			Amount (in Lakhs)	No. Training	No. Participants	Amount (in Lakhs)	No. Training	No. Participants	Amount (in Lakhs)	No. Training	No. Participants	Amount (in Lakhs)	No. Training	No. Participants	Amount (in Lakhs)	No. Training	No. Participants
1	General Orientation on IWMP and concept of watershed development and management programme	Watershed Committee, Padashekar samithy, SHGs and UGs	0.40	3	150	0.60	5	225	0.60	5	225	0.40	3	150	2	15	750
2	Awareness Programme of PSM	SHGs, UGs and Beneficiaries	0.60	2	120	0.90	4	180	0.90	4	180	0.60	2	120	3	12	600
3	Concept of Watershed Management, Role and Responsibilities	Watershed Committee and Officials	0.60	2	120	0.90	4	180	0.90	4	180	0.60	2	120	3	12	600
4	Empowering Peoples, Representative and Strengthen of PRIs, Gender development, convergence with IWMP etc	District , Block, Grama Panchayat Members PIA: Pattambi Block TSO: FLAME KERALA	0.54	2	120	0.81	3	180	0.81	3	180	0.54	2	120	2.7	10	600

5	Awareness Programme of Livelihood Activities Better Management, Accounting Method etc	User Group, SHGs, Watershed Committees	0.54	2	120	0.81	3	180	0.81	3	180	0.54	2	120	2.7	10	600
6	Management of Revolving Fund , Accounting, Financial Discipline etc	SHGs	0.35	1	60	0.53	2	90	0.53	2	90	0.35	1	60	1.75	5	300
7	Exposure Visit, Organic Farming and Marketing etc.	SHGs, Watershed Committees , UGs	0.80	1	60	1.20	2	90	1.20	2	90	0.80	0	60	4	5	300
8	Promotion of Micro Enterprises and Value Addition Units	UGs and SHGs	0.60	2	120	0.90	3	180	0.90	3	180	0.60	2	120	3	10	600
9	Animal Husbandry and Better Management of Livestock Camps	SHGs , UGs and Beneficiaries	0.35	1	60	0.53	2	90	0.53	2	90	0.35	1	60	1.75	5	300

II.23.2 Information Education and Communication (IEC) Plan

Sl.No.	Programme	Target Group	Budget(In Lakhs)
1	Awareness Programme for students. (Notice, Essay writing and Quiz competition, Book cover with messages, Rallies etc.)	School Level	2.5
2	Campaign through Poster Sicker, Banner , Calendar, Slides etc	Community	2.925
3	Hand Books, Brochure	Community	0.8
4	Soil testing, Fixing Rain gauge and Thermometer in watershed areas, Tree planting in Schools, government offices, Aganwadies, health centers	Farmers, Public	3.113
Total			9.338

II.24. Entry Point Activities (EPA)

Entry point activity is the first step of IWMP which helps to find out needs of people. Watershed development can be successful only by the people's participation. EPA is playing vital role in the first step of people mobilization and propagates importance of the Watershed development programmes. The most specific thing is to build a good rapport with the people residing in the area with good partnership. Nobody expect that watershed activities can find out a speedy solution for the problems because of this most of the people don't show interest in the implementation of watershed activities. People had lost their belief because of partial implementation of activities. So through EPA we have to change these view points and situation. Sometimes people can't fully understand some projects or what they mean by the activities in the project so to make awareness about EPA is important. We have found out the EPA work through NHG formation and watershed committee formation. EPA Work started means that the project is implemented here. EPA works is found out through the discussion with watershed committee members. And the EPA work is done on the basis of people's needs.

INTEGRATED WATERSHED MANAGEMENT PROGRAMME PATTAMBI BLOCK PANCHYATH IWMP-V Pattambi – E2 ENTRY POINT ACTIVITIES

S.No.	Names of the Gramapanchayath	Names of the villages	Amount earmarked for EPA	Entry Point Activities planned	Estimate amount	Expected outcome	Name of agency which selected the EPA
1	Ongallur	Ongallur	3,96,095	Renovation and side protection of chathankulam in ongallur panchyath	3,96,095		Watershed Committee
2	Kuzhiyanamkundu	Ongallur	1,97,530	Shuttering works in pandarathodu(vadanamkkurissi)	1,97,530	153000 ltrs water storage	Watershed Committee
3	Vadanamkurissi	Ongallur Chalavara	2,08,200	Renovation and steining works in public well vembalathupadam at Chalavara panchyath	2,08,200	164000 ltrs water storage	Watershed Committee
4	Choorakkode	Vallapuzha Ongallur	1045753	Nellisery thodu side protection and shuttering works(ward - 14)	7,09,753		Watershed Committee
5	Choorakkode	Ongallur Ongallur		Ferrocement tank in Govt. high school, choorakkode	3,36,000	141000 ltrs water storage	Watershed Committee
6	Kuruvattur	Chalavara Vallapuzha	7,14,500	Checkdam and side protection pappini thode with foothpath	7,14,500	152000 ltrs water storage	Watershed Committee

II.25 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.

II.26. 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, Kudumbasree Mission etc.

Ongallur Watershed				
Project Items	Unit Rate	Unit	Estimate Amount	Linked Department
Earthen Contour Bund	35/Rm.	14000	4.9	MGNREGS, Soil & Water Conservation Dept
Strengthening of field Bund	25/Rm	7500	1.875	MGNREGS, Soil & Water Conservation Dept
Coconut Baisn	126/ m3	7000	8.82	MGNREGS
Water Percolation Pit	126/ m3	1600	2.016	MGNREGS, Soil & Water Conservation Dept
Afforestation	32/Plant	6000	1.92	Social Forestry& MGNREGS
Live Fencing	15/m	4500	0.675	MGNREGS, Soil & Water Conservation Dept
Kuzhianamkundu Watershed				
Project Items	Unit Rate	Unit	Estimate Amount	Linked Department
Earthen Contour Bund	35/Rm.	1500	0.525	MGNREGS, Soil & Water Conservation Dept
Strengthening of field Bund	25/Rm	2500	0.625	MGNREGS, Soil & Water Conservation Dept
Coconut Basin	126/ m3	2000	2.52	MGNREGS
Water Percolation Pit	126/ m3	900	1.134	MGNREGS, Soil & Water Conservation Dept
Afforestation	32/Plant	2000	0.64	Social Forestry& MGNREGS
Live Fencing	15/m	1000	0.15	MGNREGS, Soil & Water Conservation Dept
Choorakode Watershed				
Project Items	Unit Rate	Unit	Estimate Amount	Linked Department
Earthen Contour Bund	35/Rm.	8000	2.8	MGNREGS, Soil & Water Conservation Dept
Strengthening of field Bund	25/Rm	4600	1.15	MGNREGS, Soil & Water Conservation Dept
Coconut Basin	126/ m3	5600	7.056	MGNREGS

Water Percolation Pit	126/ m3	1900	1.134	MGNREGS, Soil & Water Conservation Dept
Afforestation	32/Plant	3200	1.024	Social Forestry& MGNREGS
Live Fencing	15/m	2100	0.315	MGNREGS, Soil & Water Conservation Dept
Kuruvattur Watershed				
Project Items	Unit Rate	Unit	Estimate Amount	Linked Department
Earthen Contour Bund	35/Rm.	2500	0.875	MGNREGS, Soil & Water Conservation Dept
Strengthening of field Bund	25/Rm	3600	0.9	MGNREGS, Soil & Water Conservation Dept
Coconut Basin	126/ m3	4500	5.67	MGNREGS
Water Percolation Pit	126/ m3	1500	1.134	MGNREGS, Soil & Water Conservation Dept
Afforestation	32/Plant	4200	1.344	Social Forestry& MGNREGS
Live Fencing	15/m	2300	0.345	MGNREGS, Soil & Water Conservation Dept
Vadanamkurissi Watershed				
Project Items	Unit Rate	Unit	Estimated Amount	Linked Department
Earthen Contour Bund	35/Rm.	3200	1.12	MGNREGS, Soil & Water Conservation Dept
Strengthening of field Bund	25/Rm	2000	0.5	MGNREGS, Soil & Water Conservation Dept
Coconut Basin	126/ m3	2000	2.52	MGNREGS
Water Percolation Pit	126/ m3	500	0.63	MGNREGS, Soil & Water Conservation Dept
Afforestation	32/Plant	1000	0.32	Social Forestry& MGNREGS
Live Fencing	15/m	1500	0.225	MGNREGS, Soil & Water Conservation Dept

II.27. Major Activities and Interventions Proposed

II.27.1. Natural Resources Management (NRM)

Under natural resources management programme the following activities are proposed to tackle the issues and constraints in the watershed area.

1. Rain water harvesting

Rain water harvesting means collecting rain water, storing and preserving it for the dry season. It can be practiced at any place where rainfall occurs and it has a particular advantage in hilly areas where the people are facing water shortage and the underground water depletion is occurring in drastic rate.

2. Check Dams

A check dam is generally constructed on small streams and long gullies formed by the erosive activity of water. Ideally a check dam can be constructed in a stream with high banks. The main advantage of check dam is that it cuts off the runoff velocity and reduces erosive activity and the water stored improves soil moisture of the adjoining areas allows percolation to recharge the aquifers.

3. Pond Renovation

One of the main objectives of this activity is to de silts the pond and increases the water holding capacity of the ponds. The water can be utilized for drinking and irrigation of the dry and wet lands. It is proposed to renovate farm ponds in the different parts of the watershed area to enhance the water availability. This activity will be ensure the recharging of ground water

4. Stream bank protection

4.1. Construction of retaining wall

This activity is mainly aim to protect the bank side of the streams. Majority of the water sources of the areas are not protected and caused for stream bank erosion. Widening of the bank side will be reducing the water holding capacity of the stream. So the retaining walls are effective mechanisms protect the water sources.

5. Well recharging pits

The project area having a lot of dugout wells. Bs mainly but most of the wells will be dried during the summer season due to the depletion of the ground water. This is mainly occurring because of the over extraction of the underground water. Apart from this the irregular and uneven rainfall and other climate change factors are adversely affecting the water availability. In this juncture promotion of the well recharging units will be ensure the conservation of the rain water and increase water table and also ensure the water availability throughout the year.

6. 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, breach 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.

7. Construction of tiller ramps

Tiller ramps are mainly aim to ensure the transportation facilities to the agriculture fields especially to the promotion of paddy cultivation activities. This will help to the transportation of the agriculture equipments, fertilizer and other materials for the farming activities. Apart from this transportation of the agriculture produces to the markets are very easy through the ramps.

8. Nursery for Agro forestry and Agro horticulture

Nursery Management helps to growing the perennial horticulture crops, including plantation crops and agro forestry would give a permanent protective cover for the soil. It is a suitable land management system conserving soil, water biomass, and meeting the multiple needs for fuel, fodder; fiber etc. In high rainfall areas of the humid tropics this higher level tree cover for the soil helps in reducing the soil erosion

II.27.2 Production System and Micro Enterprises

A) Production System

Promotion of the sustainable agriculture is the only and one solution to tackle the issue. It is aim to promote various sustainable agriculture practices among the farmers as part of the watershed management programme. Bio resource based and other possible IGPs has to be promoted.

There is only a bare minimum effort to promote agriculture based livelihood enhancement activities. Promotion of the income generation activities based on bio resources are the main focal area under this project. Agriculture and none agriculture based IGPs are planned to be promoted for the deserving community

Through this production system management we encourage scientific methods to increase the productivity and soil enrichment. To reduce the pressure on the natural resources due to over population and improper management of soil, we are enforced to adopted scientific methods of forming and modern techniques in agricultural to produce more products (like high yield varieties of seeds, resistance veracities of seeding, Eco-Friendly manner system etc)

Under production system management programme the following activities are proposed SRI (System of Rice Intensification),vegetable cultivation in pot, vegetable cultivation in the land, weed cutter ,Organic manure banana, cultivation of tapioca, ginger ,turmeric, pineapple, pepper, coconut nursery, seed bank, biogas plants ,Beekeeping, Piscicultural, coir spinning unit, motorized rat, jackfruit processing ,Bamboo, reed and cane product, Copra processing etc. All programme under this head are implemented by, Agricultural department SHM, VFPC; Spices board KVK, Fishers department ANERT, KVIC, Bamboo Co operation, Kudumbasree coconut board etc. The project Is Elaborated Only through the Co operation Of line departments. Following are the details of the IGPs

B) Micro Enterprises

1 Kondattam, Pickles

Kondattam of bitter guard, green chilli, Brinjal, rice, Pickles of mango, lemon, Mixed Vegetables and Dried fish are used as a complement to meals. Nowadays increasing the demand of these homemade items is increasing and helps to earning income. Many of the women groups are producing and selling this variety of item qualitatively. The homemade items would have no proper label or attractive packing. Besides competencies of market they would not get sufficient price almost in the process. So the watershed Committees decided to promote women groups consisting four members for the production with wide aspect.

2. Pappad Making

In the three watersheds there are many Pappad units struggling for their sustainability. Many of women and children are engaging in the home industry apart from other activities. So the watershed Committees decided to promote families who have being engaged in Pappad making process.

3. Mushroom cultivation

Species of Pleurotus commonly known as oyster mushrooms grow saprophytic under natural conditions on trees, dead wood, stumps and branches. Today several species of Pleurotus are commercially grown in many parts of the world. Kerala enjoying a tropical climate is found to be the most suitable place for mushroom cultivation. Species of Pleurotus and Volvariella can be successfully cultivated in the State all round the year on a variety of agro-wastes like saw dust, vegetable and paper wastes, oil palm per carp waste and straw. But the best suitable substrate is found to be paddy straw. The paddy straw mushroom can be successfully cultivated in the plains of Palakkad throughout the year where the temperature ranges between 28-32°C. Paddy straw is plenty in the project area as a growing medium of mushroom. As part of the watershed development programme, we have planned to start two units of mushroom cultivation through women groups. Technical training will be imparting to the selected women group for the time being.

4. Pisciculture

Palakkad is a second largest District in Kerala. Paddy fields, plane lands and its typical greeneries are the major attractions in the area. The district is also well sound in farm ponds, springs and natural sources of water. More farmers are committing fisheries as an income generation programme. The Paddy cultivation provides suitable atmosphere to the Pisci culture practices. The inland fishing is also a time old practice in the extensive network of backwaters and also in the westerly flowing rivers. Kerala fisheries, developed over the years stand great scope for further expansion by way of more rational and fuller utilization of the resources. Fresh water fish culture in Palakkad district is also well established. Some

of the farmers are engaged in this field and gaining more income. As part of this we have aimed to promote 10 fish culture units in the watersheds.

5. Bamboo, Reed and cane product

IWMP aims to promote traditional IGPs and conventional activities. Unlimited possibility of manufacturing eco friendly products can be opening a multifaceted income source to the new generation. Baskets, mats, chairs, tea pays, hanging chairs and variety of attractive other handicrafts are the byproducts of bamboos. Some of the families in watershed lead their life with traditional income generation and allied activities. In the sense watershed Committees decided to promote their indigenous activities as a livelihood component. Availability of raw materials is influencing the venture as a competitive one.

II.27.3. Livelihood supporting System

1. Vegetable cultivation

The cool climate in Kerala has been found very conducive for vegetable cultivation. Those who tried the cultivation have received encouraging results. The cultivation during the cold season needs little care. Pests can be effectively controlled with home-made tobacco and garlic liquor. The common items cultivated are Okra, amaranth, bitter gourd, brinjal, chilly, pumpkin, cucumber and snake gourd. Normally people in these areas cultivate a mix of vegetables

2. Cow and Calf rearing

The watershed communities of the area are familiar with animal husbandry practices especially cow rearing. People are getting reasonable price for the milk and milk related products. Marketing system is very much organized through the cooperative societies. Promotion of calf rearing is a support to the farmers to find out additional income for their livelihood.

An economically viable and sustainable Unit is recommended to have one cow so that yielding would remain intact throughout the year, the cows having mil Simple cattle sheds are planned using at the best locally available natural materials. Apart from this we will provide first priority for the people who have the cattle shed. Considering the pitiful financial condition of the concerned families created upon by the lasting agricultural disaster, the first milk cow will have to be made available through the Revolving fund assistance through JLG. As part of the same the group or individual have to deposit 20% of the project cost in WC account. The unit cost per unit is 30000/- out of 24000 will be the Revolving fund assistance.

3. Backyard Poultry

Many numbers of families in the district is rearing back yard poultry units as additional source of income. Majority of the farmers are providing much importance for eggery units. Backyard poultry rearing has been an integral part of rural life in the Watershed area. Poultry in backyards of rural households could become an important element in augmenting the household income and intake of nutrition by the families without any external inputs being made.

4 .Goat rearing

Goat is the first domestic animal in the world and it is known as the poor man's cow. With very low investments goat rearing can be made in to a profitable venture for small and marginal farmers. Goats are reared for milk and meat. Goat is a multi functional animal and plays a significant role in the economy and nutrition of landless, small and marginal farmers in the country. Goat rearing is an enterprise, which has been practiced by a large section of population in rural areas. Goats can efficiently survive on available shrubs and trees in adverse harsh environment in low fertility lands where no other crop can be grown. The people of the watershed area are very much interested to rear the goat because most of the people have past experience or somebody is already doing this project. It is proposed to promote the unit for the women and tribal community of the area.

5. Rabbit rearing

Rabbits are raised world-wide for a variety of reasons. Majority of countries the people are leading their life with rabbitary and it is the main source of their income. Rabbits produce white meat that is fine-grained; high in protein, low in fat, highly palatable, low in cholesterol, and that can be substituted for poultry in most recipes. Rabbit carcasses are only 10 percent bone. In the United States rabbits are raised predominantly for nonfood purposes. High quality rabbit skins are used in fur garments and trimmings. Medical and cosmetic research also requires a large number of rabbits each year. Many people raise rabbits for show or as pets

Advantages

- § Highest in protein%
- § Lower in % of fat
- § Unsaturated fatty acid is 63% of total fatty acids.
- § Low saturated fatty acids
- § Cholesterol level is much lower
- § Low sodium
- § Fine texture
- § Low bone to meat ratio

This is a people based and people own project should be implemented in a systematic manner. The discussion on the problems of the project area indicates that watershed development activities have long term impact on the ecosystem of the project area. In order to ensure that the benefits of the project reaches different sections of the population, particularly the vulnerable, the involvement of the community is essential right from the

beginning of the project. Community participation has to be ensured in planning, management and implementation of the project. The interventions identified as part of this exercise of preparing the Detailed Project has tried to ensure that the vulnerable sections of the society such as those living below poverty line, small and marginal farmers, women, landless families, SC/ST communities etc are benefitted out of the watershed development activities under the project. Community involvement is also essential to sustain the systems developed under the project and the positive outcomes of the project.

6. Kondattam, Pickles

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II.28. Annual Action Plan

Sl. No.	Particulars	Unit	Target									
			1 st Year		2 nd Year		3 rd Year		4 th Year		Total	
			Physical	Financial (Laksh)	Physical	Financial (Laksh)	Physical	Financial (Laksh)	Physical	Financial (Laksh)	Physical	Financial (Laksh)
	Watershed Development Works											
II	Water Harvesting Structures											
a	Ground water recharging	NOS	14	0.7	30	1.5	40	25	0	0	69	3.45
b	Farm ponds	NOS	3	11.86	9	35.294	2	9.65	3	9.06	17	65.864
c	Check dam (New)	NOS	4	83.204	6	44.89	2	6.57	4	37.044	16	171.708
d	Check dam (Renovation)	NOS	0	0	4	3.47	0	0	1	0.3	5	3.77

e	Others Stream Side Protection	M	90. ha.	13.45	81. ha.	12.15	350. ha.	53.278	290. ha.	43.07	811. ha.	121.948
f	Ramp	NOS	0	0	0	0	2.5. ha.	0.36	8 ha.	1.24	10.5ha.	1.6
	Total			109.214		97.304		71.108		90.714		368.340
IV	Livelihood											
	Revolving Fund	NOS	31	7.75	47	11.75	50	12.5	38	9.5	166	41.438
	Seed Money for Major Livelihood Assets		3	3	3	3	4	5	7	6.75	17	17.75
	Beneficiaries		495		750		810		675		2730	
V	Production System and Micro Enterprises											
a	Area	Ha	18	12.46	32	20.43	32	20.43	18	12.46	100	65.78
b	Beneficiaries		170		258		258		170		856	

II.29.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. Gully plugging, Stream Side Protection	Rain water will be conserved to recharge Ground Water Level Protection Valuable Top Soil in about 980 Ha of lands And also will be protected from soil erosion
Water Harvesting Structure	Well recharge, Pond and Check dams, Public well renovation Rainwater tank, Rain pits	Ground water will be increased and Problem of drinking water in the 28 MI. of rain water will be additionally collected in the project area
Agri & Horticulture	<u>Additional area under cultivation</u> System Rice Intensification (SRI)=20ha. Vegetable Cultivation = 36ha. Banana cultivation) = 15ha. Tuber Crops = 21ha. Ginger = 5ha. Turmeric = 8ha. Pineapple = 5ha. Sericulture = 5ha	Organic crop production from an extent of about 115 ha. of the watershed area can be enhanced substantially
Livelihood Activities	Increase in the Clean and strong cattle shed	Livestock population shall be increased livestock population shall be increased for 133 - Group
Increase of Job Opportunities	Erecting/installing Engineering structure for NRM watershed areas Supply of supporting equipment for the labourers	28900 labour days will be created

II.30. Additional area that can be brought under irrigation

Name of watershed Cluster	Well Recharging		Ponds (Renovation)		Total area
	No	Area (ha)	No	Area (ha)	
IWMP –V – Pattambi -E2	84	42	15	365	407

II.31. Consolidated Area Expected to be Brought under Irrigation

Name of watershed Cluster	Existing area under irrigation (ha)	Additional area expected to be brought under irrigation (ha)	Total area (ha)
IWMP – V – Pattambi –E2	1282	1132	2414

II.32. 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 Gramasabha. The WDF bank account will be operated jointly by the President of the Gram Panchayath and any implementing officers at the Grama Panchayath 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.33. The Process of DPR Preparation

Sl. No.	Activities	Date (During 2012)
1	MOU Singed	February 17
2	DPR Team(TSO) selection and appointment	February 20-28
3	Training was given by TSO team members for the preparation of DPR	March 5 to 6
4	Awareness meeting for Block members	March 13
5	Area delineation, visiting GP & Departmental officials with in the watershed area	March 14 to 20
6	Transect walk, watershed boundary identification with the help of ward members, TSO and Common people etc.	March 20 to April 10
7	Two Day Training program for IWMP conduct by SIRD	March 26 to 27
8	Secondary data collection, map, (Topo sheet cadastral map, Panchayath map etc.) Department details, Neerthada master plan, GP & Block Annual action plan etc.	April 11 to May 5
9	First installment(Cheque) received	May 2
10	Block level Awareness Training (one day)	April 18
11	Half day Awareness Training in Panchyath level (8 GPs)	May 7 to 9
12	Review meeting (DRDA)	May 10
13	Panchayath coordination committee formation	May 11to 31
14	BLCC	May 12
15	BLCC	May 25

16	NHG formation	May 12 to July 31
17	Baseline data survey	May 12 to August 10
18	PRA	June 14 ,15,16 & July 12
19	Feasibility study& Estimate preparation of identified works	May 26 to August 4
20	EPA Identification & Estimation	July 05- 25
21	AS & TS for EPA	
22	Drainage line survey	May 26 to 31
23	GIS Mapping	May 5 -August 30
24	Integration meeting with various departments (KVK, Agri., MI, Veterinary, LSGD, Fisheries, Industrial, etc.)	July 19
25	SLNA- Review meeting	August 7
26	Gramasabha and WC formation	September 3-5
27	Review meeting DRDA	September 20
28	Final Draft	September 22-28
29	Presentation in BLCC	September 29
30	Submission in DPC	October -

CONCLUSION

Palakkad is considered as the most distressed district in India due to the critical situation in agriculture and allied sectors. Land Biomass and Water which is considered as the corner stone of ecosystem and environment are now totally collapsed due to the unendurable and unexasperated human interventions. Degradation of the biodiversity is adversely affected the agriculture and allied sectors, climate, water resource, food security, health and other sectors. Apart from this the rich agro biodiversity of the district is depleting day by day. IWMP is implementing in the district to tackle the above cited issues and constraints with effective peoples participation.

Conservation and equitable utilization of the resource trinity like soil, water and bio mass are the major intervention strategies. Land development, agriculture development, livelihood enhancement and people's institution building are the core intervention strategies.

To attain the same IWMP is introducing and propagating systematic and scientific intervention strategies. This is a people owned and people lead project. Conservation, equitable distribution and utilization of the resource trinity like Land Bio mass and Water (LBW) is the main objectives of the project. SLNA is internalized that the soil, water and biomass are the corner stone of the each and every developmental interventions. Apart from that the environmental hazardous adversely affecting the weaker section, children and the women community .Joint action of the watershed community, TSO, WC and SLNA is initiating to achieve the above said objectives.

Estimate and Plan

1									
<u>Panagara pond renovation Vallappuzha GP, ward no:11</u>									
SL NO	DISCRIPTIONS	NO:	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	Units	AMOUNT
1	Site clearing, grass and other over growth vegetation and small trees of girth up 30 cm							LS	500
2	Dewatering with 5 Hp pump set							LS	8000
3	Earth Work Excavation in or under water or liquid mud ,Ordinary Soil For foundation work including all cost of Material and Labour Charges completely.								
	Side 1	1	42	1.1	1	46.20			
	Side 2	1	18.9	1.1	1	20.79			
	Side 3	1	6.8	1.1	1	7.48			
	Side 4	1	6.9	1.1	1	7.59			
	Total					82.06	1117	10m3	9166
4	Dry Rubble Masonry for Foundation including all materials and labour charges etc..completely.								
	Side 1	1	42	1.1	1	46.20			
	Side 2	1	18.9	1.1	1	20.79			

	Side 3	1	6.8	1.1	1	7.48			
	Side 4	1	6.9	1.1	1	7.59			
	Total					82.06	1625	m3	133348
5	Dry Rubble Work for retaining wall including all materials and labour charges etc completely.								
	Side 1	1	42	0.775	2.4	78.12			
	Side 2	1	18.9	0.775	2.4	35.15			
	Side 3	1	6.8	0.775	2.4	12.65			
	Side 4	1	6.9	0.775	2.4	12.83			
	Total					138.76	1625	m3	225479
6	Reinforced Cement Concrete 1:2:4 with 10mm thick For Plinth beam over the Wall Using 20mm metal Including all Materials shuttering and Labour Charges.etc..Completely.								
	Side 1	1	42	0.775	0.1	3.26			
	Side 2	1	18.9	0.775	0.1	1.46			
	Side 3	1	6.8	0.775	0.1	0.53			
	Side 4	1	6.9	0.775	0.1	0.53			
	Total					5.78	7350	m3	42494

7	Plane Cement Concrete 1:4:8 with 10mm thick For Plinth beam over the Wall Using 40mm metal Including all Material and Labour Charges.etc..Completely.							
	Side 1	1	42	0.45	0.1	1.89		
	Side 2	1	18.9	0.45	0.1	0.85		
	Side 3	1	6.8	0.45	0.1	0.31		
	Side 4	1	6.9	0.45	0.1	0.31		
	Total					3.36	4654	m3 15623
8	Unforeseen items if any							1390
Total								436000

2 Chackingal padi(Pallipadi)ward 15									
Sl no	Descriptions	no	Measurement			Quantity	Rete	Units	Amount
			Length	Width	Height				
1	Site clearing and leveling							LS 250	
2	Earth Work Excavation in Ordinary Soil For Foundation including all cost of Material and Labour Charges completely.								
	Side wall	2	10	0.75	0.6	9			
	End wall	1	1.5	0.75	0.6	0.675			
	Total					9.675	1329.11	10m3 12859.14	

3	Dry Rubble Work for Foundation including all materials and labour charges etc. completely.								
	Side wall	2	10	0.75	0.6	9			
	End wall	1	1.5	0.75	0.6	0.675			
	Total					9.675	1450.1	m3	14029.72
4	Dry Rubble Work for retaining wall .including all materials and labour charges etc. completely.								
	Side wall	2	10	0.6	1	12			
	Total					12	1450.1	m3	17401.20
5	PCC 1:2:4 for top of Ramp wall								
	Side wall	2	6	0.6	0.1	0.72			
	End wall	1	1.8	0.6	0.1	0.108			
	Total					0.828	4278.28	m3	3542.42
	Unforeseen items if any								1917.53
	Total								50000.00

Pappini Thodu (Nannanadu pradesham) Vallappuzha GP, ward-8

Sl.No:	Description	Measurements			Quantity	Rate	Amount
		NO:	Length	Width			
	Site Clearance						1000

1	Earth Work Excavation of ordinary soil for Foudation .Including All material and Labour Charges etc..Completly.	1.00	10.60	5.30	0.65	36.52	1329.11/10m ³	4853.51
2	Plain Cement Concrete 1:4:8 for foundation Bed using 40mm Matal. Including All material and Labour Charges etc..Completly.	1.00	10.60	5.30	0.25	14.05	4278.29/	60088.58
3	Reinforced Cement Concrete 1:2:4 using 20mm metal. Including All material and Labour Charges etc..Completly.							
	Footing	1.00	10.60	5.30	0.40	22.47		
	Beam	6.00	2.00	0.50	0.50	3.00		
	Wall	2.00	1.00	5.00	5.00	50.00		
	Wall 1	2.00	1.00	3.00	5.00	30.00		
	Wall 2	8.00	0.50	0.50	5.00	10.00		
	Path Slab	3.00	2.00	1.00	0.15	0.90		
						116.37	13860.39/m ³	1612961.31
4	Plastering Work 1:6 for wall using 12mm thick Including all material and Labour Charges etc..Completly.							
	Beam	18.00	3.00		0.50	27.00		
	Wall	4.00	5.00		5.00	100.00		
	Wall i	4.00	1.00		5.00	20.00		
	Wall 1	4.00	3.00		5.00	60.00		

	Wall 2	8.00	1.12		5.00	44.80		
	Top of Wall	4.00	1.00	5.00		20.00		
	Path Slab	6.00	2.00	1.00		12.00		
						283.80	1545.77/10m2	43868.95
5	Shutter Operating System Using 12mm Plate, 125mm C Channel, 65mm Angle Threaded iron bar, Steering and Chain block including all cost of materials and Labour charges etc. completely.							300000.00
6	Unforeseen Items if any							2227.65
								2025000.00
Side wall								
1	Earth Work Excavation of ordinary soil for Foudation .Including All material and Labour Charges etc..Completly.							
	Side 1	1	50.00	1.50	0.60	45.00		
	Side 2	1	50.00	1.50	0.60	45.00		
						90.00	1329.11/10m ³	11961.99

2	Random Rubble Work in CM 1:8 for Retaining wall with Foundation. Including all cost of materials and Labour charges etc.completly.							
	Side 1	1	50.00	1.05	5.00	262.50		
	Side 2	1	50.00	1.05	5.00	262.50		
						525.00	2629.57/m ³	1380524.25
3	Reinforced Cement Concrete 1:2:4 using 20mm metal. Including All material and Labour Charges etc Completely.							
	Side 1	1	50.00	0.60	0.20	6.00		
	Side 2	1	50.00	0.60	0.20	6.00		
						12.00	13860.39/m ³	166324.68
4	Unforeseen Items if any							2189.08
								1561000.00
								3586000.00

Geo Textile Work of steam Vallapuzha GP-Side protection Pappinithodu ward no:8								
SI no.	Items	NO	Length	Width	Height	Quantity	Rate	Amount
1	Site clearance							10000
2	Side Protection for Stream by using Geo Textile with Folding Suitable Size of Bamboo Sticks.							
	Side 1	1	500		2	1000		
	Side 2	1	500		2	1000		
						2000	1508/10m ²	301600
3	Unforeseen Items if any.							2400
								314000.00

1 Abstract Of Estimate For Well Recharge Pit

SI.NO	Particulars	No.	Length	Width	Height	Unit	Rate	Quantity	Amount(Rs)
1	Earth work in excavation in ordinary soil with a lead of 50m and lift upto 1.5 m	1	1.30	1.30	0.60	10 m ³	1329.11	0.796	105.80
2	Brick Work in 1:6 with Country Burned Brick 22.9x11.2x7 For Side Wall of Percolation Pit. including all cost of labour, materials and conveyance	1	3.60	0.24	0.60	m ³	3620.52	0.518	1876.88
3	Plain cement concrete 1:3:6 using 20 mm broken stone for over the masonry including all cost and labour charges etc complete	1	3.60	0.24	0.05	m ³	4278.29	0.072	308.04
4	Supplying 63mm PVC pipe (4KG/CM ²)					M	120.00	10.00	2500.00
5	Supplying and fixing pre cast concrete slab for covering And Filling Sand and wood charcoal etc.including all cost of materials, labour charges etc complete.					LS			200.00
6	un foreseen items if any					LS			9.29
	Total								5000.00