INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II- 2012/13

IN PARAKADAV BLOCK PANCHAYAT

ERANAMKULAMDISTRICT

KERALA STATE

DETAILED PROJECT REPORT

PIA – PARAKADAV BLOCK PANCHAYAT

TSO – RAJIVYOUTH FOUNDATION

ABBREVIATIONS

BDO	Block Development Officer
BLCC	Block Level Co-Ordination Committee
BPL	Below Poverty Level
DDP	Desert Development Programme
DPAP	Draught prone areas programme
DPC	District Planning Committee
DPR	Detailed Project Report
EPA	Entry Point Activity
FGD	Focus Group Discussion
GIS	Geographical information system
GPS	Geographical Positioning System
GWD	Ground water Department
IKM	Information Kerala Mission
JBDO	Joint Block Development Officer
JLP	Joint Liability Group
KRWSA	Kerala Rural Water Supply and Sanitation Agency
KWA	Kerala Water Authority
LAP	Livelihood Action Plan
LSGD	Local Self Government Department
LSS	Livelihood Support System
MGNREGA	Mahatma Ghandi national rural employment guarantee act
MIS	Monitoring evaluation system
NHG	Neighbour Hood Groups
NRHM	National Rural Horticultural mission
NRLM	National Rural Livelihood Mission
NRM	Natural Resource Management
PIA	Project Implementing Agency
PLCC	Panchayat Level co-ordination Committee
PNP	Participatory Net Planning
PPR	Preliminary Project Report
PRA	Participatory Rural Agency
PS&M	Production System Management
PWD	Public Work Department
SHG	Self Help Group
SLNA	State Level Nodal Agencies
TSO	Technical Support Organization
TSU	Technical Support Unit
UG	User Group
VEO	Village Extension Officer
VFPCK	Vegetable and Fruit Promotional Council -Kerala
WCC	watershed co-ordination Committee
WCDC	Watershed Cell Data cum Centre
WDF	Watershed Development Fund
WDT	Watershed Development Team

PART - I

Chapter -1

Introduction

1.1 Project background

IWMP, project aiming to the development of watersheds is started with the co-operation of both the central and state governments. This project ensures the participation of the people throughout the project and also it avoids the problems that found in the already implemented watershed programmes like Haryali, IWDP..Etc.

What is meant by a watershed? A Water body and all the areas through which the water came in to this water body known as a watershed. Thus watershed is a unique, natural unit of inco-operating factors like water, soil and bio resources. That's why, in the present scenario, firstly we have to consider our nature and to take up a watershed based development. Here, a 'Ridge to Valley' approach is applying for implementing the project. Watersheds are the basic development structures in the nature. Soil, water and bio resources are the geographical facts in cooperating to each other. Only by the scientific treatment of the soil, water and bio resources we can ensure the existence of life in earth.

One main feature of IWMP is that treatment and management of watersheds as cluster instead of considering them as single. For the project works in the hilly areas, provides Rs 15000/Hr and for the planelands, it is Rs 12000/hr. The project going through three stages namely initial phase, implementing phase, withdrawal phase. Poverty rate, SC/ST population, actual wages, living condition of farmers, ground water level, drought, flood, availability of rain, drinking water, degraded land, productivity of soil etc. are some of the criteria for including an area in to project

The Department of Land Resources Development under the Ministry of Rural Development, Government of India had implemented 4 watershed programmes viz. Integrated Wastelands Development Programme (IWDP), Drought Prone Areas Programme (DPAP), Desert Development Programme (DDP) and 'Hariyali' till 1st April 2008. Since then, these 4programmes have been brought under a comprehensive programme named Integrated Watershed Management Programme (IWMP) to be implemented under Common Guidelines on Watershed Development, 2008.

1.2 Need and scope of watershed management

Loss of vegetative cover following by soil degradation through various forms of erosion has resulted into lands which are thirsty in terms of water as well as hungry in terms of soil nutrients.

All these regions have predominantly livestock entered farming systems; less biomass for animals not only reduces animal productivity but also deteriorates the ecological balance.

Watershed management has therefore emerged as a new paradigm for planning, development and management of land water and biomass resources with a focus on social and institutional aspects apart from biophysical aspects. Watershed management becomes increasingly important as a way to improve livelihood of people while conserving and regenerating there natural resource. The role and importance of community participation is now accepted. Watershed management programmes therefore should be intimately linked with the people whose socio economic and cultural backgrounds play a decisive role in meaningful planning, implementation and operations of watershed programmes.

1.3 Main Objectives

1. Main objective of IWMP is to preserve and conserve the ecology, restore and develop degraded natural resources by arresting soil loss, improving soil health and soil moisture.

2. Rain water harvesting and recharging of ground water enables multi cropping and introduction of diverse agro based activities help to provide sustainable livelihood to the people residing in watershed area.

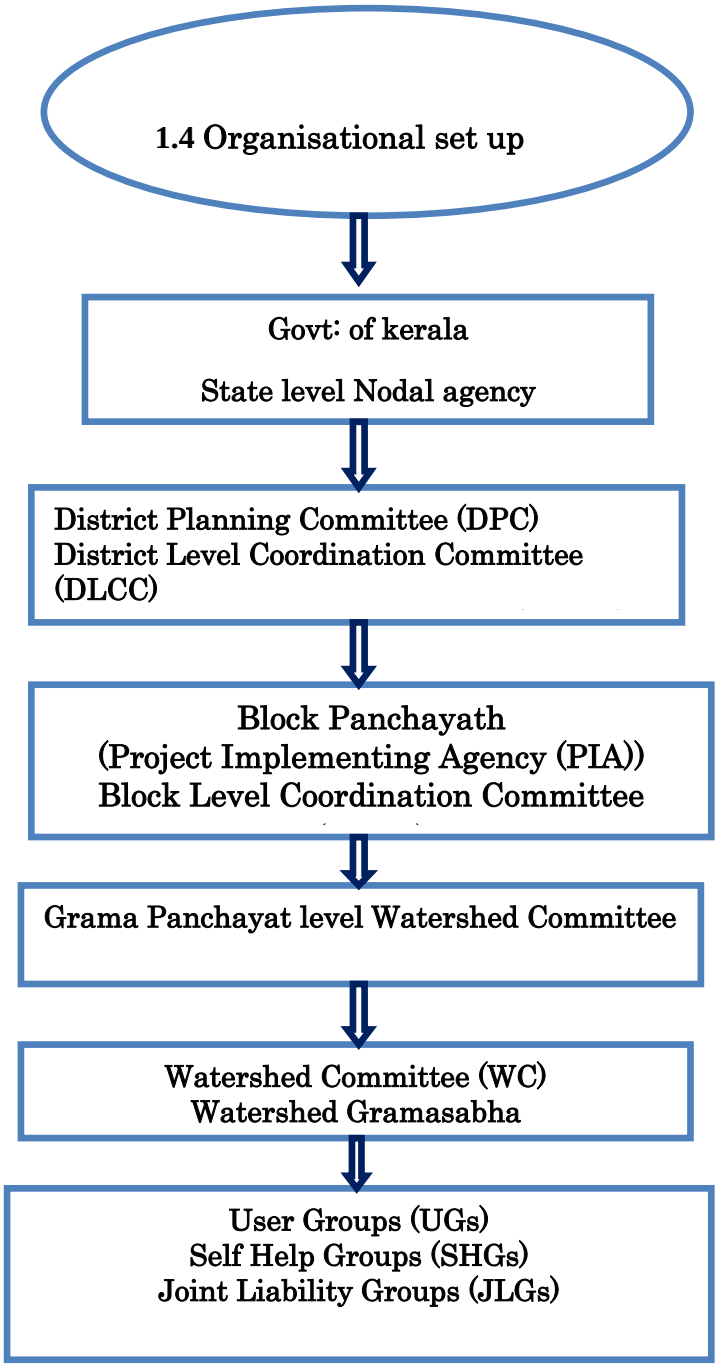
3. To promote livestock development, fishery management, and to encourage dairying and marketing of dairy products.

4. Improving the capacity of community to manage common natural resource.

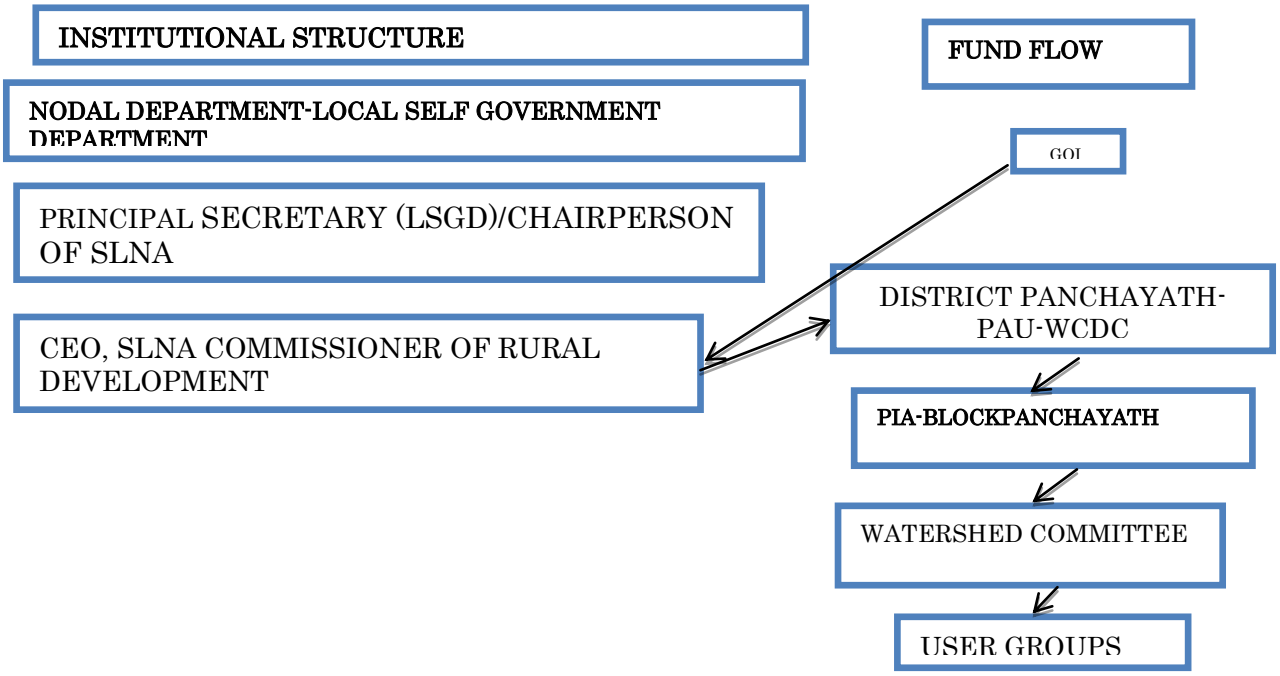
5. Enhancing the efficiency and effectiveness of rain water and runoff use, improve vegetative cover and reduce soil erosion through better rain water management.

6. Conserving as much rain water as possible in the place where it falls and also increasing the ground water level to get water throughout the year and maintaining it for sustainability.

7. Utilizing the available land to its maximum productivity by adopting various or suitable measures according to the land capability and without any environmental degradation.


1.4 Organisational set up
Govt: of kerala
State level Nodal agency
District Planning Committee (DPC)
District Level Coordination Committee
(DLCC)
Block Panchayath
(Project Implementing Agency (PIA))
Block Level Coordination Committee
Grama Panchayat level Watershed Committee
Watershed Committee (WC)
Watershed Gramasabha
User Groups (UGs)
Self Help Groups (SHGs)
Joint Liability Groups (JLGs)

1.5 Funding flow



1.6 Funding Pattern

Sl.No.	Particulars	Percentage of Fund	Amount
1	Administration Cost	10	6194256
2	Monitoring	1	619425.6
3	Evaluation	1	619425.6
4	Entry Point Activities	4	2477702.4
5	Institution & Capacity Building	5	3097128
6	DPR	1	619425.6
7	Watershed Development Works	56	34687833.6
8	Livelihood Activities	9	5574830.4
9	Production System & Micro Enterprises	10	6194256
10	Consolidation Phase	3	1858276.8
Total		**100%**	**61942560**

Chapter – 2

Institutional Building and Project Management

2.1 Institutional Building in project level

The IWMP project has vast potential and scope to empower socially weekend sections of the community. Considering the requirements and priorities of these sections, particular activities were considered to reduce their drudgery. This involved in a skills up gradation programme. People's organizations hold the key in ensuring the exact integration between sustainable development and social equity. Such organizations have representations from socially backward communities and women with separate special interest groups. Within group interactions across group interactions and representation in village level institutions provide a platform for the disadvantaged groups to become a part of mainstream development. It is also essential to note that it was properly ensured that these groups obtain equal opportunities to access the resources developed at the community level.

2.1.1 Institution Building at State Level (SLNA)

SLNA is constituted by State Government and they doing the review of progress of project s in the state level. They prepare State Perspective and Strategic Plan (SPSP) and Work Implementation Strategy.

2.1.2 InstitutionBuilding at district level (DLCC)

DLCC oversee implementation of watershed programmes and they co-ordinates all projects in district level. The structure of DLCC given below,

Si no	Name	Designation
1	Chairman	District Panchayat President
2	Member Secretary	District Collector
3	Convener	Project manager IWMP (project director- PAU)
4	Principal of Agriculture	Members
5	District Planning office	Members
6	District Soil survey Officer	Members
7	District Soil conservation officer	Members
8	Deputy Director, Fisheries	Members
9	Executive engineer, Minor Irrigation/LSGD.KWA	Members
10	Divisional forest officers	Members
11	District Officer,GWD	Members
12	Rep. KRWSA	Members

13	District mission co-ordinator,Kudumbasree	Members
14	District Co-ordinator,IKM	Members
15	DistrictCo-ordinator,Horticulture Mission	Members

2.1.3 Institution Building at Project implementingagency level (PIA)

Project Implementing Agency (PIA) is responsible for implementation of watershed Projects. They provide technical guidance to Gram Panchayat under watershed area to prepare Development plans through Participatory Rural Appraisals (PRAs) also arrange physical/financial social audit of works undertaken . Details of ***block level co-ordination committeeof IWMP 11- 2012-13 -parakadav block panchayat, given*** below,

SL No.	Name	Designation	
1	M.K shaji	Chairman	President, parakadav Block Panchayath
2	Saralamohanan	Member	Vice president , parakadav Block Panchayath
3	Francis tharayil	Member	Vikasana Standing Committee chairman
4	Sajeev T.K	Member	LSGD ,Assistant Executive Engineer
5	Smt. shyama Lakshmi	Member	BDO,parakadav
6	Sajithashamsu	Member	President,kunnukaraPanchayath
7	Sheena sabastian	Member	President,puthanvelikaraPanchayath
8	Sreedevimadhu	Member	President,chengamandPanchayath
9	PY .varghees	Member	President,nedumbasseriPanchayath
10	p.vjose	Member	President,parakadavPanchayath
11	Suresh babu	Member	JBDO (EGS)
12	Sali	Member	EO (WW)
13	Ambili	Member	ADA
14	vijayam. k	Member	ASO,WCDC
15	Victer .kt	Member	WDT Social Mobiliser
16	Leepa	Member	WDT AE
17	Sheeja	Member	WDT Agriculture Assistant
18	Aswathy . m.k	Member	Data entry operator

: Details of project implementing agency of IWMP- I1- 2012-13

Name of The project	**IWMP – I1- 2012-13**
PIA	Parakadav Block Panchayath
Implementation Officer	Block Development Officer
Address PIA	Secretary, ParakadavBlockPanchayath, parakadav 683579
Telephone	Phone: 04842473031 , 2473866
Email	bdoparakadav@gmail.com

The WDT is an integral part of the PIA and will be set up by the PIA.Assistwatershedgramasabha and organize user group, self-helpgroup...Etc. are the main duties of them. Each WDTshould have at least four members, broadly with knowledge and experience in Agriculture, soil science, water management, social mobilization and institutional Building.

Details of WDT members

Name of Post	Name of Person Posted	Qualification	Date of Joining
Asst.Engineer	Leepa	B Tech (Civil Engineering)	7/01/2014
Social Mobilisor	Victer.kt	MSW	17/10/2013
Agriculture Asst	Sheeja	VHSE – Agriculture	20/8/2013
Data entry operator	Aswathy . m.k	BA –Economics, PGDCA	13/8/2014

2.1.4 Institution building atGramapanchayat level

Watershed management works are implemented at the GramaPanchayat level. The GPsupervises Support and advice watershed committee.

2.1.5 Watershed Committee (WC)

Watershed committee has an important role to play during and after the project implementation period. The Gramsabha will constitute the Watershed Committee (WC) to implement the Watershed project with the technical support of the WDT.The format of Watershed Committee given below.

Name	**Designation**
Chairman	Panchayat President
Panchayat Secretary	Member secretary
WDT ,Rep	Member
TSO Rep.	Member
SC	Member
Women	Member
Landless person	Member
Panchayat Members	Member
SHG,Rep.	Member
User Group Rep.	Member

2.1.6 Watershed co-ordination committee (WCC)

The watershed co-ordination committee formation need if there a watershed area covers more than one Panchayat .Theformat of committee given below.

Name	Designation
Panchayat president (Panchayat of Highest watershed area covered)	Chairman
Other Panchayat presidents	Co-Chairman
watershed Secretary (Panchayat of Highest watershed area covered)	Member Secretary
WDT - Rep	Member
TSO - Rep	Member
Agriculture Officer	Member
WC Secretaries	Members
Watershed area covered members	Members

2.1.7 Self Help Groups (SHGs)

There areSHGs working in the project area already. These SHGs are registered in the Block. These SHGs are formed either SGSY scheme or Under Kudumbasree. Details of the SHGs in the project area are given below.

Sl.No	Total No of Existing SHGs/NHGs in the Project Area	No of Men Groups in it	No of Women group in it	Total No of Newly formed for IWMP SHGs/NHGs in the project area	No of Men Groups in newly formed	No of Women Groups newly formed
1	715	70	645	20	2	18

2.1.8 User Groups (UG)

User groups are proposed to be formed to manage the different activities or assets created under the programme on a long term basis. The user groups are expected to collect user charges from their members, oversee the works and manage the benefits.

2.2 Project Management

The major activities of IWMP projects sequenced in to 3 phases. They are preparatory phase, work phase, withdrawal phase.

2.2.1 Preparatory Phase

- Institution building, training and empowerment of institutions like watershed committee.
- Preparation of Detailed Project Report with detailed action plans through participatory rural appraisal (PRA)

- Entry Point Activity shall be taken up during this phase to establish creditability of the Watershed Development Team (WDT) and create rapport with the village community.

2.2.2 Work Phase

This phase is the very important of the programme in which the DPR will be implemented. Execution of action plans (Natural resource management activities, production system management activities, lively hood activities) also under go through this phase

2.2.3 Withdrawal Phase

In this phase the resource augmented and economic plans developed in Phase II are made the foundation to be create new nature-based, sustained livelihoods and raise productivity levels.

Phase	Name	Duration(Years)
I	Preparatory Phase	1
II	Watershed Works Phase	3
III	Consolidation &Withdrawal Phase	1

: Phases of IWMP

Chapter – 3

Approach and Methodology of preparing the detailed project report

A cluster approach has been followed in the preparation of DPR.The following methods used for the preparation for detailed project report of IWMP -11-2012-13

- Delineation of watershed map from the Toposheet
- Baseline data survey
- Watershed based PRA and preparation of PRA reports
- Identification of public works and field level measurement
- Secondary data collection from various department
- Consolidation of the survey details collected from the field
- discussion about convergence possibility with govt: departments
- Preparation of the DPR
- Submission of the DPR in watershed committee
- Submission of the DPR to WCDC and SLNA

3.1Delineation of watershed map from the Toposheet

Use a toposheet to locate the water bodies, streams and contour (elevation). Determine the direction of drainage in the area and start drawing from the mouth of the watershed which is also the lowest elevation of the watershed, connect all the elevated points. The completed line is the watershed

3.2 boundary identification of watersheds

This is the process of action of determining legal position of a cadastral boundary in the land

: Photos of boundary identification of watersheds

3.3 Baseline survey

A detailed baseline survey was conducted covering all households in the cluster area. The data base thus created is expected to facilitate the assessment of the impact of the watershed development programme of the project area during and after the implementation of the project. Details of the house hold members, about their well, drinking water facility, agriculture, erosion in their land, irrigation methods …like information will collect through the baseline survey.

Photos of survey training

3.4 Participatory rural appraisal

The participation of stakeholders is essential in identifying the problems and needs of thePeople in the project area and identifying suitable watershed development activities. 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. Other PRA techniques like transect walk, social mapping, resource mapping, seasonal calendar, etc., were employed in each micro watershed area.

The study mainly aims to discover the potentials of the area and local needs of the people. It has also internalized the existing crucial issues and constraints in the watershed area. Few drainage line areas of the watersheds is considered as critical area because of its undulating topography, soil erosion, degradation of the agriculture sector, poor livelihood system and water shortage and unscientific waste management etc. Most of the

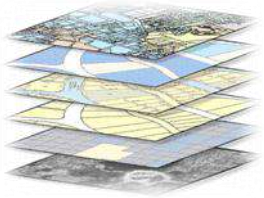
streams become waste carriers. There is only a bare minimum effort to tackle the issues. So IWMP aims to bring up an integrated approach in the restoration of the ecosystem and environment and finally sustainable development in all sectors. Participatory planning, formulation of the strategies, implementation, monitoring and evaluation are the major strategy to be adopted. To initiate the corrective measures we have to mobilize the baseline information from the ground level. This information is the main source to finalize the intervention strategies. Apart from these peoples participation can be ensured to analyze the ground reality.

(Photos of social mapping and group discussion with ranking system)

3.5Secondary Data

The DPR has to be based on a situation analysis of secondary data and information available from various sources. Basic information about the watershed such as Climate and rainfall, temperature, topography, hydrology, geology, Geomorphology, soils, ground water level land-use pattern, Cropping pattern and productivity, irrigation, livestock etc. were collected from different sources such as Census of India, development reports, publications of government departments etc.

3.6 Use of GIS and remote sensing for planning:



Geographical Information System (GIS) has been used for prioritization process. Various layer maps were created like Geo-morphological, Soil, Drainage, land use, Ground water Status, Drinking water situation and Slope percent. These were all given proper weight age according to the DoLR specification. This helped in prioritization of various watershed areas. Remote sensing imageries are used for the identification of physical and antropogenetic changes in the watershed areas, the temporal changes can be identified with the help of Toposheet and imageries.

A action plan matrix has been formulated by taking into account various features like the slope percent, soil depth, soil texture, soil erosion in the area for wasteland, forest land and agricultural land. Global positioning System (GPS) was used to identify each and every water conservation structures available in the project area. This was used to create a map. Contour Map of vertical interval of 1

meter at a scale of 1:8000 was used for identifying various locations for soil and water conservation structures.

Quantum GIS Software was used for preparation of maps. Google Earth images of the project area were also used for the planning. 1: 4000 scale cadastral maps of each village were the base map for planning.

3.7 Planning and Implementation

- **Planning for natural resource management**

  i. An awareness drive was undertaken at Grama Panchayat level for communication &sensitization of the target beneficiaries

  ii. Prepare master plan of NRM based on the ridge to valley system

  iii. Apply general works ridge to valley in the cluster area

- **Planning for production system management**

  i. An awareness drive was undertaken at Grama Panchayat level for communication & sensitization of the target beneficiaries

  ii. Prepare master plan of PS&M (agriculture) activities based on the need of the project area

- **Planning for liveli hood activities**

  i. An awareness drive was undertaken at Grama Panchayath level for communication & sensitization of the target beneficiaries

ii. A "Livelihood Action Plan" (LAP) was prepared for availing the funds under the livelihood component.

iii. The livelihood action plan was prepared by analyzing the socio-economic conditions and existing livelihood capitals of the watershed, during the situation analysis by means of PRA and focus group discussion, in order to facilitate collection of information to feed into the livelihood action planning process. Livelihood action plan contains schedule of activities, interventions, no. of SHGs to be assisted and expected outcome.

iv. To promote convergence, the PIA has worked in close association with other Employment generating programmes such as MGNREGS, NRLM, Kudumbasree, VFPCK, NHM, etc.

Some Pictures From our Project

Boundary identification

Chapter -4

Watershed Activities

4.1 Information, Education, Communication Activities (IEC)

Information, Education and Communication (IEC) is an important component and has a vital role in creating awareness, mobilizing people and lays the basis for successful implementation of integrated Watershed Management Programme. IEC plays a very crucial role in bringing in awareness about IWMP by informing, Educating and persuading people about their roles and responsibilities in watershed management.

- Photos of June 5 world environment day and march 22 World water day celebration in parakadav block panchayat

4.2. Capacity building for Beneficiaries

The capacity building needs of watershed people, marginalized communities, including SC/ST, landless/asset less people, women, etc is also be included in the livelihood action plan prepared after the livelihood analysis. The capacity building aims at skill enhancement and not just knowledge and information. The expenditure for the training for livelihood component will be met from 5% of the budget component of the project cost earmarked for institution and capacity building. Detailed action plan for capacity building plan given below

Action Plan for Capacity Building, IECand Institutional Building programmes

Capacity Building	**:**	**2477700**
Institutional Building	**:**	**254714**
IEC Activities	**:**	**364714**
Total	**:**	**3097128**

capacity building programmes	Objectives	Target group	Duration	No of expecting participants	No. of batches	Amount
			Day/s			(Rs.)
Awareness of IWMP project	Familiarize the problem and need about watershed projects	Watershed community	20	600	12	175000
awareness programmes about NRM activities	To motivate the community	Watershed community including SHG and NHG	4	50	15	125,000
IWMP Awareness programs to SHG members	To motivate the community	SHG,NHG	2	200	4	30,000
Awareness(IWMP)programs to padasekarasamity(Farmers clubs)	To motivate the community	Farmers	1	50	1	7,500
IWMP Awareness programs to MGNREGS mates	To motivate the community	MGNREGS	4	400	8	30,000
IWMP awareness training to watershed sub committee	To motivate the community	watershed committee members	3	260	5	50,000
IWMP awareness class to various(JLG MEMBERS)(CB)	To motivate the community	1	1	30	1	6,000
Exposure visits	To motivate the community	watershed community	2	50	8	480,000
Implementation of the IWMP	Awareness to the user groups	User groups	3	80	8	85000
awareness programmes in educational institutional level	develop new generation by keep relationship with environment	students in the project area	8	80	8	80000
Seminar about new Agriculture methods	To motivate the community	Farmers	1	200	1	75000

Training on production entrepreneurship	To motivate the community	Farmers	1	50	1	10000
awareness to socio- cultural institutions	environmental protection through watershed projects	clubs , political and cultural institutions	3	50	2	17800
Watershed Committee management	Awareness to WC	Watershed committee	4	20	8	33920
seminar about scientific agricultural practices	motivate for arise the production	farmers	1	50	1	10000
Seminar about implementation of LSS and PSM	To motivate the community	Farmers, SHG, and watershed community	4	150	8	75000
Training of livelihood production system	To motivate the community	VEO& Extension Staff	1	20	1	7500
Exposure visits to farmers	To motivate the community	farmers	1	50	1	25000
Training to user groups on IWMP awareness	To motivate the community	User groups	4	400	8	40000
Training mushroom cultivation	To motivate the community	SHG/JLG Members	1	50	1	10000
One day watershed program about convergence possibility(different department officials)	To motivate the community	different department officials	1	30	1	7000
Training ornamental fish farming	To motivate the community	SHG/JLG Members	1	25	1	7500
Training Vegetable cultivation	To motivate the community	SHG Members	2	200	4	30000
Training inland fish farming	To motivate the community	SHG Members	1	50	1	10000
Skill Training programme on ground water recharging	To motivate the community	watershed committee members	4	200	8	10000

Training on group of Farming	To motivate the community	SHG Members	4	200	8	30000
Training about production system and micro enterprises	To motivate the community	User groups	2	120	4	30000
Training about convergence to MGNREGS staff	To motivate the community	MGNREGS staff and workers	2	100	4	22500
seminar about Convergence	Convergence our project with other departments	Mate's and workers and "karshikasena "	2	40	4	28480
Training to Kudumbasree members(ADS,CDS)	To motivate the community	ADS&CDS members	1	50	1	10000
Skill Development of NHG & SHG	Skill up gradation	NHG & SHG	5	40	10	250000
Training on LSS	To motivate the community	NHG & SHG	4	40	8	50000
Training on PSM	To motivate the community	small scale ,marginal ,large scale farmers	4	150	8	70000
Training to block Panchayat members and block staff on livelihood action and production system	To motivate the community	Block members and staff	1	60	1	17000
Training about role and responsibility of watershed and committee	To motivate the community	watershed committee members	1	80	1	30000
Skill training programme for JLG/SHG members on dairy and poultry farming	To motivate the community	SHG/JLG members	3	100	2	100000
Training on masonry work of MGNREGS workers	To motivate the community	MGNREGS staff and workers	2	120	4	20000
Training on floriculture	To motivate the community	SHG Members	1	50	1	10000

BOT training to JLG &SHG members on catering	To motivate the community	SHG/JLG	6	500	12	135000
BOT training to Floriculture	To motivate the community	farmers	1	40	1	7500
Awareness to rain water harvesting (watershed committee)	To motivate the community	200nos	4	4 Schools	8	15000
Skill training programme for group farming	To motivate the community	farmers	1	150	1	17500
BOT training Mushroom cultivation	To motivate the community	farmers	1	40	1	7500
Exposure list on natural farming	To motivate the community	farmers	1	80	1	30000
Training on Livelihood programme	To motivate the community	SHG Members	1	100	1	10000
Maintenance and creation of common Assets	To motivate the community	User Group	5	200	10	75000
Refreshment Programme to User group	Refreshment to User group	User Group	5	200	10	75000
Total (community level)						**2477700**

- **Institutional level training programmes**

Sl. No.	Title of training	Objectives	Target group	Duration (Day/s)	No of participants-	No. of batches	Amount
1	Awareness programme of IWMP LSS & PSM	To create awareness among the peoples representatives and officials	Block Grama Panchayat Members	1	130	6	60000
2	Awareness program me of IWMP	To create awareness among the peoples representatives and officials	VEO's, EO's, Clerks and other officials	2	50	3	30000
3	TOT and module preparation	Module Preparation	Selected officials	3	25	1	5000

4	Training on MIS	MIS	WDT Clerks, EO's and secretary	2	20	1	10000
5	Training on GIS	Staffs related IWMP	Officials , WDT and Secretary	1	20	1	5000
6	Lively hood activities & PSM	Equip Officials to PSM and LSS	VEO's, EO's, WDT	1	30	1	10000
7	Accounting	Accounting	WDT, VEO's, Clerk	1	30	1	5714
8	Convergence with other programme	Convergence	Officials of line departments	1	30	1	5000
9	Monitoring and evaluation	Presentation and evaluation	WDT, VEO's, EO's, and Secretary	2	15	1	15000
10	Purchase of Desktop Computer & Printer with scanner					1no	75000
11	Computer table					1no	10000
12	Purchase of Camera					1no	24000
Total (Institutional Level)							**2,54,714**
Total batches : 16 nosTotal to be trained : 350 nos							

- **IEC Programmes**

Sl No	*Particulars*	Target No/Quantity	Participants	Amount
1	Handbooks and calendar of IWMP	1000		150000
2	Exposure visit	3	150	45000
3	Water purity test	10 Batch		64712
4	Need base training	10 Batch	5000	40000
5	Posters, boards etc		1000 Nos	30000
6	Seminar		5 Nos	15000
7	Exhibition		2 Nos	20000
Total				364712

- **Time table for community level capacity building programmes**

Title of training	Target group	Duration Day/s	No of participants	No. of batches	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Awareness of IWMP	Watershed community	01	40	03	2013												* *
					2014												
					2015												
					2016												
Awareness of IWMP LSS and PSM	SHG and NHG	01	40	10	2013												
					2014								***				
					2015												
					2016												
Implementation of the programme	User group	01	40	05	2013												
					2014									*			
					2015								**				
					2016												
WC management	Watershed committee	01	30	01	2013												
					2014		*						*				

LSS and PSM	Farmers, SHG, and watershed community	01	40	03	2013													
					2014			***										
					2015													
					2016													
Convergence	Mate's and workers	01	40	01	2013													
					2014													
					2015													
					2016													
Skill Development of NHG & SHG	NHG& SHG	02	40	10	2013													
					2014										** *		** *	
					2015													
					2016													
Training on LSS	SHG & NHG	01	40	05	2013													
					2014											*	*	
					2015	*** **												
					2016													

Training on PSM	JLG	01	40	01	2013													
					2014													
					2015		*											
					2016													
Maintenance and creation of common Assets	User group	01	40	10	2013													
					2014													
					2015										*****	*****		
					2016													
Refreshment Programme to User group	User group	01	40	10	2013													
					2014													
					2015												**	**
					2016	**	**	**										

4.3 Entry point activity

EPA activities are taken up under watershed projects to build a rapport with the village community at the beginning of the project; generally, certain important works which are in urgent demand of the local community are taken upandthis activities selected through watershed gramasabha**.** The Entry Point Activities of this project are given below.

Activities	Gramapanchayat	Amount	Outcome
1. Supply of seedlings of Tissue culture banana -In all watersheds. (10000 nos)	In all watershed	200000	Increases in agriculture production sector
2. Supply of coconut seedlings in all watersheds (4000 nos)	In all watershed	300000	Increase in agriculture production sector
3. Side protection of chirikandakavu pond (kaprasseri watershed)	Chengamand (8th ward)	1390000	Benefited to 4 acre paddy cultivated area near chirikandakavu pond and 35 families near by
4. Horticulture nursery (kaipillikunn watershed)	Parakadav (14th ward)	100000	Increases in agriculture production sector at kunnapillikavu of kaipillikunn watershed
5. Well recharging in schools (12 nos) Govt. U P School, Kurumassery Govt. L P School, Mallussery Govt. L P School, Elavoor Govt. L P School, Poickattussery Govt. L P School, Chengamanad Govt. Technical HSS Kaprassery Govt. UP School Kaprassery KristhurajHighSchool, Kuttipuzha St. Joseph L P school, Ayroor St. Thomas HS Ayroor Govt. L P School, Chalakka Govt. L P School, Mambra	Chengamand Nedumbassery Kunnukara Parakkadavu	230000	Increases ground water table and also increases the water quality
6. Rain water harvesting tank (2 nos) Govt UP School, Kaprasseri Govt UP School, Kurumasseri		256000	Water storage

- **photos of Supply of seedlings of banana and Side protection of chirikandakavu pond (entry point activities)**

4.4 Natural Resource Management (NRM)

Natural resource management includes agriculture and non agricultureactivities. Natural resource management refers to the management of naturalresources such as land, water, soil, plants with a particular focus on how management affects the quality of life for both present and future generations. Various NRM activities planned under the project. Most of the NRM activities can be converged fully with MGNREGS.

A .Ridge to valley Area Treatment: All activities required to restore the health of thecatchment area by reducing the volume and velocity of surface runoff, includingRegeneration of vegetative cover in the common land. Afforestation, earthen contour bund are the e.g.

b. Drainage line treatment with a combination of vegetative and engineeringstructures, such as earthen checks, brushwood checks, gully plugs, loose boulderchecks, gabion structures, under dykes etc. Side protection of streams and check dam activities proposed in this project

c. Development of water harvesting structures such as low-cost farm ponds, nallabunds, check-dams, percolation tanks and ground water recharge through wellbore wells and other measures.

Mainly renovation and construction of pond and well, well recharge, construction of water harvesting tank like activities proposed here.Detailsof Proposed activities underNRM activities given below.

4.4.1 Side Protection works of Stream by vetiver and fodder grass

Unprotected natural or constructed earthen slopes are a major point source erosion problem that can result in serious sediment flows to lower catchment sites, contamination of rivers and streams, water quality reduction, slope failure and slippage that often result in landslides, economic damage to property, and loss of life. The Vetiver System can effectively and at low cost, protects slopes, stop or significantly reduce the risk of slippage, and prevent downstream water contamination. when planted on slopes vetiver will reduce slope hydraulic pressures through the removal of water.

4.4.2 Renovation of farm pond

Means a deep water habitat created from a non-wetland site in connection with agricultural activities. Renovation of pond brings the ground water table into safe stage in the project area.

4.4.3 Check dam construction

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

4.4.4 Well Recharging

The broad aim of this programme is to improve the water quantity and quality levels of homestead open dug wells and small homestead ponds. This will contribute to enhanced health and welfare of the community through improved access to drinking water and improve the ground water level. The reduction of public spending on Tanker Water Distribution to the water stressed regions which is common during summer is also envisaged as a broader goal of this programme. 12 nos well recharge applied in this project under entry point activity.

4.4.5 Lift irrigation

Lift irrigation is a method of irrigation in which water instead of being transported by natural flow (as in gravity-fed canal systems) requires external energy through animal, fuel based or electric power using pumps or other mechanical means. Lift irrigation schemes must accomplish two main tasks: first, to carry water by means of pumps from the water source to the main delivery chamber, which is situated at the top most point in the command area. Second, they must distribute this water to the field of the beneficiary farmers by means of a suitable and proper distribution

system. The source is mainly groundwater, river streams, contour canals, ponds and lakes. The advantage of lift irrigation is the minimal land acquisition problem and low water losses.

4.5 Production System and Microenterprises (PSM)

One of the important components in the watershed development activities under IWMP includes support to production system management based livelihood activities and enterprises. Ten percent of the total project cost is assigned to support the production system and microenterprises for land owning households. This component aims to diversify and maximize the production and productivity of agriculture system as a whole and targets the land holders with cascading benefits to landless agriculture labour, leased in farmers and share croppers. Some of the activities under the IWMP given below.

4.5.1 Psciculture

Fish farming is the principal form of aquaculture, while other methods may fall under Psciculture. Fish farming involves raising fish commercially in tanks or enclosures, usually for food. There is an increasing demand for fish and fish protein, which has resulted in widespread overfishing in wild fisheries. Fish farming offers fish marketers another source. The self-help groups can select the people who are going for the rabbit keeping.

4.5.2 Kitchen garden

A kitchen garden is a garden that exists to grow vegetables and other plants useful for human consumption. It is a small-scale form of vegetable growing. Supplying of amaranthas ,brinjal ,pea with cow dung included in kitchen garden . This activity can motivate watershed people in their daily life

More over Supplying of coconut seedlings, tapioca and coleus with cowdung under tuber crops , mangostien ,jackfruit , rambutan under horticulture and units of compost pit ..Like activitiesalso included in production system management.

4.6 Livelihood support system (LSS)

One of the key features of the watershed development includes focused priority on livelihood activities for landless/asset less persons. Nine percent of the total project cost has been assigned to support the livelihood activities for landless/asset less households. This component aims to maximize the utilization of potential generated by watershed activities and creation of sustainable livelihoods and enhanced incomes for households within the watershed area. This will facilitate inclusiveness through enhanced livelihood opportunities for the poor through investment into

assets, improvements in productivity and income, and access of the poor to common resources and benefits and augment the livelihood strategy at household level.

Chapter -5

Project Area

5.1. Introduction

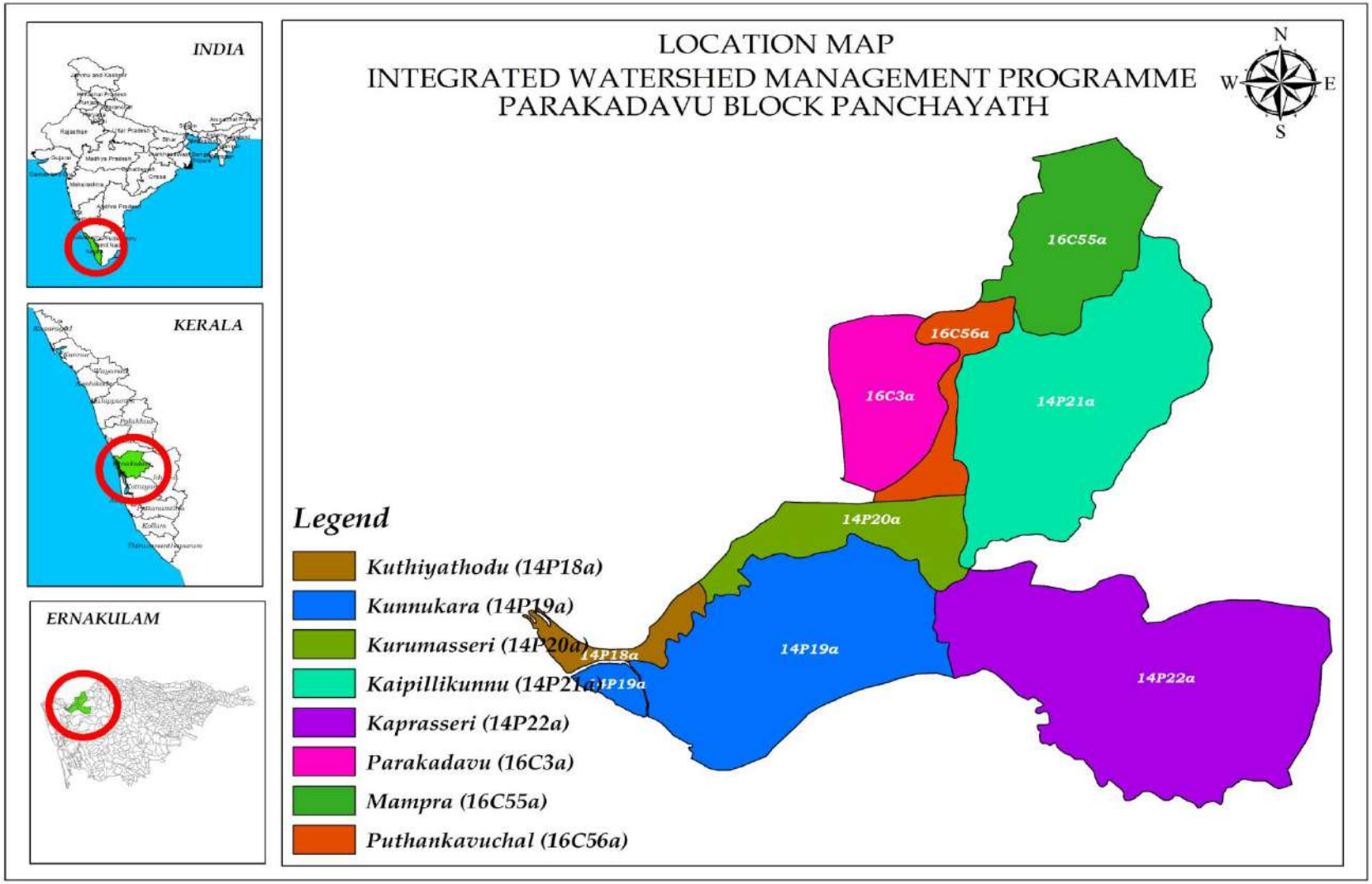
Ernakulam district covers an area of 3068 km^2 located on the Western Coastal Plains of India. It is surrounded by Thrissur District to the north, Idukki District , Alappuzha and Kottayam districts to the south and Arabian sea to west. The district can be divided geographically into highland, midland and coastal area. The altitude of the highland is about 300 m. The Periyar River, Kerala's longest, flows through all the taluks except Muvattupuzha. The Muvattupuzha River and a branch of Chalakkudy River also flow through the district. Parakadavu block panchayat is located in the paravoor and aluvaTaluk of Earnamkulam district. Area of this block panchayath totally comes 101.625 square kilometres. The project area covers this block panchayath is 5161.88Ha. This project area is also comes under in the village of Aluva east, Arumuttu, Nedumbasheri, Puthenvelikara, kunnukara and Angamali. During the period of old-stone-age, lot of people were lived in parakadavu and its neighbouring village and have many evidence on it. Muzikulam is a famous historical place. The emperor Rajasekaran ruled here. At that time the shaiva religious culture was brought by the king. During this time, there existed frequent quarrel between rulers and natives on the construction and maintenance of the Muzhikulam temple. The rules and culture of the Muzhikulam temple was observed by the people. Chalakudyriver is running through the middle of Vedic study centre due to flood. Hence, the river name became Chalakudyriver. Because, the river drunk the Veda study centre. Agriculture was common occupation at that place. The muzikulam church is famous in Kerala.Kalaripayattucentre first started at that place.

5.1.1 Location and Extent

Project name	IWMP II- 2012-13
Co-ordinates	$10^0 7' 57''$ to $10^0 14' 29''$ N - 76^0 15’24” to 76^0 23’13” E
west	Puthenvelikara panchayat
South	Karumalloorgramapanchayat
East	Angamalimunicicpality

North	Kuzhur Gramapanchayat , Annamanada panchayat

- **Location Map**



- **Basic information of the project area**

State	District	Taluk	Block	Project name	Micro Watersheds			Gramapanchayat	Wards covered	Total Area	Treatable area	Project Amount
					Name	Code No	Treatable Area (ha)					
Kerala	Ernamkulam	Paravoor , aluva	Parakadav	IWMP – II- 2012-13	KUTHITYATHOD	14P18a	121.04	Puthenvelikara	8,9	5790.01 ha	5161.88 ha	61942560
								kunnukara	13,14,15			
					KUNNUKARA	14P19a	1145.15	kunnukara	4,5,6,7,8,9,10,11 ,12,13			
					KURUMASSERI	14P20a	318.80	Kunnukara,	3,2,15			
								parakadav	8,9			
					KAIPILLIKUNN	14P21a	1041.73	Parakadav,	4,5,6,7,9,10,14,1 5,16,17			
								nedumbasseri	1			
					KAPRASSERI	14P22a	1483.55	Chengamanad	1,2,3,4,5,6,7,8,9, 18			
								nedumbasseri	12,13,14,15,16,1 7,18,19			
					PARAKADAV	16C3a	398.84	parakadav	11,12,13			
					MAMPRA	16C55a	442.98	parakadav	1,2,3,17,18			
					PUTHANKAVUCHAL	16C56a	209.79	Kunnukara ,	3			
								parakadav	10,15,17,9,8			

5.2. Criteria for Selection

SL NO	Criteria for selection of watershed	Max. score	Range and scores			
1	Poverty index (% of poor to population)	5	Above 80%(10)	80 to 50% (7.5)	50to 20%(5)	Below 20% (2.5)
2	%SCST population	5	More than 40%(10)	20 to 40% (5)	Less than 20%(3)	
3	Actual wages	5	Actual wages are significantly lower than minimum wages(5)	Actual wages are equal to or higher than minimum wages(0)		
4	%of small and marginal farmers	10	More than 80%(10)	50to 80%(5)	Less than 50%(3)	
5	Groundwater status	5	Over exploited(5)	Critical(3)	Sub critical(2)	Safe(0)
6	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	
7	Area under rain fed agriculture	15	More than 90%(15)	80to 90%(10)	70 to 80%(5)	Above 70%(rejected)
8	Drinking water	7.5	No source(10)	Problematic village(7.5)	Partially covered(5)	Fully covered(0)
9	Degraded land	10	High-above 20%(15)	Medium-10 to 20%(10)	Low-less than 10% of TGA(5)	
10	Productivity potential of land	10	Lands with low production &where productivity can be significantly enhanced with reasonable efforts(15)	Lands with moderate production &where productivity can be enhance with reasonable efforts(10)	Lands with high production &where productivity can marginally enhanced with reasonable efforts(5)	
11	Contiguity to another watershed that has already been developed/treated	10	Contiguous to previously treated watershed &contiguity within the micro watersheds in the project(10)	contiguity within the micro watersheds in the project but non contiguous to previously treated watershed(5)	Neither contiguous to previously treated watershed nor contiguity within the micro watershed in the project(0)	
12	Cluster approach in the plains(more than		Above 6 micro watersheds in cluster(15)	4to6microwatershed(10)	2 to 4 micro water sheds in cluster(5)	

	one contiguous micro watersheds in the project)					
13	Cluster approach in the hills(more than one contiguous micro watersheds in the project)	15	Above 5 micro watersheds in the cluster(15)	3 to 5 micro watersheds in the cluster(10)	2 to 3 micro watersheds in cluster(5)	
	Total	112.5	150	90	41	2.5

5.2.1 Weightage of the project area

No	Name of the project	No of micro water shed	Proposed project area (ha)	Proposed Cost (Rs)	Weightage under the criteria													
					1	2	3	4	5	6	7	8	9	10	11	12	13	Average
1	IWMP- 11-2012/13	8	5161.88 ha	61942560	5	3	0	10	0	0	10	5	5	10	5	0	15	68

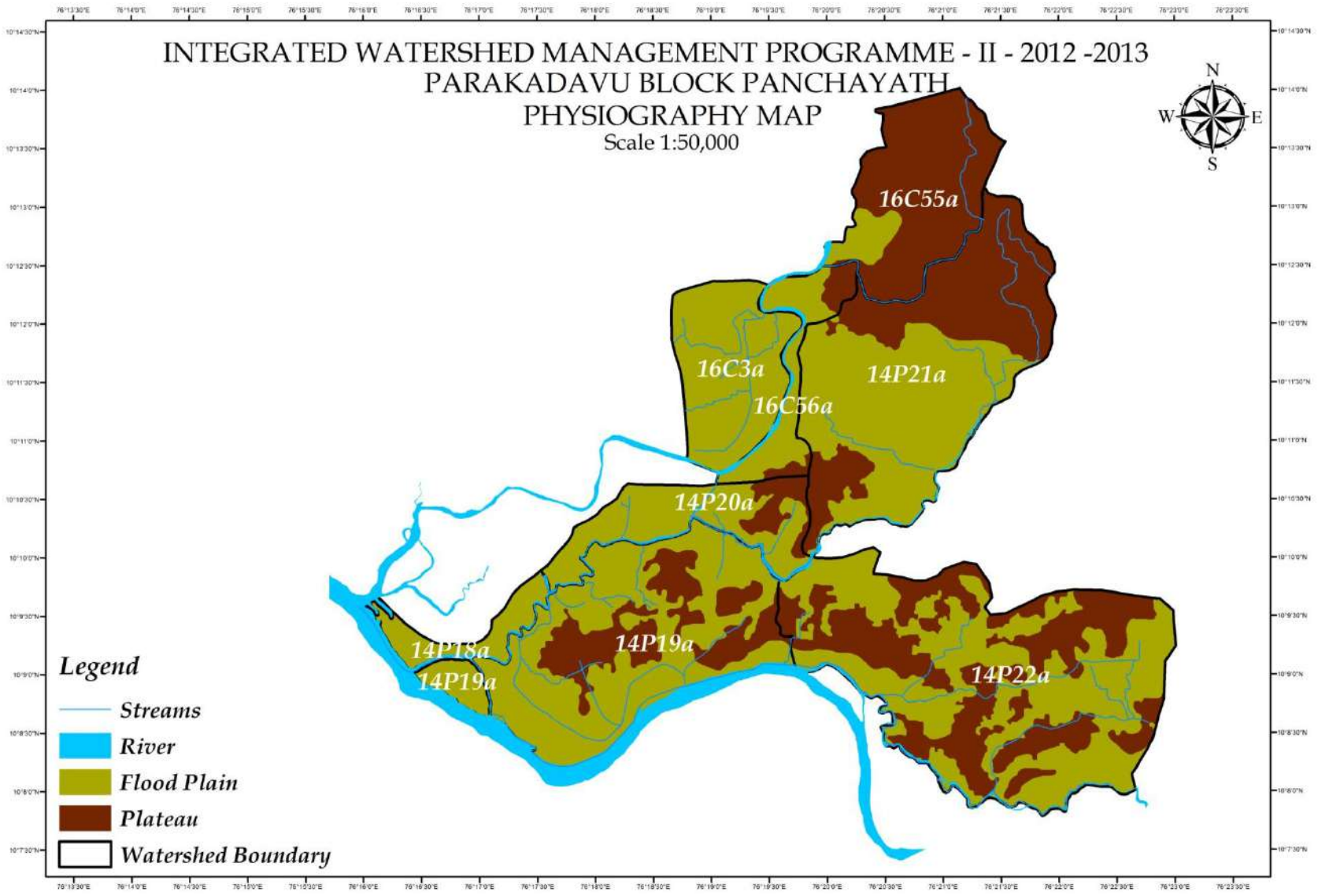
5.3. Physiography

The project area is located on the periyar river basin. Due to the presence of periyar river majority of the area comes under flood plain category ie 3384.19 Ha which accounts 65.66 % and 1777.69 Ha area comes under the lower platuecategory which accounts 34.33 %

Project Name	Physiography	Relief	Major Drainage
IWMP- II -2012-13	1-52 Meter (MSL)	Flat, Uneven	Chalakudi river Periyar

5.4. Names of Catchments

Major Drains	
• ChalakudiPuzha • Periyar	1. KannakaThod 2. AngamalimanjaliThod 3. Cheerakathilputhanthod 4. Chengalthod 5. IttamanThod

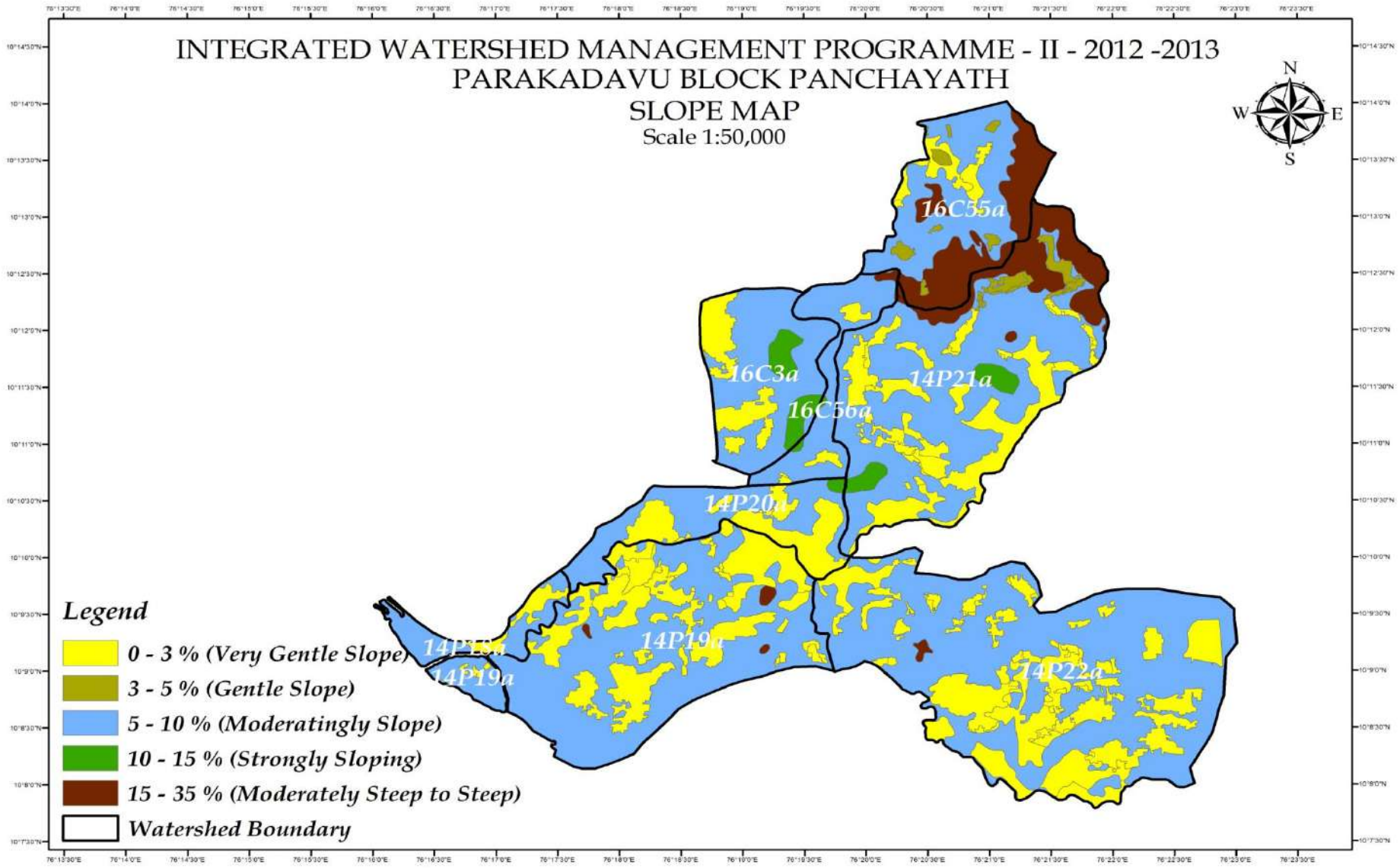

INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II - 2012 -2013
PARAKADAVU BLOCK PANCHAYATH
PHYSIOGRAPHY MAP
Scale 1:50,000
N
W
E
S
16C55a
16C3a
16C56a
14P21a
14P20a
14P18a
14P19a
14P19a
14P22a
Legend
Streams
River
Flood Plain
Plateau
Watershed Boundary

5.5. Slope

Majority of the area is Constituted in moderately slope (5 – 10%) 2730.76 ha which is 52.90 % of the total area. There is no very steep area .Gently slope area covered .351 sqkm which is 0.67 %, .The below table gives the slope of the entire project area.

- Slope categories of cluster area

Slope	16C3a	14P18a	16C55a	16C56a	14P21a	14P22a	14P19a	14P20a	Area/ha	Area at %
	ha									
Very gentle slope (0 – 3%)	100.9	29.5	64	19	321.5	545.6	398.5	142.4	1621.4	31.41104
Gentle slope (3 – 5%)	NIL	NIL	11.1	NIL	24	NIL	NIL	NIL	35.1	0.679985
Moderately slope (5 – 10%)	280.92	91.54	170	183.19	159.91	932.65	740.35	172.2	2730.76	52.90243
Strongly slope (10 – 15%)	17.02	NIL	NIL	2	10.01	NIL	NIL	4.2	33.23	0.643758
Moderatly steep to steep) 15 - 35	NIL	NIL	197.88	5.6	526.31	5.3	6.3	NIL	741.39	14.36279
Very steep >35 %	0	0	0	0	0	0	0	0		


INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II - 2012 -2013
PARAKADAVU BLOCK PANCHAYATH
SLOPE MAP
Scale 1:50,000
N
W
E
S
16C55a
16C3a
16C56a
14P21a
14P20a
14P19a
14P19a
14P22a
Legend
0 - 3 % (Very Gentle Slope)
3 - 5 % (Gentle Slope)
5 - 10 % (Moderatingly Slope)
10 - 15 % (Strongly Sloping)
15 - 35 % (Moderately Steep to Steep)
Watershed Boundary

5.6. Climate – Rainfall, Temperature

Rainfall

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2004	2.5	8.4	36.9	87	711.6	650	424.4	424.6	215.1	507.2	135.8	0
2005	52.1	1.2	8.2	237.2	121.9	840.5	820.2	355.3	472.8	279	193.1	20.4
2006	12.7	0	62	42.9	622.5	654	583.9	498.4	505.6	478.4	394.5	3.1
2007	1.9	1.4	9.2	146.5	193.5	815	1132.8	480.1	667.3	522.1	66.1	9.8
2008	3	30.8	319.6	129.1	137.7	455.1	539	326.2	555.1	304.3	37.4	36.9
2009	10.4	0	45.8	89.5	315.7	615.1	838.8	312.2	497.4	176.6	290	70.1
2010	9.8	0	30.5	233.8	239.9	849.9	690.5	356.5	456.9	624.7	517.5	63.2
2011	26.3	98.2	37.3	147.1	241.0	897.	605.4	605.5	527.8	156.5	123.8	34.3
2012	7.1	18.0	43.0	401.8	100.9	414.1	370.9	494.7	274.6	299.4	176.0	9.7

Source: Agriculture contingency plan for Ernakulum district, National Initiative on Climate Resilient Agriculture (NICRA), Indian Council of Agricultural Research (ICAR) and Hydromet Division India Meteorological Department (Note: Bar diagram of rainfall data shown in appendix -2)

Temperature

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	Min	23.9	24.5	25.9	26.1	25.7	24.3	24.6	23.9	24.5	24.6	24.7	23.2
	Max	33.3	32.1	32.7	33.1	32.0	30.5	29.9	29.1	30.7	30.3	30.8	31.3
2003	Min	23.9	25.0	25.7	26.4	26.9	24.9	23.9	24.4	24.5	24.4	24.5	23.0
	Max	31.7	32.0	32.8	33.0	32.8	31.0	29.8	29.9	30.6	30.5	32.0	31.7
2004	Min	23.3	24.6	26.3	26.4	24.7	24.7	24.2	24.3	24.5	24.1	24.2	22.9
	Max	31.6	32.1	33.1	33.6	30.7	30.0	29.4	29.3	30.1	31.0	31.7	31.7
2005	Min	23.7	24.2	26.1	25.7	26.2	24.2	23.9	24.4	24.4	24.2	24.3	23.9
	Max	31.5	32.0	32.7	32.7	32.9	30.2	29.4	30.3	29.6	30.6	30.4	30.7
2006	Min	23.5	23.4	25.3	26.4	25.3	24.6	24.2	23.8	23.9	23.8	23.8	23.0
	Max	31.2	31.8	32.3	32.7	31.8	30.7	30.1	29.6	29.8	30.4	31.2	32.4
2007	Min	22.5	23.4	25.9	25.6	25.5	23.8	23.1	23.6	23.5	23.5	23.3	23.1
	Max	32.3	32.3	33.0	33.4	32.4	30.2	29.3	29.5	29.7	30.4	31.3	31.8
2008	Min	22.2	24.2	24.2	25.0	25.2	24.0	23.3	23.8	23.6	23.9	24.0	22.9
	Max	31.5	31.7	31.6	32.1	32.0	31.1	29.9	30.1	30.5	31.1	31.7	31.9
2009	Min	22.0	23.5	25.2	25.6	25.0	24.2	23.5	24.3	24.2	24.4	24.1	24.1
	Max	31.9	31.9	32.6	32.6	32.2	30.5	29.7	30.2	29.9	31.2	32.0	32.7
2010	Min	23.3	24.7	26.2	25.7	26.0	24.0	23.4	23.8	23.9	23.7	23.9	24.1
	Max	32.3	33.1	33.7	33.8	33.3	31.3	30.7	30.1	31.4	30.7	31.0	31.4
2011	Min	24.2	23.8	24.7	24.8	25.6	24.1	23.1	23.2	23.1	24.0	23.1	22.8
	Max	32.0	32.1	33.1	32.9	33.0	31.0	30.0	30.3	30.4	32.3	32.4	33.0

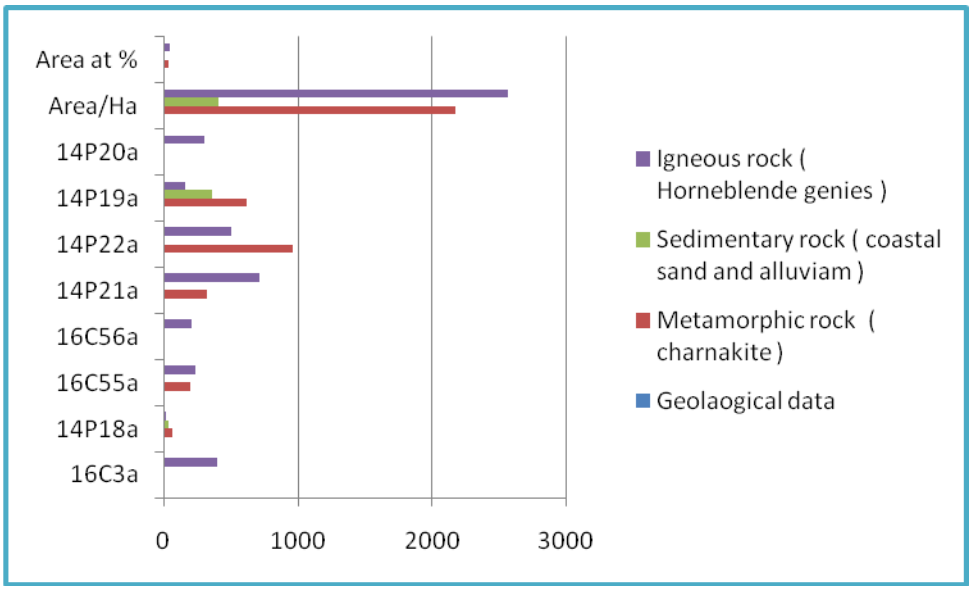
- Monthly Mean Temperature of last ten years

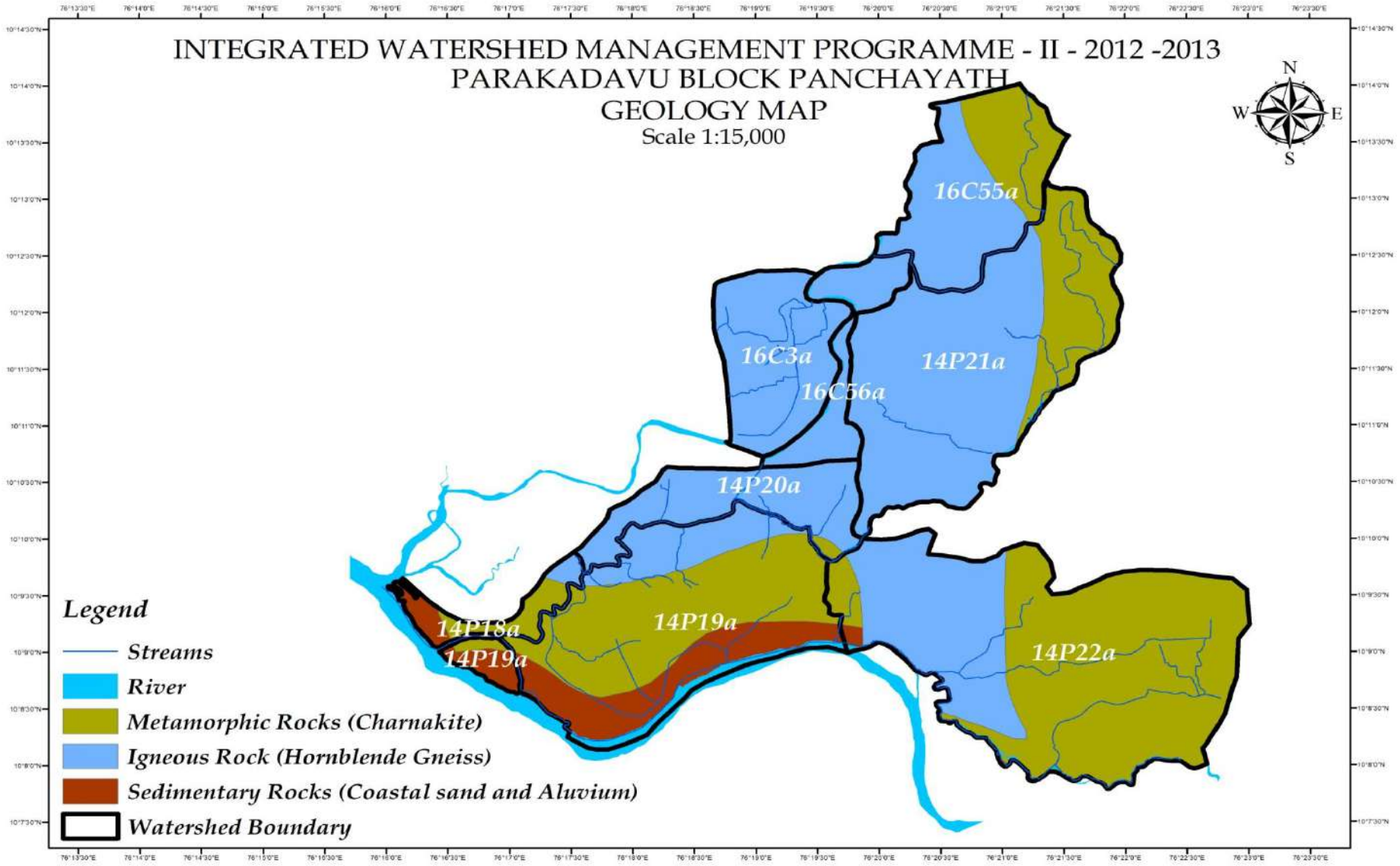
Source: Indian Meteorological Department, Thiruvananthapuram (Note: Graph of Temperature data shown in appendix-3)

5.7. Geology

Major part of the cluster area underlain by igneous rock is found in central part of the cluster about 25.71sqkm. Igneous Rock (Hornblende Gneiss) of rocks comprises 49.82% of total project area, Metamorphic Rock (Charnakite) Comprises 21.83 sqkm which is about 42.29% of total project area and Sedimentary Rocks (Coastal) Comprises 4.06sqkm which is about about7.88% of total project area.

	16C3a	14P18a	16C55a	16C56a	14P21a	14P22a	14P19a	14P20a	Area/Ha	Area at %
	Ha									
Metamorphic rock (charnakite)	0	65.48	200.51	0	321.4	964.23	620.14	11.28	2183.04	42.29
Sedimentary rock (coastal sand and alluviam)	0	36.71	0	0	0	11.75	358.46	0	406.92	7.88
Igneous rock (Horneblende genies)	398.84	18.85	242.47	209.79	720.33	507.57	166.55	307.52	2571.92	49.82

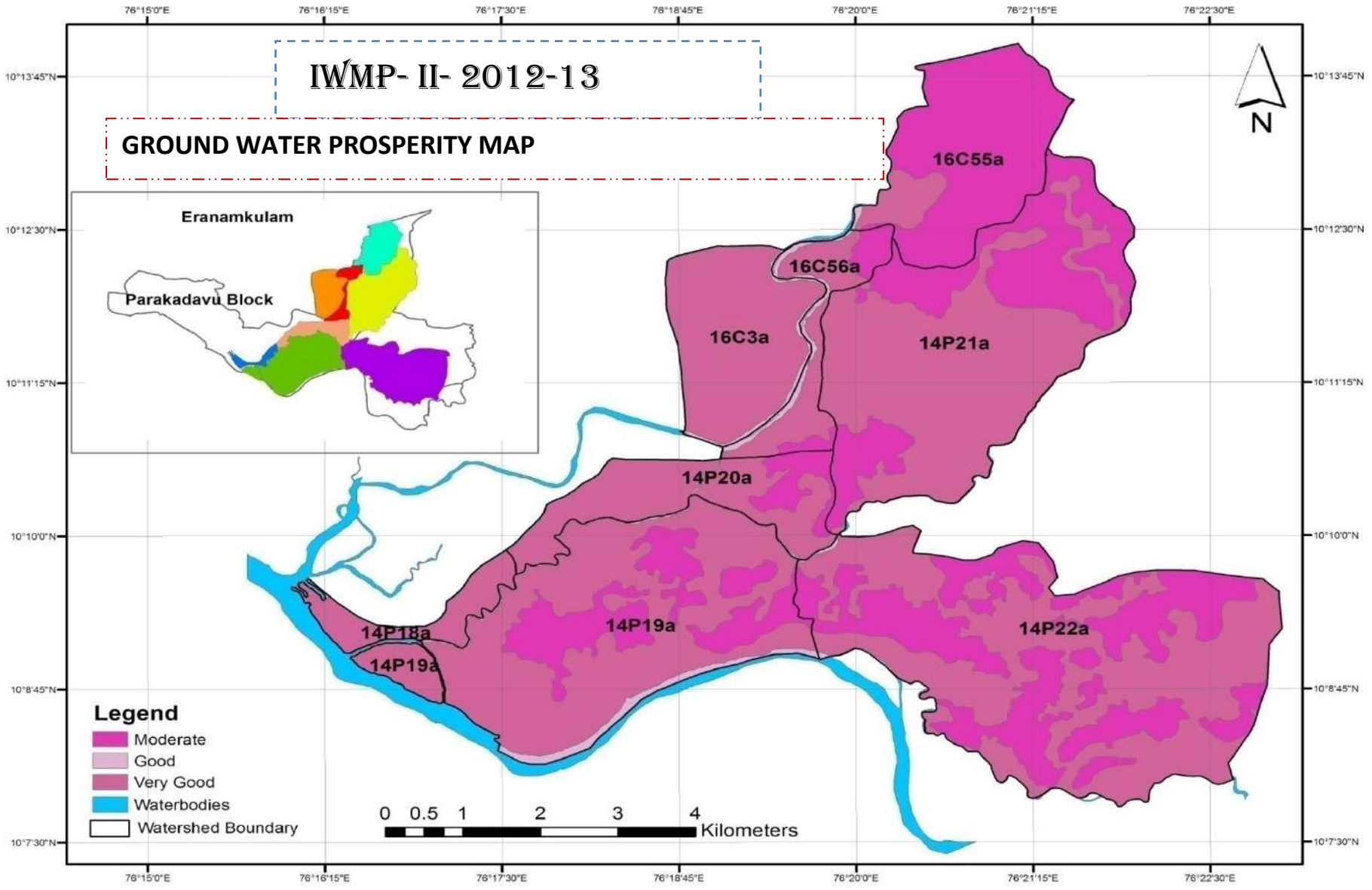



INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II - 2012 -2013
PARAKADAVU BLOCK PANCHAYATH
GEOLOGY MAP
Scale 1:15,000
N
W
E
S
16C55a
16C3a
16C56a
14P21a
14P20a
14P18a
14P19a
14P19a
14P22a
Legend
Streams
River
Metamorphic Rocks (Charnakite)
Igneous Rock (Hornblende Gneiss)
Sedimentary Rocks (Coastal sand and Aluvium)
Watershed Boundary

5.8. Groundwater

Ground Water occurs under phreatic; semi confined and confined conditions along the foliation planes and joints and mainly along the horizontal to low dipping fracture zones and vertical to sub vertical deep seated fractures in the crystalline rocks. The pore space present in the weathered rocks, lithomarge, Laterite and alluvium from potential phreatic aquifers in the area. Depth to water level pre- monsoon is 1.97000 bgl and post monsoon is 1.0000 bgl Ground water prosperity is given below,

Ground Water Prosperity	Area In Ha	Area at %
Moderate	1806.30	34.99
Very good to good	3355.70	65.01
Total	5162	100


IWMP- II- 2012-13
GROUND WATER PROSPERITY MAP
Eranamkulam
Parakadavu Block
16C55a
16C56a
16C3a
14P21a
14P20a
14P19a
14P18a
14P19a
14P22a
N
Legend
Moderate
Good
Very Good
Waterbodies
Watershed Boundary
0 0.5 1 2 3 4
Kilometers
76°15'0"E
76°16'15"E
76°17'30"E
76°18'45"E
76°20'0"E
76°21'15"E
76°22'30"E
10°13'45"N
10°12'30"N
10°11'15"N
10°10'0"N
10°8'45"N
10°7'30"N

5.9 Water supply and irrigation

- **On-going projects in the IWMP- 11-2012/13 cluster area**

	Name of projects
1.	puliyanamkunn IHDP drinking water scheme
2.	Elavoor IHDP drinking water scheme
3.	kannamkulangarakavanam drinking water scheme
4.	pottikulamkarippasserielanjilodi drinking water scheme
5.	kanakkankadav drinking water scheme
6.	therattikunn lift irrigation scheme
7.	mangampallichira irrigation scheme
8.	sasthampettakulam lift irrigation scheme
9.	kozhikadav lift irrigation scheme
10.	puthankadav lift irrigation
11.	avanamkod lift irrigation

- **water supply and irrigation**

Sources	I4P18a	14P19a	14P20a	14P21a	14P22a	16C3a	16C55a	16C56a	Total Ha
	ha								
River , Streams	11	36	17	47	61	9	23.5	13	217.5
Ponds	7	10	11.6	9	18	6	5	3.8	70.4
Well	3.6	7	4	10	14	4.5	3.2	2.8	49.1
public tap	1	1.5	0.5	3.6	4.6	0.6	2.4	1	14.2
Canals ,Natural Springs	0	1.8	0.6	2	4	1	0.4	0	9.8
Total	22.6	56.3	33.7	71.6	101.6	21.1	34.5	20.6	361
	18.67 (%)	4.92(%)	10.57(%)	6.87(%)	6.85(%)	5.29(%)	7.79(%)	9.82(%)	

5.10 Socio – economic condition of the project area

5.10.1 Demographic profile

Watersheds	Households	General		population	SC	ST	BPL	Small Scale Farmers	Marginal Farmers	Large Scale Farmers
		M	F							
14P18a	1023	1985	2107	4092	265	0	301	365	82	6
14P19a	5710	11256	11584	22840	967	0	1865	864	103	9
14P20a	548	1066	1126	2192	703	0	191	63	11	1
14P21a	5116	10100	10364	20464	1687	0	1066	1398	146	12
14P22a	7551	15001	15203	30204	2789	0	1304	2321	132	15
16C3a	311	599	645	1244	368	1	83	269	38	2
16C55a	754	1485	1531	3016	243	1	478	147	69	8
16C56a	406	799	825	1624	196	1	264	73	14	3
Total	21419	42291	43385	85676	7218	3	5552	5500	595	56

5.10.2 Infrastructure facilities in the project Area (source : baseline survey)

SL NO.	Infrastructure	Numbers
1	ANGAN WADIES	96
2	LP SCHOOL	18
3	UP SCHOOL	6
4	HIGH SCHOOL	8
5	PHC	5
6	POST OFFICE	6
7	RATION SHOP	21
8	TEMPLE	14
9	MOSQUE	9
10	PLAYING GROUND	4
11	CLUBS	14
12	MADRASSA	7
13	SMALL INDUSTRIES	11
14	BRIDGE	12
15	POULTRY FARM	5

5.10.3 Age wise classification in the project Area

Cluster area	Age Group										Total		Grand Total
	.1-5		.6-15		16 - 40		41 – 60		>61				
	M	FM	M	FM	M	FM	M	FM	M	FM	M	FM	
	931	996	6387	6599	28140	28691	6212	6448	621	651	42291	43385	85676

Source: baseline survey

5.10.4 Employment analysis

Sl No.	Employment	Total
1	Agriculture	2531
2	Business	174
3	Coolie	9687
4	Government	135
5	MGNREGS	267
6	Pension	1272
7	Student	13975

Source: baseline survey

5.10.5 Income analysis

Sl No.	Income	Total
1	0-5000	9714
2	5001-10000	2614
3	10001-25000	269
4	25001-50000	73
5	50001-100000	46
6	Above 100001	13

Source: Baseline survey

5.10.6 Type of dwelling

House Type	No. of Families
Concrete	10902
Tiled	9871
Huts	561
Temporary Shelter	85
Total	21419

Source: Baseline survey

5.10.7 Land holding Size

Project Name	0-5 Cents	5-50	50-250	250-500	Above 500 cents
IWMP -II - 2012-13	421	20920	41	28	9

Source: Baseline survey

5.11 Transportation

Name of panchayat	National highway	State high way	PWD roads	Panchayat road (km)				Length in kilometers	
				Block topped	Metalled	earthen	Total	Railway track	Water transport
Puthenvelikara			26.629	81.26	24.33	22.6	128.19		
Chengamamanad	3		8	19.68		4.8	24.48	5	
Nedumbasseri	4		40						
Parakadav			47.8	78.3	20	36	134.3		
Kunnukara	7		15.086	53	14.16	99.6	166.76		
Total	14		137.515	232.24	58.49	163	453.73	5	

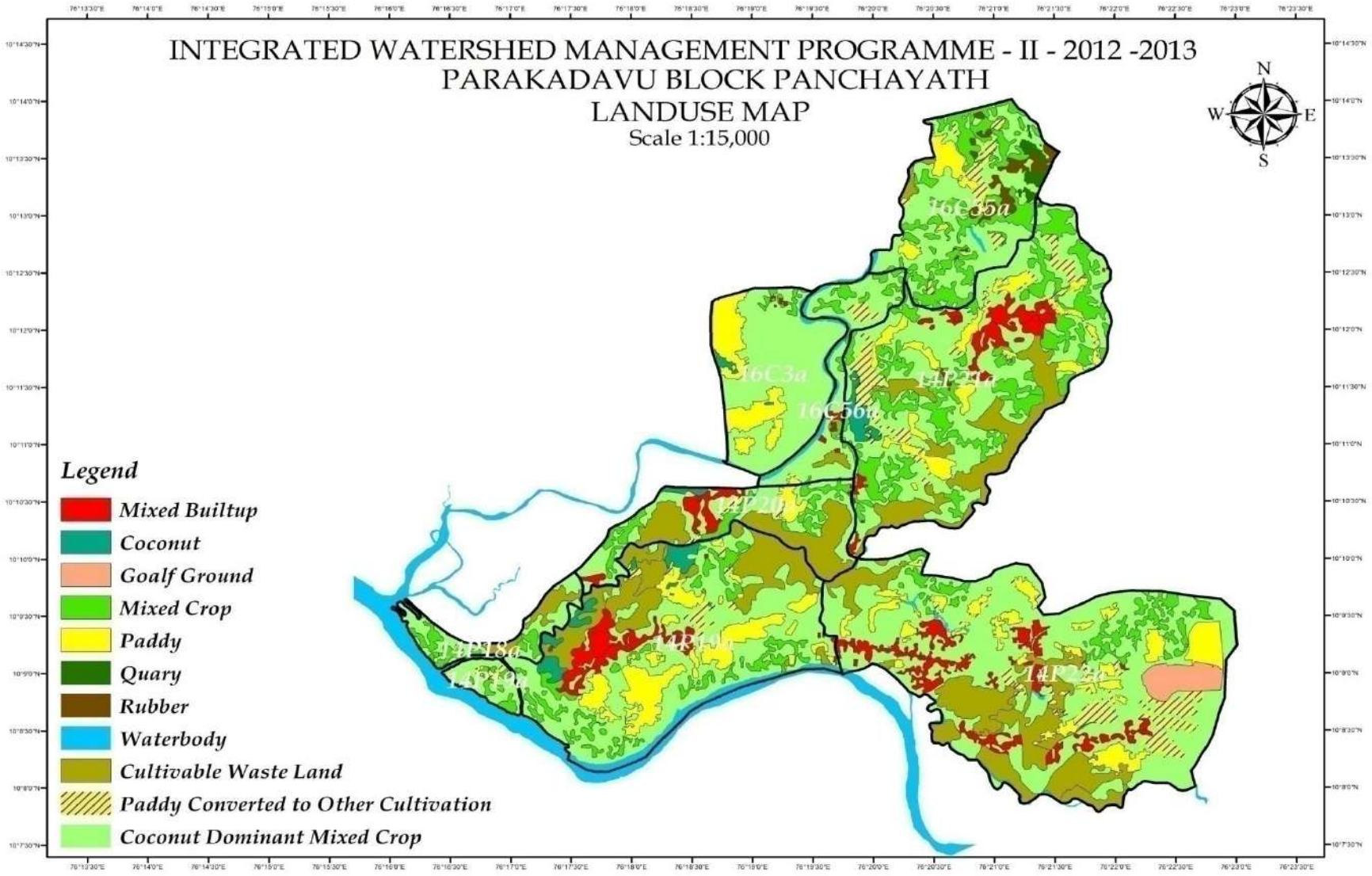
Source: Baseline survey

5.12 Land Use

LAND USE	14P19a	14P22a	16C55a	14P21a	16C3a	16C56a	14P20a	14P18a	AREA/Ha	Area at %
Built up area	72.6	110.8	0.7	71.1	1.4	5.5	27.6	0.1	289.8	5.61
Coconut dominant mixed crop	455.85	649.05	140.88	326.83	266.74	124.29	85.5	61.24	2110.38	40.88
Converted Paddy	22.2	91.2	29.4	75		9.4	6.8	29.5	263.5	5.10
Coconut	41.3			22.5	5.5		5.5		74.8	1.45
Mixed Crops	121.7	107.6	161.9	274.8	8.5	33.9	55.4	28.6	792.4	15.35
Paddy	170.1	157.2	36.9	96.5	100.9	1.9	14.6		578.1	11.20
Quarry			19.9	0.9					20.8	0.40
Cultivable wasteland	206.2	297.2	8.8	174		7.7	121		814.9	15.79
Rubber			39.6						39.6	0.77
Water body	55.2	16.4	4.9	0.1	15.8	27.1	2.4	1.6	123.5	2.39
Goalf ground		54.1							54.1	1.05
Total	**1145.15**	**1483.55**	**442.98**	**1041.73**	**398.84**	**209.79**	**318.8**	**121.04**	**5161.88**	100

5.12.1 Cropping pattern

Cropping pattern	14P19a	14P22a	16C55a	14P21a	16C3a	16C56a	14P20a	14P18a	total
Coconut	41.3			22.5	5.5		5.5		74.8
Rubber			39.6						39.6
Paddy	170.1	157.2	36.9	96.5	100.9	1.9	14.6		578.1
Banana	60.2	62.9	34.2	112.3	1.5	22.6	18	12.8	324.5
Arecanut	21	21.8	34	70.1		2	3.4	0.8	153.1
Pepper	3.8	0.6	2.6	1.05	0.03	0.6	2.4		11.08
Cashew nut	2.9	0.3	0.8	1.3		0.1	3.5	0.2	9.1
Vegetables	29.5	21	16.9	34.7	2.1	5.8	18.4	11	139.4
Tapioca	1.6	1	47.5	32.8	3	0.4	3.8		90.1
									1419.78


INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II - 2012 -2013
PARAKADAVU BLOCK PANCHAYATH
LANDUSE MAP
Scale 1:15,000
N
W
E
S
Legend
Mixed Builtup
Coconut
Goalf Ground
Mixed Crop
Paddy
Quary
Rubber
Waterbody
Cultivable Waste Land
Paddy Converted to Other Cultivation
Coconut Dominant Mixed Crop

5.13 Community Organisations

No of SHG/UG	People registered under MGNREGS	No of federations of SHG
715	369	3

Source: Baseline survey

5.14 Animal husbandry and dairying

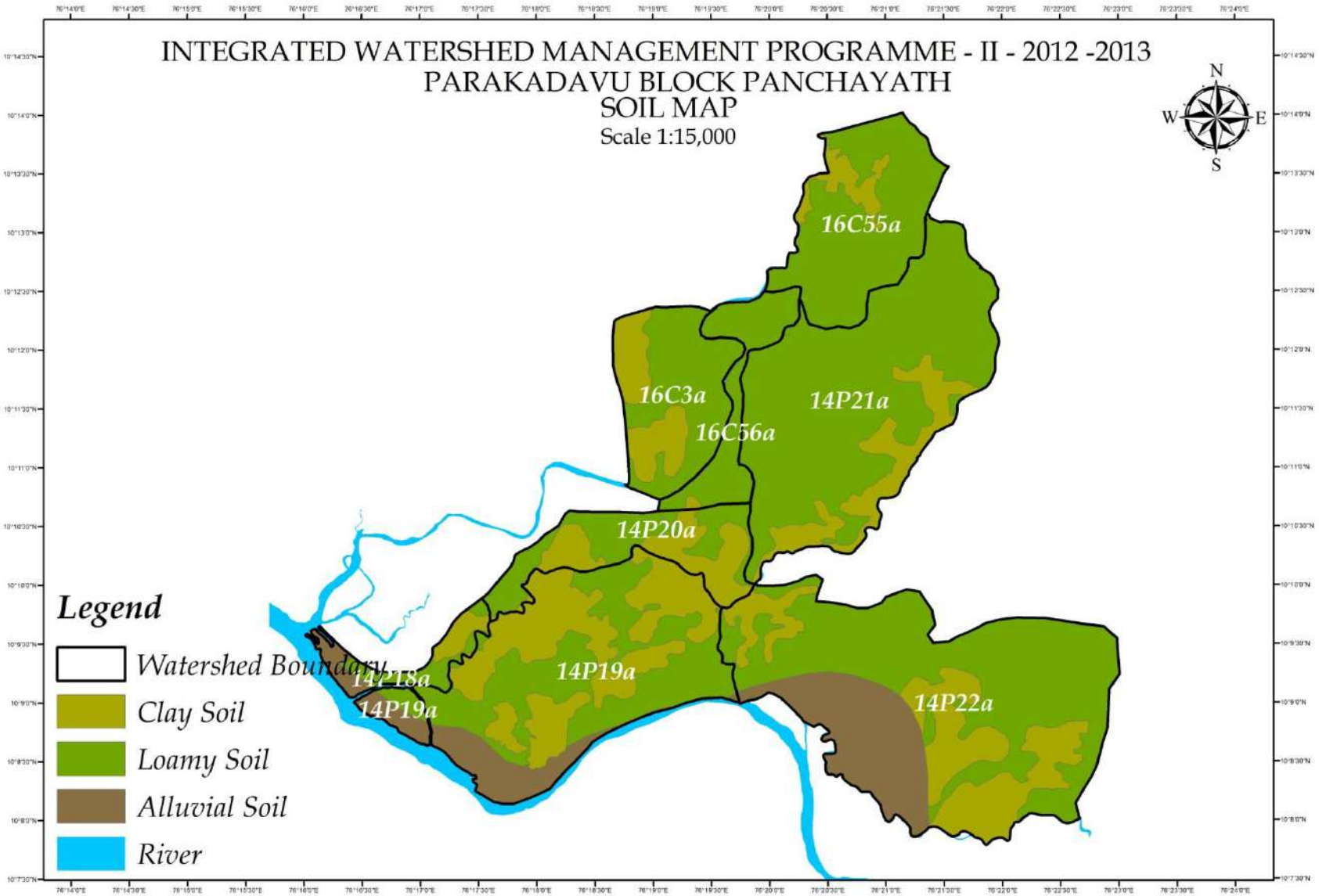
Watersheds	Cattle	Milk /liter/yearly	Goat	Milk /liter/yearly	Poultry (Backyard)	Duck	Rabbit	Piggery	Milk Marketing Societies
14P19a	108	429008	368	18210	2599	356	275	57	3
14P22a	180	546856	409	10276	1960	653	180	92	
16C55a	136	416334	296	17620	2980	983	76	38	1
14P21a	86	126862	417	11246	1682	1263	351	130	
16C3a	212	479765	95	6342	2290	854	93	146	2
16C56a	48	19760	507	11666	3210	181	121	79	
14P20a	96	307522	66	4108	5690	1400	165	35	1
14P18a	269	632013	177	10780	1752	1664	96	128	
Total	1131	2958120	2335	90248	22163	7354	1357	705	7

Source: Baseline survey

5.15 Soil

Majority of the project area is Constituted under Loamy soil Category 3388.86 Ha which is 65.66 % , followed by Clay soil 1226.06 Ha which is 23.76 % and 546.96 Ha area of the project area comes under alluvial soil which is 10.60 % . The below table gives the soil of the entire project area.

Soil	14P19a	14P22a	16C55a	14P21a	16C3a	16C56a	14P20a	14P18a		
	ha								Area/ha	Area %
Clay soil	480.98	280.35	50.77	85.25	146.13	4.15	145.18	33.25	1226.06	23.76
Loamy soil	506.09	848.74	392.21	956.48	252.71	205.64	173.62	53.37	3388.86	65.66
Alluvial soil	158.08	354.46	0	0	0	0	0	34.42	546.96	10.60
Total	1145.15	1483.55	442.98	1041.73	398.84	209.79	318.8	121.04	5161.88	100


INTEGRATED WATERSHED MANAGEMENT PROGRAMME - II - 2012 -2013
PARAKADAVU BLOCK PANCHAYATH
SOIL MAP
Scale 1:15,000
N
W
E
S
16C55a
16C3a
16C56a
14P21a
14P20a
14P18a
14P19a
14P19a
14P22a
Legend
Watershed Boundary
Clay Soil
Loamy Soil
Alluvial Soil
River

Chapter - 6

Major Problems in the project area

6.1 Agricultural sector

- Degradation of agriculture land in kunnukara (14P18a) , mundakapadam , parakadav(16C55a) , kodusseri(14P21a)
- Over use of chemical fertilizer
- Lack of skilled labours
- Water logging in all watersheds

6.2 Animal husbandry sector

- Lack of proper facilities for marketing
- Lack of training
- Lack of scientific knowledge

6.3 Water and soil conservation

- Degradation of water harvesting units like ponds, wells, streams …etc
- Soil erosion
- Polluted water bodies
- Lack of proper soil conservation measures

6.4 Suggestions

- The development of the project area should be forward by ridge to valley system
- Encourage group farming system.
- Encourage for the use of bio fertilizers
- Increase use of bio-insecticides
- Construction and renovation of water reservoirs to encourage drinking and irrigation facility
- Reclamation of barren field for cultivation.
- Training for farmers
- Ensure availability of high yielding cattle .
- Encourage lively hood activities

PART - II

Chapter - 7

Annual action plan

7.1 Budgetof the cluster area

Year	Administration	Monitoring	Evaluation	Entry Point Activity	Institution & Capacity Building	DPR Preparation	Natural Resource Management Activities	Livelihood Activities	Production System and Micro Enterprises	Consolidation Phase	Total
2012-13	774282	123885.1	61942.56	2477702	154856.4	619425.6	0	0	0	0	4212094.08
%	1.25	0.2	0.1	4	0.25	1	0	0	0	0	6.8
2013-14	2167990	154856.4	154856.4	0	1238851	0	22187936	2167990	2477702	0	30252746.3
%	3.5	0.25	0.25		2	0	35.82	3.5	4	0	48.84
2014-15	2167990	154856.4	154856.4	0	1238851	0	12497700	2167990	2477702	0	21159578.5
%	3.5	0.25	0.25		2	0	20.18	3.5	4	0	34.16
2015-16	1083995	185827.7	247770.2	0	464569.2	0	0	1238851	1238851	1858277	6318141.12
%	1.75	0.3	0.4		0.75	0	0	2	2	3	10.2
Total	6194256	619425.6	619425.6	2477702	3097128	619425.6	34687834	5574830	6194256	1858277	**61942560**
%	10	1	1	4	5	1	56	9	10	3	100

7.2 Annual action plan of Natural resource management activities of the cluster area

	Master plan					***Year wise plan***				
Code name	Activities	Watershed name	WDF	IWMP amount	Convergence (MGNREGS)	1 year	Target	2 year	Target	3 year
a	**Side protection of streams (Using ramacham and fodder grass)**									
a1	Venachal thod	14P18a	15000	150000	30000	0	a1	150000		
a2	Payyeli angamali thod	14P19a	60000	600000	130190	0	a2	600000		
a3	kattamula thod	14P19a	20000	200000	65678	0	a3	200000		
a4	vattachal manajali thod	14P19a	35000	350000	77405	0			a4	350000
a5	manjali karukapadam thod	14P20a	64234	642336	95290	0	a5	642336		
a6	valiya padasegharam valiyathod	14P21a	95000	950000	141620	0	a6	950000		
a7	paranipadam thod	14P21a	60000	600000	175920	0	a7	600000		
a8	kangoli thod	14P21a	65000	650000	123730	0	a8	650000		
a9	Panayakadu Puthenthod	14P22a	100000	1000000	406960	0	a9	1000000		
a10	Puthenthodu Mangabilly thod	14P22a	250000	2500000	486960	0			a10	2500000
b	**Side Protection Of Streams (Using Dr)**					0	b	0		
b1	thuluvankulam Thodu	14P18a	15000	150000		0	b1	150000		
b2	Kuthiyathod LI scheme(south)	14P18a	50000	500000		0	b2	500000		
b3	Kulachal Thod	14P21a	115000	1150000		0	b3	1150000		
b4	Madavana chira	14P21a	55000	550000		0	b4	550000		
b5	Erandegazhi muthukulam thod	14P21a	60000	600000		0			b5	600000
b6	Perrepadam karippasery thod	14P21a	55000	550000		0	b6	550000		
b7	poothara thodu	14P21a	40000	400000			b7	400000		

b8	choorapatta thod	14P22a	75000	750000					b8	750000
b9	Korathod	14P22a	75000	750000					b9	750000
b10	Pinayi thod	14P22a	50000	500000			b10	500000		
b11	Karingannam thod	14P22a	50000	500000			b11	500000		
b12	Anipara thod	14P22a	40000	400000			b12	400000		
b13	Shastam petta kulam	14P22a	60000	600000			b13	600000		
b14	Thandanodi orozhi chira	14P22a	40000	400000			b14	400000		
b15	Kapparasseri Sri Krishna Temple pond	14P22a	70000	700000			b15	700000		
b16	Kapparasseri thod	14P22a	50000	500000					b16	500000
b17	Unipadam cheerakathil thod	16C56a	50000	500000					b17	500000
b18	Ariyoor thod	16C66a	78000	780000					b18	780000
b19	Vattakatu chira(pond deepening)	16C66a	10000	100000					b19	100000
b20	Padamkulangara thod	16C55a	75000	750000			b20	750000		
b21	karumutti mammbra thod(1 ward)	16C55a	65000	650000			b21	650000		
b22	puthankulam padashegaram(ward2)	16C55a	75000	750000			b22	750000		
b23	Kurumutti mambra thod (18 ward)	16C55a	65000	650000			b23	650000		
C	**Side protection of streems**									
c1	kuttipuzha padasegaram	14P19a	70000	700000			c1	700000		
c2	kulamb puramattam thod	14P19a	60000	600000			c2	600000		
c3	Chulliparamb thod	14P19a	70000	700000					c3	700000
c4	anakulam paduvayil thod	14p19a	70000	700000			c4	700000		
C5	Elathod partially side protection withDR& ramacham	16C3c	100000	1000000	185010				C5	1000000
C6	aluva thodu partially side protection with	16C3c	160000	1600000	123440		C6	1600000		

	DR&Ramacham									
	Lift Irrigation schemes									
d1	kurishupalli LI scheme	14P19a	250000	2500000					d1	2500000
d2	Puathayi lift irrigation	14P20a	150000	1500000			d2	1500000		
e	**Water harvesting structure(new created)**									
e1	check dam - Oruvazhi katthakattu chira	14P22a	100000	1000000			e1	1000000		
e2	well Recharging Structures	14P18a	1300	13000					e2	13000
e3	Well Recharging Structures	14P19a	134500	1345000			e3		e3	1345000
e4	Well Recharging Structures	14P21a	135000	1350000			e4	1350000		
e5	Well Recharging Structures	14P22a	36900	369000			e5	369000		
e6	Well Recharging Structures	16C56a	2970	29700					e6	29700
e7	Well Recharging Structures	16C55a	17660	176600			e7	176600		
e8	Well Recharging Structures	16C3c	8000	80000					e8	80000
f	**Water harvesting structure(renovation)**									
f1	mukkulam(pond deeping,ramacham)	14P21a	20000	200000	50000		f1	200000		
	Rounded figure			2194						
	Total			34687830	2092203			22187936		12497700

7.2.1 Watershed wise action plan of Natural resource management activities

- **Kuthitathod thelathuruth Watershed (14P18a)**

Activities	Convergence	Total IWMP Share	Expecting WDF	Coordinates
Vegetative Side Protection of Streams Using Ramacham and Fodder Grass				
Venachal Thodu	MGNREGS-30000	150000	15000	Lat - 10.1696 Long - 76.2747
Side Protection of Streams Using DR				
Thuluvankulam Thodu		150000	15000	Lat - 10.1603 Long - 76.2721
Kuthiyathod LI scheme (south)		500000	50000	Lat - 10.1696 Long - 76.2977
Well Recharging Structures		13000	1300	
Rounded figure		388		
Total Amount		**813388**	8133.88	

- **Kunnukara watershed (14P19a)**

Activities	Convergence	Total IWMP Share	Expecting WDF	Coordinates
Vegetative And Engineering Structures				
Side Protection of Streams				
Kuttipuzha padasegharam		700000	70000	Lat - 10.1559 Long - 76.3212
Kulamb puramattam thod		600000	60000	Lat - 10.1465 Long - 76.2916

Chulliparamb thod		700000	70000	Lat - 10.1437 Long - 76.2926
Anakulam paduvayi thod		700000	70000	Lat - 10.1583 Long - 76.2909
Vegetative Side Protection of Streams Using Ramacham and Fodder Grass				
Payyelli angamali thod	MGNREGS- 130190	600000	60000	Lat - 10.1559 Long - 76.3212
Kattamula thod	MGNREGS-65678	200000	20000	Lat - 10.1630 Long - 76.3062
Vattachal manjali thod	MGNREGS-77405	350000	35000	Lat - 10.1518 Long - 76.2767
Lift Irrigation				
Kurishupalli LI scheme		2500000	250000	Lat - 10.1567 Long - 76.3014
Well Recharging Structures		1345000	134500	
Rounded figure		408		
TOTAL		**7695408**	769500	

- **kurummaseri watershed (14P20a)**

Activities	Convergence	Total IWMP Share	Expecting Outcome	Coordinates
Vegetative And Engineering Structures				
Vegetative Side Protection of Streams Using Ramacham and Fodder Grass				
Manjali karukapadam thod	MGNREGS	642336	64233.6	Lat – 10.1762 Long – 76.3280
Lift Irrigation				
Purathayi lift irrigation		1500000	150000	Lat – 10.1804 Long – 76.3108
Total		**2142336**	214233.6	

- **kaipillikunn watershed (14P21a)**

Activities	Convergence	Total IWMPShare	Expecting WDF	Coordinates
Vegetative and Engineering Structures				
Side Protection of Streams				
Kulachal thod		1150000	115000	Lat – 10.2012 Long – 76.3316
Madavana chira		550000	55000	Lat – 10.2025 Long – 76.3546
Erandegazhi muthukulam thod		600000	60000	Lat – 10.1984 Long – 76.3306
Perrepadam Karippasery thod		550000	55000	
Poothara thodu		400000	40000	
Vegetative Side Protection of Streams Using Ramacham and Fodder Grass				
Valiya padasegharam valiyathod	MGNREGS	950000	95000	Lat – 10.19099 Long – 76.3446
Paranipadam	MGNREGS	600000	60000	Lat – 10.2011 Long – 76.3462
Kangoli thod	MGNREGS	650000	65000	Lat – 10.1994 Long – 76.3560
Water Harvesting Structure(Renovation)			0	
Makkulam (pond deepening,ramacham)	MGNREGS	200000	20000	Lat – 10.1935 Long – 76.3442
Well Recharging Structures		1350000	135000	
Rounded figure		425		
Total		**7000425**	700000	

- **kapparasseri watershed(14P22a)**

Activities	Convergence	Total IWMP Share	Expecting WDF Share	Coordinates
Vegetative and Engineering Structures				
Side Protection of Streams				
choorapatta thod		750000	75000	Lat - 10.160648 Long-76.354721
korathod		750000	75000	Lat - 10.151718 Long - 76.367798
pinayi thod		500000	50000	Lat - 10.153788 Long - 76.358574
karingannam thod		500000	50000	Lat - 10.150638 Long - 76.357231
anipara thod		400000	40000	Lat - 10.133471 Long - 76.366142
shastam petta kulam		600000	60000	Lat - 10.154756 Long - 76.343941
Thandanodi orozhi chira		400000	40000	Lat - 10.143392 Long - 76.377724
kapparasseri sri krishna temple pond		700000	70000	Lat - 10.161988 Long - 76.367813
kapparasseri thod		500000	50000	Lat - 10.141101 Long - 76.357445
Vegetative Side Protection of Streams Using Ramacham and Fodder Grass				
panayakadav puthenthod	MGNREGS	1000000	100000	Lat - 10.148314 Long - 76.34071
Puthenthodu Mangabilly thod	MGNREGS	2500000	250000	Lat -10.163074 Long - 76.338989
Water Harvesting Structure(New Created)				
Check Dams				
oruvazhi kaithakattu chira		1000000	100000	Lat - 10.144639 Long - 76.3977533
Well Recharging Structures		369000	36900	
Rounded figure		456		
Total		**9969456**	996945	

- **puthenkavu chal watershed(16C56a)**

Activities	Total IWMP Share	Expecting WDF Share	Coordinates
Vegetative and Engineering Structures			
Side Protection of Streams Using DR			
Unipadam cheerakathil thod	500000	50000	Lat – 10.18188 Long – 76.3242
Ayiroor thod	780000	78000	Lat – 10.210 Long – 76.3396
Vattakatu chira (pond deepening)	100000	10000	Lat – 10.1827 Long – 76.3359
Well Recharging Structures	29700	2970	
Rounded Figure	88		
Total	**1409788**	140970	

- **Mambra watershed (16C55a)**

Activities	Total IWMP Share	Total WDF Share	Coordinates
Vegetative and Engineering Structures			
Side Protection Of Streams With DR			
padamkulangara thod	750000	75000	Lat – 10.2029 Long – 76.3617
kurumutti mambra thod(1 ward) Partially side protection with DR & Ramacham	650000	65000	Lat – 10.2248 Long – 76.3429
Puthenkulam padasegaram(ward 2 - parakadav panchayath)	750000	75000	Lat – 10.2248 Long – 76.3429
kurumutti mambra thod(18 ward)Partially side protection with DR & Ramacham	650000	65000	Lat – 10.2170 Long – 76.3475

Well Recharging Structures	176600	17660	
Rounded figure	225		
Total	**2976825**	297660	

- **parakadav watershed (16C3c)**

Activities	**Convergence**	**Total IWMP share**	**Total WDF Share**	**Coordinates**
Vegetative and Engineering Structures		0		
Side Protection of Streams		0		
Elathod Partially Side protection with DR & Ramacham	MGNREGS	1000000	100000	Lat – 10.1906 Long – 76.3187
Aluva thodu Partially Side protection with DR & Ramacham	MGNREGS	1600000	160000	Lat – 10.2023 Long – 76.3198
Well Recharging Structures		80000	8000	
Rounded Figure		204		
Total		**2680204**	268000	

7.3 Annual action plan of Production system management and micro enterprises

- **Cluster wise PS&M action plan of the cluster area**

si no	waters heds	coconut seeding		poultry		banana cultivation		kitchen garden		Psciculture		tuber crops		horticulture		Vermicompost		Total amount
		unit	amount	unit	amount	unit	amount	unit	amount	unit	amount	unit	amount	unit	amount	unit	amount	
1	14P18a	299	22425	88	88000	551	9918	54	16200			10	6000	18	2700	0	0	145248
2	14P20a	2331	174825	92	92000	2002	36036	61	18300	3	15000	23	13800	84	12600	2	20000	382560
3	14P19a	8000	600000	400	400000	10232	184176	207	62100	10	50000	29	17400	70	10500	5	50000	1374180
4	14P22a	10000	750000	602	602000	9978	179604	278	83400	13	65000	10	6000	95	14250	8	80000	1780260
5	14P21a	6000	450000	400	400000	10879	195822	247	74100	13	65000	8	4800	69	10350	5	50000	1250076
6	16C3a	2500	187500	100	100000	2684	48312	165	49500	3	15000	18	10800	50	7500	6	60000	478608
7	16C55a	2303	172725	200	200000	2486	44748	171	51300	0	0	17	10200	84	12600	4	40000	531576
8	16C56a	1100	82500	97	97000	1589	28602	77	23100	0	0	16	9600	73	10950	0	0	251748
Total		32533	2439975	1979	1979000	40401	727218	1260	378000	42	210000	131	78600	543	81450	30	300000	6194256

- **Watershed wise action plan of PS&M**

7.3.1 kuthiyathodthelathuruth watershed

Si	Activities	unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	299	75	22425	126	9450	92	6900	81	6075
2	supply of poultry	88	1000	88000	42	42000	29	29000	17	17000
3	Banana cultivation	551	18	9918	103	1854	200	3600	248	4464
4	kitchen garden	54	300	16200			54	16200		0
5	Psciculture		5000	0				0		0
6	Tuber crops cultivation	10	600	6000	6	3600	4	2400		0
7	Horticulture	18	150	2700	8	1200		0	10	1500
8	Vermicompost							0		0
	rounded figure			5						
	Total			**145248**		**58099**		**58099**		**29039**

7.3.2 **Kunnukara watershed**

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	8000	75	600000	3741	280575	1996	149700	2263	169725
2	supply of poultry	400	1000	400000	125	125000	258	258000	17	17000
3	Banana cultivation	10232	18	184176	3894	70092	3912	70416	2426	43668
4	kitchen garden	207	300	62100	57	17100	101	30300	49	14700
5	Psciculture	10	5000	50000	4	20000	6	30000		0
6	Tuber crops cultivation	29	600	17400	8	4800	11	6600	10	6000
7	Horticulture	70	150	10500	14	2100	31	4650	25	3750
8	Vermicompost	5	10000	50000	3	30000		0	2	20000
	rounded figure			4		5		6		
	Total			**1374180**		**549672**		**549672**		**274836**

7.3.3 kurummasseri watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	2331	75	174825	621	46575	1142	85650	568	42600
2	supply of poultry	92	1000	92000	41	41000	36	36000	15	15000
3	Banana cultivation	2002	18	36036	742	13356	868	15624	392	7056
4	kitchen garden	61	300	18300	29	8700	15	4500	17	5100
5	Psciculture	3	5000	15000	3	15000	0	0		0
6	Tuber crops cultivation	23	600	13800	8	4800	11	6600	4	2400
7	Horticulture	84	150	12600	24	3600	31	4650	29	4350
8	Vermicompost	2	10000	20000	2	20000		0		0
	rounded figure			4				0		6
	Total			**382565**		**153024**		**153024**		**76512**

7.3.4 kaipillikunn watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	6000	75	450000	2395	179625	2471	185325	1134	85050
2	supply of poultry	400	1000	400000	170	170000	155	155000	75	75000
3	banana cultivation	10879	18	195822	4695	84510	3964	71352	2220	39960
4	kitchen garden	247	300	74100	33	9900	129	38700	85	25500
5	Psciculture	13	5000	65000	6	30000	3	15000	4	20000
6	Tuber crops cultivation	8	600	4800	4	2400	0	0	4	2400
7	Horticulture	69	150	10350	24	3600	31	4650	14	2100
8	Vermicompost	5	10000	50000	2	20000	3	30000		0
	rounded figure			4				3		6
	Total			**1250076**		**500030**		**500030**		**250016**

7.3.5 kapprasseri watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	10000	75	750000	3210	240750	4158	311850	2632	197400
2	supply of poultry	602	1000	602000	259	259000	247	247000	96	96000
3	Banana cultivation	9978	18	179604	4697	84546	3964	71352	1317	23706
4	kitchen garden	278	300	83400	156	46800	56	16800	66	19800
5	Psciculture	13	5000	65000	7	35000	4	20000	2	10000
6	Tuber crops cultivation	10	600	6000	4	2400	0	0	6	3600
7	Horticulture	95	150	14250	24	3600	34	5100	37	5550
8	Vermicompost	8	10000	80000	4	40000	4	40000		0
	rounded figure			6		8		2		
	Total			1780260		712104		712104		356052

7.3.6 Parakadav watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	2500	75	187500	637	47775	1147	86025	716	53700
2	supply of poultry	100	1000	100000	70	70000	30	30000		0
3	Banana cultivation	2684	18	48312	765	13770	918	16524	1001	18018
4	kitchen garden	165	300	49500	71	21300	56	16800	38	11400
5	Psciculture	3	5000	15000	3	15000	0	0		0
6	Tuber crops cultivation	18	600	10800	0	0	0	0	18	10800
7	Horticulture	50	150	7500	24	3600	14	2100	12	1800
8	Vermicompost	6	10000	60000	2	20000	4	40000		0
	rounded figure			-4						4
	Total			478608		191443		191443		95722

7.3.7 Mambra watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	2303	75	172725	637	47775	1147	86025	519	38925
2	supply of poultry	200	1000	200000	97	97000	62	62000	41	41000
3	Banana cultivation	2486	18	44748	934	16812	1145	20610	407	7326
4	kitchen garden	171	300	51300	71	21300	57	17100	43	12900
5	Psciculture	0	5000	0	0	0	0	0		0
6	Tuber crops cultivation	17	600	10200	10	6000	4	2400	3	1800
7	Horticulture	84	150	12600	25	3750	30	4500	29	4350
8	Vermicompost	4	10000	40000	2	20000	2	20000		0
	rounded figure			3						14
	Total			531576		212630		212630		106315

7.3.8 Puthenkavuchal watershed

Si	Activities	Unit	Unit Cost	Total Amount	Second Year		Third Year		Fourth Year	
					unit	*amount*	*unit*	*amount*	*unit*	*amount*
1	supply of coconut seedling	1100	75	82500	426	31950	300	22500	374	28050
2	supply of poultry	97	1000	97000	35	35000	62	62000		0
3	Banana cultivation	1589	18	28602	708	12744	500	9000	381	6858
4	kitchen garden	77	300	23100	35	10500	24	7200	18	5400
5	Psciculture	0	5000	0	0	0	0	0		0
6	Tuber crops cultivation	16	600	9600	10	6000	0	0	6	3600
7	Horticulture	73	150	10950	30	4500	0	0	43	6450
8	Vermicompost	0	10000	0	0	0	0	0		0
	rounded figure					5				
	Total			251748		100699		100699		50350

7.4 Annual action plan of liveli hood activities

Total amount: Rs.55, 74,830seed money:-Rs. 40,42,500major activity: Rs. 14,55,000

KuthiyathodeThelathuruth (121.04. Ha)	Total Amount Rs. 1,25,000
	Seed Money :- Rs. 1,25,000
	Major Activity :- Rs. 0
Kurumassery (318.80. Ha)	Total Amount Rs. 343500
	Seed Money :- Rs. 243500
	Major Activity :- Rs. 100000
Kunnukara (1145.15 Ha)	Total Amount Rs. 1218500
	Seed Money :- Rs. 868500
	Major Activity :- Rs. 350000
Kaprassery (1483.55 Ha)	Total Amount Rs. 1590000
	Seed Money :- Rs. 1140000
	Major Activity :- Rs. 450000
Kaippillykunnu (1041.73 Ha)	Total Amount Rs. 1113500
	Seed Money - Rs. 788500
	Major Activity - Rs. 325000
Parakkadavu (398.84 Ha)	Total Amount Rs. 427000
	Seed Money - Rs. 312000
	Major Activity - Rs. 115000
PuthenkavuChal (209.79 Ha)	Total Amount Rs. 225000
	Seed Money - Rs. 225000
	Major Activity - Rs.0
Mambra (442.98 Ha)	Total Amount Rs. 458500
	Seed Money - Rs. 343500
	Major Activity - Rs.115000

IWMP- 11-2012/13 - PARAKADAV BLOCK PANCHAYAT								
Liveli hood action plan (seed money 70 %)								
Name of Watershed	Name of enterprise	Total Cost for enterprise	Project Cost (Seed Money)	Beneficiary Contribution	Unit Cost	Bank loan	No. of groups got financial assistance in 1 and 2 nd Phase	
Kuthiyathode - Thelathuruth Watershed	Kaada Farming 1 nos	27500	25000	2500	27500	Nil	Ist	2nd
							1	
	Poultry farming 1 No	27500	25000	2500	27500	Nil	1	
	Goat farming 1 nos	40000	25000	15000	40000	Nil	1	
	Group farming 2 Nos	60000	50000	10000	30000	Nil	1	1
	Total : 5 Nos	**155000**	**125000**	**30000**		**0**	**4**	**1**
Kurumassery watershed	Poultry Farming 2 nos	55000	50000	5000	27500	Nil	1	1
	Kaada Farming 2 nos	55000	50000	5000	27500	Nil	1	1
	Goat Farming 4 nos	160000	100000	60000	40000	Nil	2	2
	Group Farming 1 no	30000	25000	5000	30000	Nil	1	
	Vegetable Farming 1 no	20000	18500	1500	20000	Nil	1	
	Total (10 Group)	**320000**	**243500**	**76500**		**0**	**6**	**4**
Kunnukara watershed	Poultry Farming 8 nos	220000	200000	20000	27500	Nil	4	4
	Duck Farming 5 nos	137500	125000	12500	27500	Nil	3	2
	Goat Farming 6 nos	240000	150000	90000	40000	Nil	2	4

	Group Farming 13 nos	390000	325000	65000	30000	Nil	6	7
	Fish Farming 2nos	55000	50000	5000	27500	Nil	1	1
	Flori Culture 1 no	20000	18500	1500	20000	Nil	1	0
	Total (35 Group)	**1062500**	**868500**	**194000**		**0**	**17**	**18**
Kaprassery watershed	Poultry Farming 22 nos	605000	550000	55000	27500	Nil	11	11
	Group Farming 12 nos	360000	300000	60000	30000	Nil	5	7
	Goat Farming 10 nos	400000	250000	150000	40000	Nil	5	5
	Mushroom Cultivation 2 no	48500	40000	8500	24250	Nil	1	1
	Total (46 Group)	**1413500**	**1140000**	**273500**		**0**	**22**	**24**
Kaippillikunnu watershed	Group Farming 9 nos	270000	225000	45000	30000	Nil	5	4
	Poultry Farming 10 nos	275000	250000	25000	27500	Nil	5	5
	Duck Farming 1 no	27500	25000	2500	27500	Nil	1	
	Goat Farming 10 nos	400000	250000	150000	40000	Nil	5	5
	Vegetable Cultivation 1 no	20000	18500	1500	20000	Nil	1	
	MushroomCultivation 1 no	24250	20000	4250	24250	Nil	1	
	(Total 32 Group)	**1016750**	**788500**	**228250**		**0**	**18**	**14**
Parakkadavu Watershed	Poultry Farming 2 nos	55000	50000	5000	27500	Nil	1	1
	Kaada Farming 2 nos	55000	50000	5000	27500	Nil	1	1
	Group Farming 7 nos	210000	175000	35000	30000	Nil	4	3
	Vegetable Cultivation 2 no	40000	37000	3000	20000	Nil	1	1
	Total (13 Groups)	**360000**	**312000**	**48000**		**0**	**7**	**6**
Puthankav	Group	150000	125000	25000	30000	Nil	2	3

uchal Watershed	Farming 5 nos							
	Poultry Farming 1 no	27500	25000	2500	27500	Nil	1	
	Duck Farming 1 no	27500	25000	2500	27500	Nil		1
	Ornamental fish farming 2 nos	55000	50000	5000	27500	Nil	1	1
	Total 9 Group	**260000**	**225000**	**35000**		**0**	**4**	**5**
Mambra watershed	Poultry Farming 5nos	137500	125000	12500	27500	Nil	3	2
	Duck farming 1no	27500	25000	2500	27500		1	
	Group farming 5nos	150000	125000	25000	30000	Nil	3	2
	Nut meg Value added products 1 no	30000	25000	5000	30000	Nil		1
	Ornamental fish farming 1no	27500	25000	2500	27500	Nil	0	1
	Vegetable Cultivation 1 no	20000	18500	1500	20000	Nil	0	1
	Total 14 Group)	**392500**	**343500**	**49000**		**0**	**7**	**7**

Liveli hood action plan(Activities -30%)						
Sino	watershed	Enterprises	Total project cost (Lakhs)	Bank loan (Lakhs)	Financial assistance (Lakhs)	Financial authority
1	Kaprassery watershed	Group farming (3 unit)	9	4.5	4.5	Federal Bank Athani
2	Kunnukara watershed	1. food processing	1	0.5	0.5	SBI Kuthiyathode
		2. Poultry farming (2 unit)	6	3	3	
3	Kuthiya thodu	Nil	Nil	Nil	Nil	Nil

4	Kurumassery	Tailoringv	2	1	1	SBI Moozhikkulam
5	Kaipiily kunnu	1. Group farmingv	3	1.5	1.5	SBI Puliyanam
		2. Diary	3.5	1.75	1.75	
6	Puthenkavu chal	Nil	Nil	Nil	Nil	Nil
7	Parakkadavu	Fruit plant Nursery	2.3	1.15	1.15	SBI Moozhikkulam
8	Mabra	Fruit plant Nursery	2.3	1.15	1.15	SBI Puliyanam
Total			29.1	14.55	14.55	

- **Training plan to SHGs under Livelihood Support System**

Sl no	Watershed	BOT		EDP		SDT		TOTAL		Training Agencies
		No	Amt	No	Amt	No	Amt	No	Amt	
1	Kuthiyathodu Thelathuruth	1	8000	Nil	Nil	0	0	1	8000	KRISHI VIGYAN KENDRAM RSETI KITCO ETC MANNUTHY STED CMFRI
2	Kunnukara	12	96000	Nil	Nil	2	50000	14	146000	
3	Kurumasseri	3	24000	Nil	Nil	1	50000	4	74000	
4	Kaipillikunnu	10	80000	Nil	Nil	2	50000	12	130000	
5	Kapraseri	15	120000	Nil	Nil	1	50000	16	170000	
6	Parakkadavu	4	24000	Nil	Nil	1	50000	5	82000	
7	Mambra	3	32000	Nil	Nil	1	50000	4	74000	
8	Puthekavuchal	2	16000	Nil	Nil	0	0	2	16000	

- **Working calendar of liveli hood activities**

First Face - Year.2014 -15				
SL NO	November	December	January	February
	Inviting Application	WDS, WC Administrative Sanction	Training	Distribution
1	Kuthiyathodu Thelathuruth Watershed - 4 Units (poultry farming, group farming, goat farming)	will be sanction	poultry farming, group farming, goat farming	4 units
2	Kurumassery Watershed - 6 Units (poultry farming, group farming, goat rearing, vegetable farming -JLG Application)	will be sanction	poultry farming, group farming, goat rearing, vegetable farming	6 units
3	Kunnukara Watershed - 17 unit (poultry farming, goat rearing, group farming,floriculture, duck rearing, fish farming - JLG application)	will be sanction	poultry farming, goat rearing, group farming,floriculture,duck rearing, fish farming	17units
4	Kaprassery Watershed -21 units(poultry farming, goat farming, group farming, mushroom cultivation)	will be sanction	poultry farming,goat farming,group farming,mushroom cultivation	21units
5	Kaipillykunnu Watershed -18 Unitspoultry farming, goat farming, group farming, mushroom cultivation)	will be sanction	poultry farming,goat farming,group farming,mushroom cultivation	18 units
6	Parakkadavu Watershed – 6units (poultry farming, group farming -JLG application)	will be sanction	poultry farming,group farming -	6 units
7	Puthenkavuchal Watershed - 4 Units (group farming, poultry farming, duck rearing, ornamental fish farming, - JLG application)	will be sanction	group farming,poultry farming,duck rearing,ornamental fish farming	4 units
8	Mambra Watershed - 7 Units (poultry farming, group farming, vegetable farming, goat rearing) JLG application	will be sanction	(poultry farming, group farming, vegetable farming, goat rearing)	7 units

Second Face - Year. 2015- 16				
SL NO	April	May	June	July
	Inviting Application	WDS, WC Administrative Sanction	Training	Distribution
1	Kuthiyathodu Thelathuruth Watershed- 1 -Units (group farming) - JLG application	will be sanction	group farming	1 units
2	Kurumassery Watershed - 4 Units (poultry farming, group farming, goat rearing, vegetable farming -JLG application)	will be sanction	poultry farming, group farming, goat rearing, vegetable farming	4 units
3	Kunnukara Watershed -19-units (poultry farming, goat rearing, group farming, duck rearing, fish farming - JLG application)	will be sanction	poultry farming, goat rearing, group farming, duck rearing, fish farming	19units
4	Kaprassery Watershed -25- units(poultry farming, goat farming, group farming, mushroom cultivation)	will be sanction	poultry farming, goat farming, group farming, mushroom cultivation	25units
5	Kaipillykunnu Watershed -14 –Units(poultry farming, goat farming, group farming) - JLG application	will be sanction	poultry farming, goat farming, group farming	14 units
6	Parakkadavu Watershed - 7 Units (poultry farming, group farming, vegetable farming -JLG application)	will be sanction	(poultry farming, group farming, vegetable farming)	7 units
7	Puthenkavuchal Watershed - 5 UNITS (group farming, poultry farming, duck rearing, ornamental fish farming, - JLG application)	will be sanction	group farming, poultry farming, duck rearing, ornamental fish farming	5 units
8	Mambra Watershed - 7 Units (poultry farming, group farming, vegetable farming, value added products using nutmeg) JLG application	will be sanction	poultry farming, group farming, vegetable farming, value added products using nutmeg)	7 units

Chapter - 8

Micro watersheds in project area

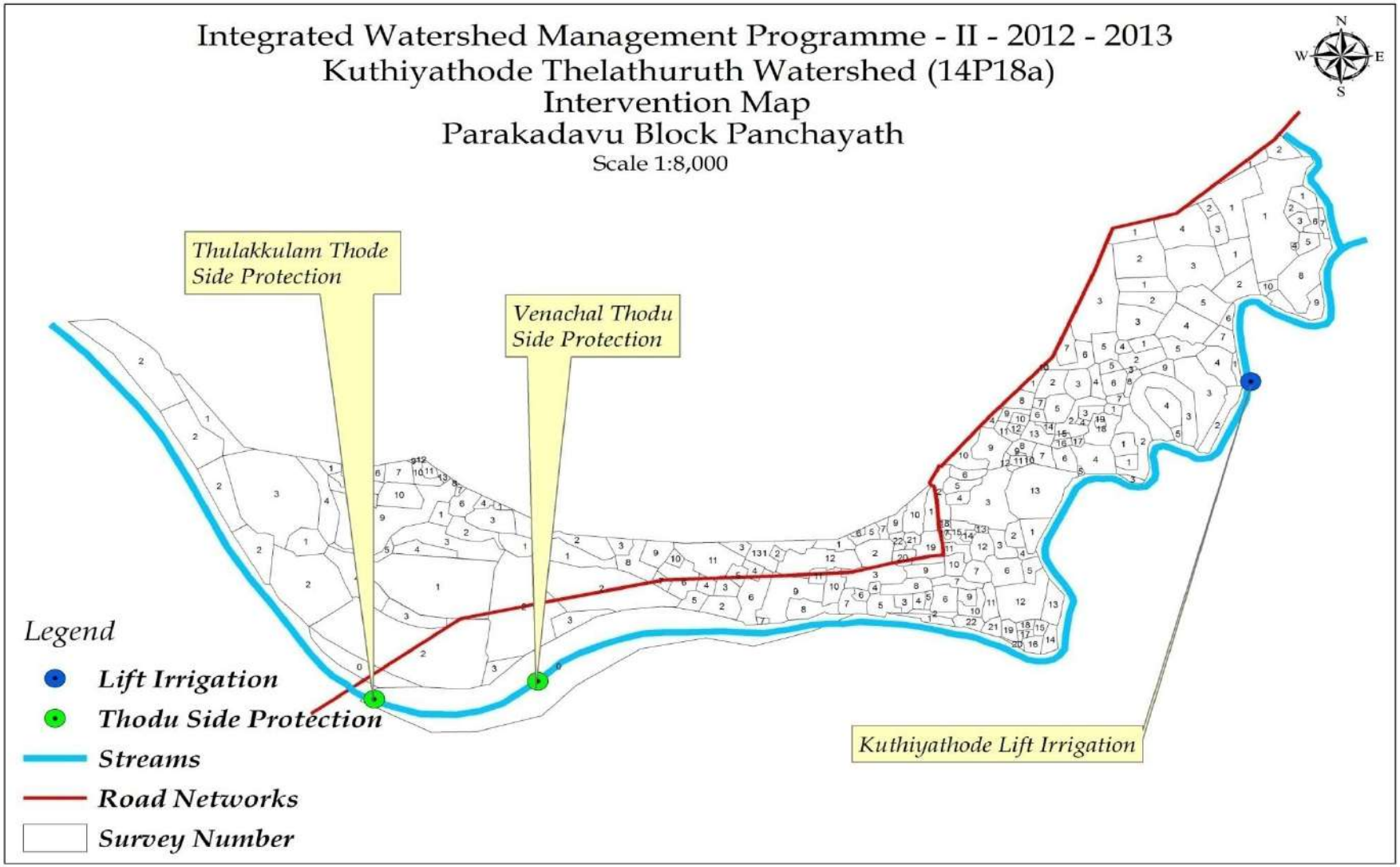
8.1. Kuttiyathoduthelathuruth watershed (14P18a)

Kuttiyathoduwatershed (14P18a) consist of Cheriyathekkanam, Chalakka, Kuttiyathodu of Kunnukarapanchayath and Chawkakadavu, Cherukadapuram of Puthanvelikkarapanchayath. This place Kuttiyathodu is popular in the name of St. Thomas Church. This church has been smashed during the reign of Tipu Sultan and later on it was reconstructed by a philanthropist-Tayyil Mathew Tarakan. Fr.JosephKodiyan, who has been famed as the 2nd person who donated kidney in Kerala is the priest of St. Thomas church. In earlier days their existed tremendous cultivation in this water shed region. But later on huge amount of soil was collected from this area for brick choola and it lead to scarcity in the availability and quality of water. Gradually it ruined cultivation in the area.Chawkakkadavu, Telaturuthu,Cherukadappuram regions of Puthanvelikkarapanchayath comes under this water shed limits. River Periyar has changed its course due to the flood that occurred after the 12th century and thus formed a new land area and that land area is called Puthenvelikkara. DiwanSankunniMenon who was assigned for tax collection under the king of Kochin's Prime Minister Paliyathachchan had lived here along with his family. In those days, chawka or tax collection was under gone in Chawkakadavu, which was the gate way of Kochi-Thiruvitamkoor. Thus the place gained the name Chawkakadavu. At this place Periyar and Chalakudiyar joined together.Once the place was like a small sea thus, it was called as Cherukadappuram. The main water source of this place is Veluthedanchira. This water source is called as Veluthedanchirabecause, this water source was mainly used by the people under the group Veluthedan and Pandan in their day-to-day and for cultivation.

8.1.1 Boundaries of watershed

KuttiyathoduThelathuruth Watershed	North	Eetamanthod , chalakyakoothihtod (from SNDP college to kannakka bridge)
	South	Angamalimanjalithod
	West	Etamanthod , chekkakadav
	East	From kannakka bridge to angamalimanjalithod

8.1.3 Intervention map



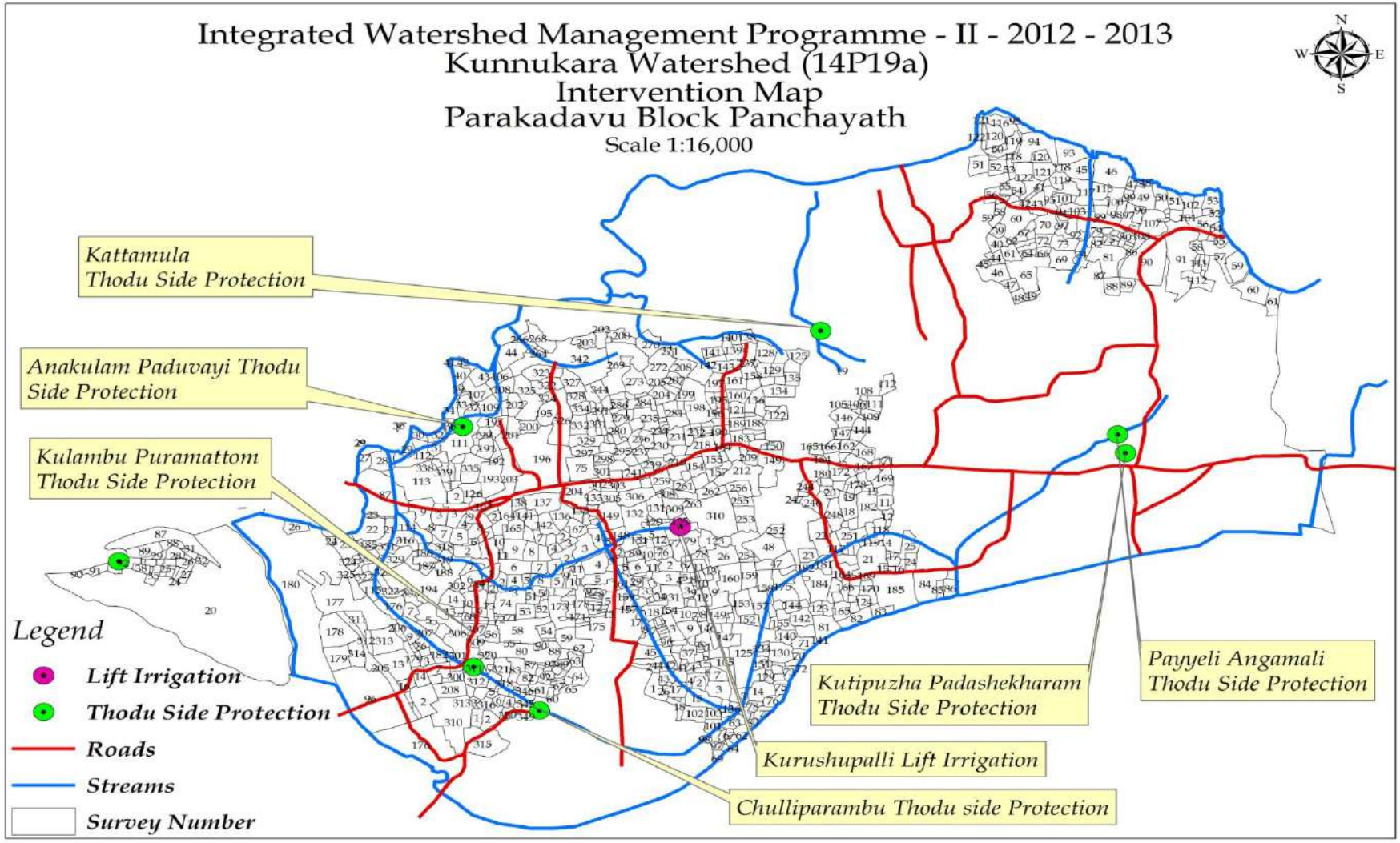
8.2 KunnukaraWatershed(14P19a)

14P19a/Kunnukara watershed consist of the places Aduvasheri(north & south),Maaliyakunnu, Kunnukara, Kuttipuzha,Vayalkkara(east-west),Cheriyathekkanamturuthu of Kunnukarapanchayath. Kunnukara was included in the earlier Alattu princely state. This land is famed for the landlord Kulasunair who has lived in those days and also for the martial art form *kalari*. For the first 7 years Kulasunair was the president of Kunnukaragramapanchayath. In earlier days more than half of the land area that comes under this watershed was rich paddy fields. Elituruthu paddy fields,Kuttiyal paddy fields, Meenkarakunnu paddy fields, Vayalkarapaddy fields, Koottala paddy fields were just some among them. Vayalkkara a place that included in this watershed got that name as it was surrounded by a large number of paddy fields. Number of hills like Malayihills,Meenkara hills, Aalihills,Tekkanath hills joined together to form Kunnukara land area.(*kunnu ,means hills).* In earlier days men and animals used to climb these hills for protecting themselves from heavy rain water. Kuttipuzha Krishna Pilla, the person who has made remarkable contribution to spread 20th century intellectual thought was the son of this land. The idol of famous MalayikunnuSreeDharmasasthra temple was affixed by Parasuraman. The land once under the hands of Valavalloormana,Vailikodathumana, Shivollimana, Maliyekkalmana, Edaprampillimana are now under the people of the land. Once here existed toddy and sugarcane business and toddy was exported from here to nearby places. Kochukadavu of Kunnukarapanchayathconnect this region to Thrissur district.

8.2.1Boundaries of watershed

Kunnukara Watershed(14P19a-)	North	Angamalimanjalithod (meenkarachal)
	South	Periyar river
	West	Angamalimanjalithod (cheriyathekkanedath portion)
	East	Chengamanad – kunnukara border (palapprasserikadav road – chungam fish karakunnu road)

8.2.3 Intervention map



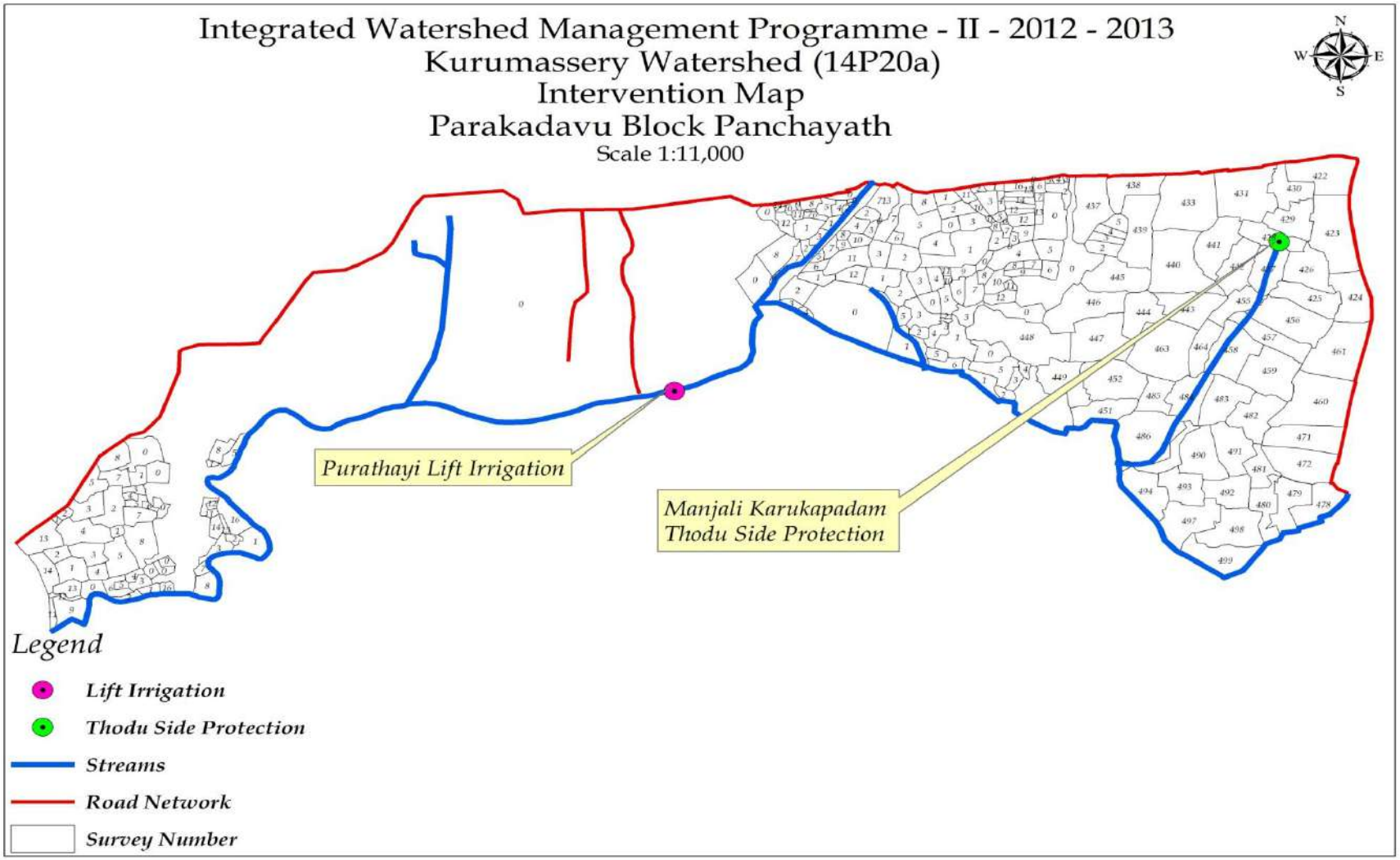
8.3 Kurumasseri Watershed (14 P20 a)

Attupuram, Ayitoor region of Kunnukarapanchayath and Kurumasseri north, Kurumasseri west region of Parakadavgramapanchayath joined to form 14p 20a/Kurumasseri watershed. Attupuram is a place surrounded by water body. Thus it is called as Attupuram, where *aaru*means*water body.* Traditionally, paddy, banana, nutmeg, coconut are the common cultivation in this region. Ayiroor was included in the princely state of Alangotu.Parakadavugramapanchayath has many historical relevance. This place has been referred in several historical texts. The panchayath exists in the banks of Chalakkudyriver without losing its rural life style. Ankamali-Manjalithodu is the main water source of the area. Both Parakadavu block and N.S.S H.S.S comes under this watershed. Important cultivations in the place are coconut, banana, nutmeg, vegetables, and e.t.c. Now the course of Chalakudiriver is through the Vedic study centre, which existed in earlier days and Chalakudyriver got its name in connection with this Vedic study centre. It is said that Chalakudiriver has changed its course after a flood

8.3.1 Boundaries of watershed

KurumasseriWatershed(14P20a-)	North	Kannakka bridge to kurumasseri junction (chalakkakurumasseri road
	South	Angamalimanjalithod
	West	Kannakka bridge ullathod – kannakkathod
	East	Kurumasseri junction to chuthuruth bridge

8.3.3 Intervention map



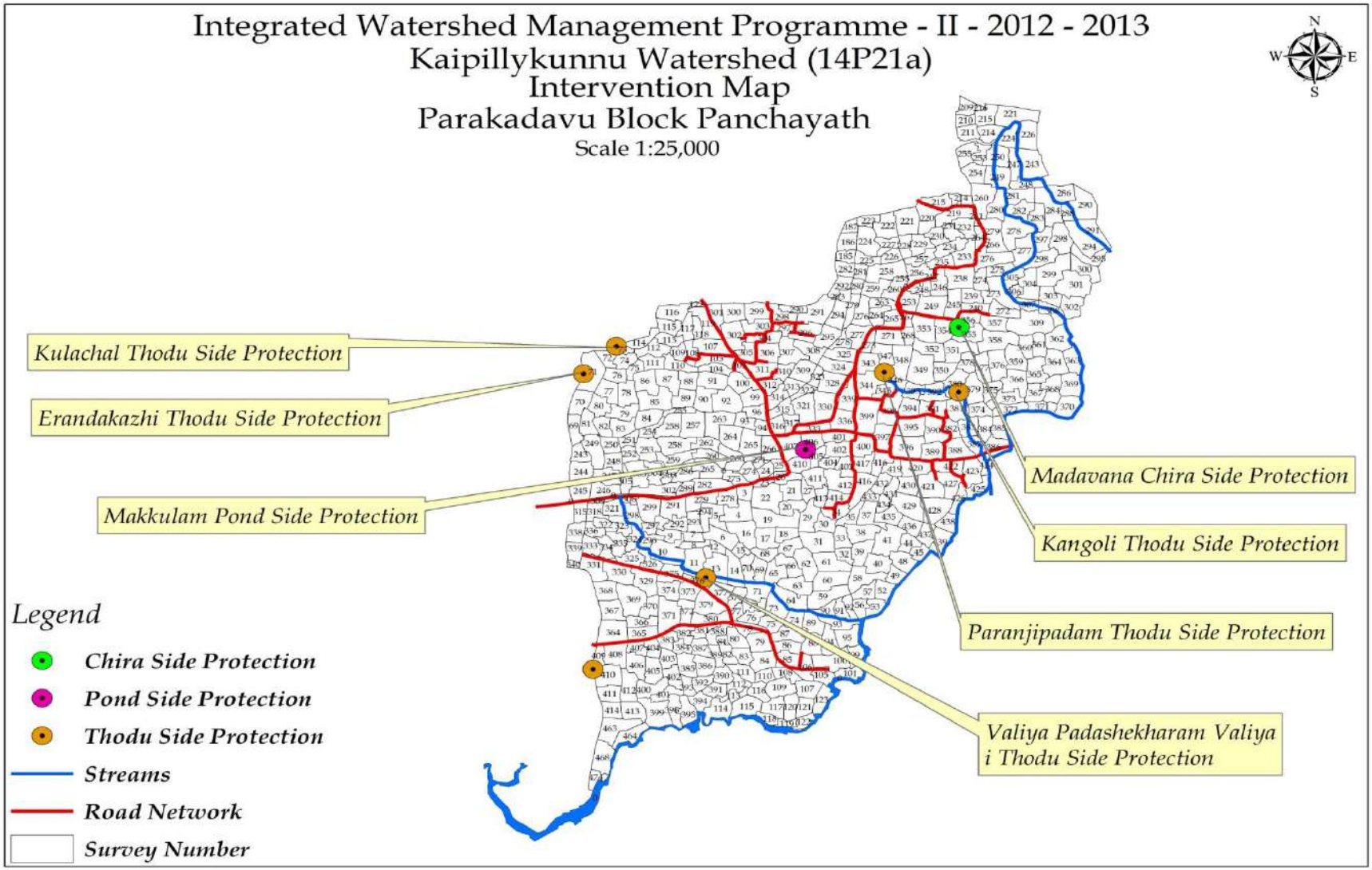
8.4 Kaippillikunnu Watershed (14 P 21 a)

14P21a or Kaipilikunnu watershed consist of Puliyanam north-south, Kodusseri, Vattaparambu, Kurumasserieast&north, Moozhikulam, Elavoor, Kunnapalliseri of Parakadavpanchayath and Mulluseri of Nedumbaseripanchayath. The ancient Moozhikulamshala existed in this watershed. Moozhikulam study centre was one of the major study centers of Kerala. The river flowing through this place was called Shalaikudipuzha. Moozhikulam is a land known for music, arts and Vedic studies. Koodiyattam an art frorm of Kerala which was recognized by UNESCO as heritage art had a great preacher, PadmasreKochukuttanChakyar has lived here. Both MoozhikulamFerona church and Moozhikulam St. Mry's School where Mahakavi G. Sankarakurup was a teacher, situates in Moozhiukulam. In several poems of Tamil devotional poet Nammazhvan, he made references to Moozhikulam. Malluseri is known for Ma lluseri mango in outer places.Elavoor is another important place in this water shed. The village depend upon the major water source of Elavoor, also it is a tourist spot. The highest place in Parakkadavupanchayath is puliyanam.

8.4.1 Boundaries of watershed

KurumasseriWatershed(14P20a-)	North	Sereekandeswara temple (pokkam) pokkamkattuchira road
	South	Angamalimajalithodu to Munsippality
	West	Choondathuruth bridge to Elavoor road
	East	Parakkadavupanchayath

8.4.3 Intervention map



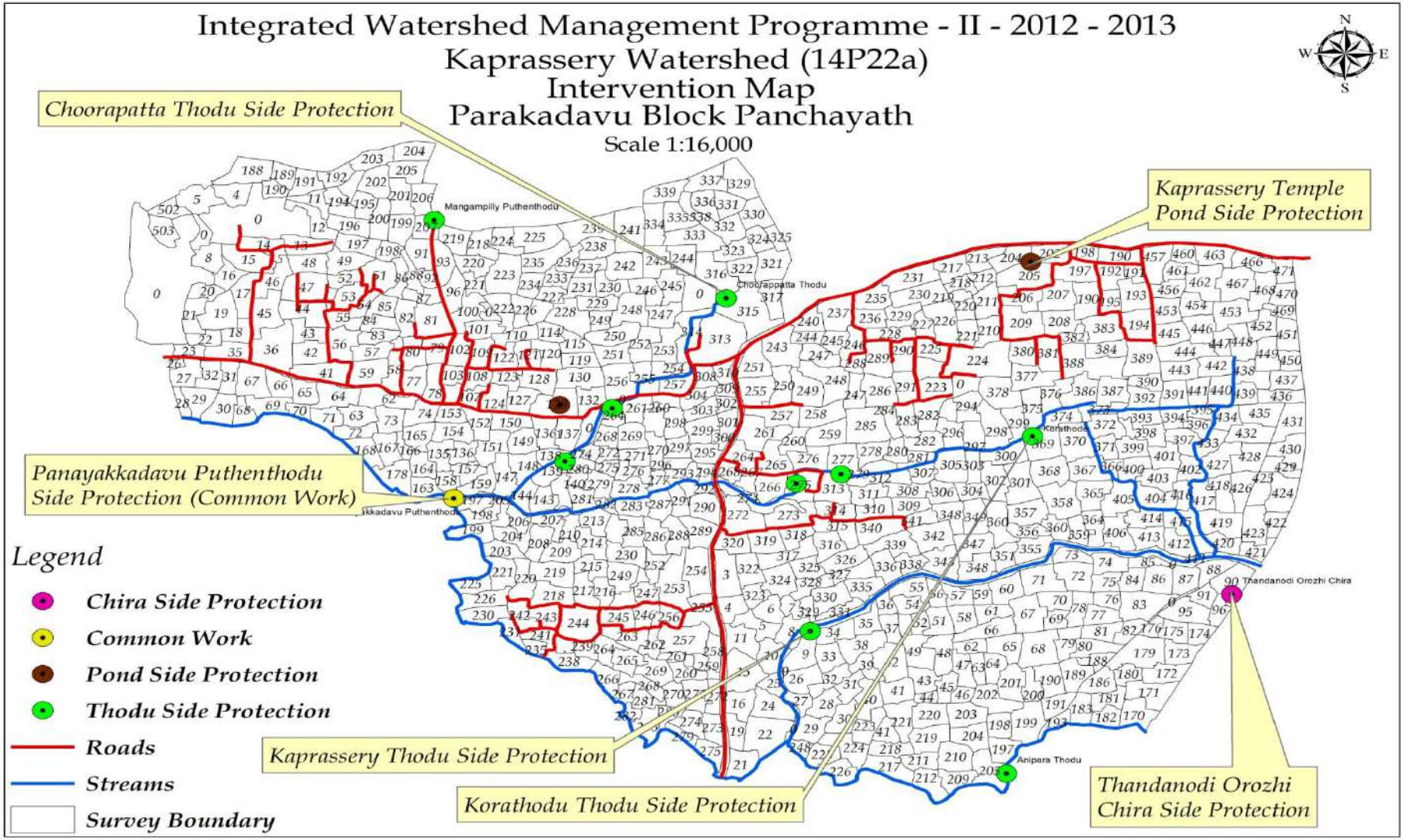
8.5 KaprasseriWatershed(14P22a)

14P 22a or Kapraseri watershed consist of Kariayad, Turuttiseri, Kalpakanagar, Nedumbaseri, Athani, Poikattuseri, Karakattukunnu of Nedumbaseripanchayath and Kapraseri, Chengamanadu, Puthuvaseri of Chengamanadupanchayath.Chengamanad situates in one and half km west of NH47 and 6km south west of Nedumbaseri Airport. Famous Munikkal cave temple is in Chengamanadu. The idol of the temple was affixed there before 90 years by SreVidhyadhirajaChattampi Swami Tiruvadikal in the presence of SreNarayana guru. The temple is on the rock about 120 feet height. Tradition says that, once rishi Jangama has undergone asceticism and thus the place was called as Jangamanad and it later on called as Chengamanad. St.Antony's church is the major church in the place. From ancient days onwards sugarcane, millet, ginger, sesame were the common cultivation in this soil. In addition to that, Chengamanad is also known for its pottery making. Nedumbasseri international air situates with in this watershed area. It is the first airport, whose master plan has prepared in India. Nedumbai paddy field was a famous paddy field in this area. Paddy cultivation which has been flourished in this area has decayed with the coming of Nedumbasseri international airport. SreHanmankovil of Athani is included in this watershed area. The word 'athani' means 'subvention'. Both Hindu and Christian community comprises the majority of the population the area. With due respect for the self-reliance of Christian ladies here called them as 'Angamalichettathimaar',simply called as 'Anamali elder sisters'.

8.5.1 Boundaries of watershed

KurumasseriWatershed(14P20a-)	North	Choondathuruth bridge to karakkattu jun.
	South	Chegalthodu
	West	Rail way line
	East	Chengammanad to kunnukara

8.5.3 Intervention map



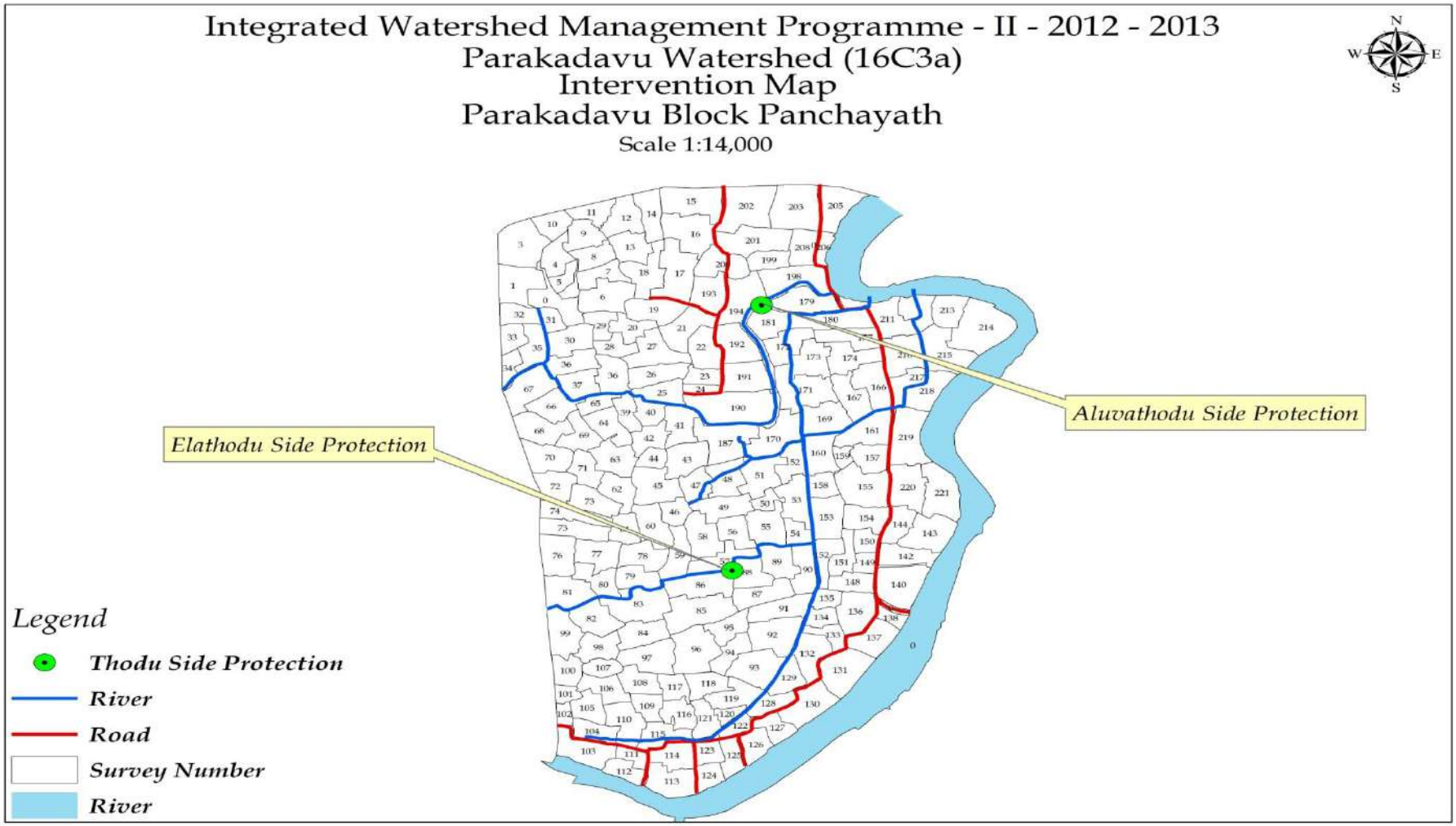
8.6 ParakadavuWatershed (16C3a)

Parakadavu south, Parakadavu north, and Povathuseri regions of Parakadavugramapanchayath included in 16C3a or Parakadavu watershed. Water routes and related markets existed in Puthuseri, Parakadavu region. As symbol of tradition, till now *kalaris(martial arts form)* continuing in the place. Parakadavu consist of number of government schools, anganvadis, veterinary dispensaries, nature treatment centers and private hospitals function here. The historical monument *kothikallukal* that divides Thiruvitamkoor-Kochi borders situates in the map of this village.Along with agriculturalists so many potterers also residing in Parakadavu. Many traditional occupations, knowledge, art forms, heritages, e.t.c. are scattered in ruined stage. Population of this village mainly depends on Chalakudyriver. The major river in the place is known as Purayaar. This river consists of several verities of fishes.Several temple art forms developed in this land and *kalaripayattu*(a martial art form) has strong roots in this place. This tradition has been continuing in connection with Veerabhadra temple.

8.6.1 Boundaries of watershed

KurumasseriWatershed(14P20a-)	North	chundathazham
	South	Chalakkudippuzha
	West	Chalakkudippuzha
	East	Kochukadavupalam

8.5.4 Intervention map



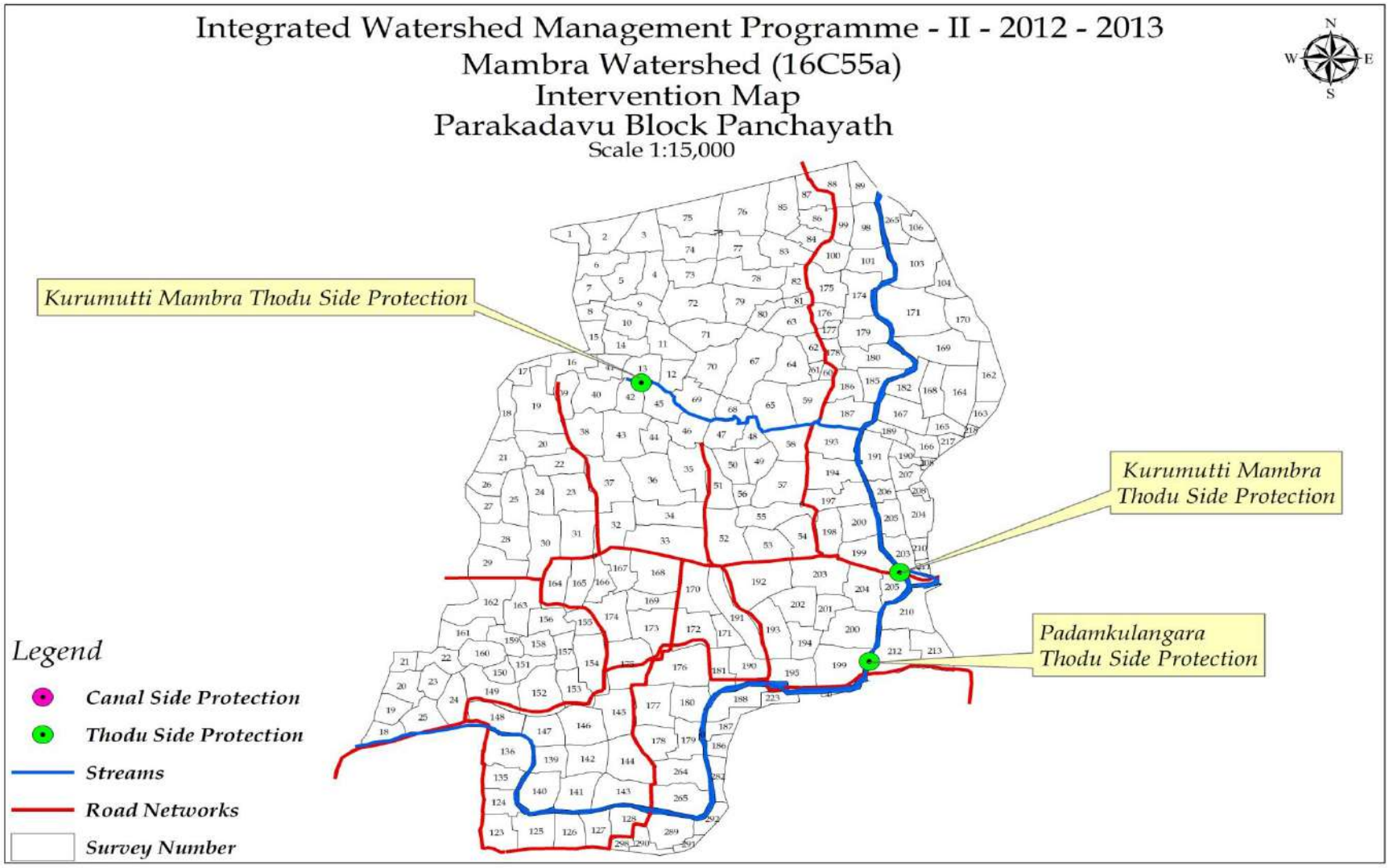
8.7 Mambra Watershed (16C55a)

16C55a or Mambra watershed consist of Mambra (east,west), Puliyanam (east ,west), Elavoor north regions of ParakadavuGramapanchayath. Puliyanam is a hilly region in Parakadavu and thus water scarcity remains as a major problem on the area. Large number of rock quarries functioning in this area, which provides job to many natives. Elavoor rocks also used as water source in the area. These are expected tourist spots in coming years. G.H.S.S, H.S.S, Elavoor G.L.P.S, Puliyanam St. Francis L.P. School are main schools in this place. This played a major role as the foundation for higher education to large number of people in the population. From historical period onwards their existed water transportation and related markets connecting Puliyanam and Elavoor.

8.7.1 Boundaries of watershed

KurumasseriWatershed(14P20a-)	North	Aaradippatha
	South	Sreekandeswara
	West	Parakkadavu panchayat
	East	Pokkam to Radika mill

8.7.3 Intervention map



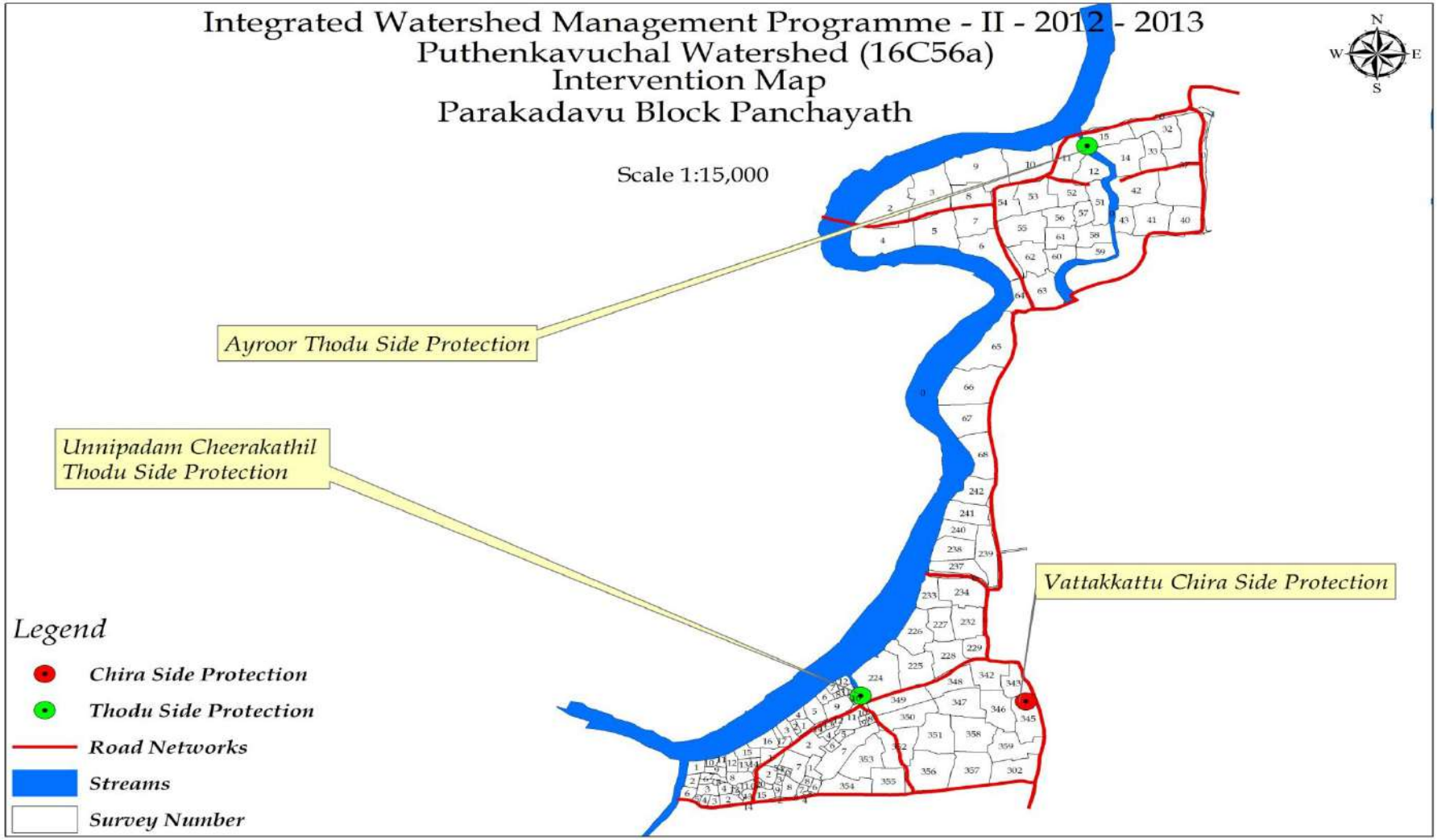
8.8 PuthenkavuchalWatershed (16C56a)

Kurumaseri (north), Muzhikulam, Elavoor(north), Elavoor and Puliyanam regions of Parakadavugramapanchayath and Ayirur region of Kunnukarapanchayath combined to form 16C56a or Puthenkavuchalwatershed.Muzhikuylam is a land of several artists and art forms as it have a rich tradition of music and vedic studies. Moozhikulam is a land known for music, arts and Vedic studies. Koodiyattam an art frorm of Kerala which was recognized by UNESCO as heritage art had a great preacher, PadmasreKochukuttanChakyar has lived here. Music and cultural tradition of this land is connected to new generation through Kudiyattakalakendra (*nepathya*), Muzhikulamshala eco-campus, Nature study centre, Nammazhvar musical assembly, Nattyadharmi and PuliyanamHaydrali Memorial KadhakaliSamiti. One of the ancient study centre in Kerala, Muzhikulam study centre existed in Muzhikulam. The river flowing through this place was called Shalaikudipuzha. Both MoozhikulamFerona church and Moozhikulam St. Mry's School where Mahakavi G. Sankarakurup was a teacher, situates in Moozhiukulam. In several poems of Tamil devotional poet Nammazhvan, he made references to Moozhikulam.Water transportation and related markets also existed between Elavoor and Muzhikulam. The historical monument *kothikallukal* that divides Thiruvitamkoor-Kochi borders rests in this village. Puliyanamkunnu is a hilly terrain. Chalakudyriver is the major river in this watershed. Ayirur watershed which was once the part of Alangadu princely state also comes under this water shed.

8.8.1 Boundaries of watershed

Puthenkavuchal watershed(16C56a)	North	Kurukuttielavoor road ,chalakudi river
	South	Cheerakathil bridge to kurummasseri junction
	West	Chalakudi river
	East	Kurumassseri junction /elavoor road

8.8.3 Intervention map



PART – III

EXPECTED OUTCOME, WATERSHED DEVOLOPMENT FUND, EXIT PROTOCOL, PROJECT SUMMARY AND CONCLUSION

1. Expected Outcomes

. 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.

Nos	Major components	Outputs
1	**NRM/Watershed works /soil & water management interventions**	• Important 36 streams will acquire protection by vegetative and permanent structure. 103 Ha land retain their good ground water status. • Reduction in soil erosion • This type of activities should protect the drainage system in the project area • Decreasing water scarcity • Increase the job opportunity
2	**Production system & micro enterprises** **Livelihood activities**	• Supplying of 32533 coconut seedling , 1979 unit of poultry , 1260 unit of kitchen garden ,42 unit of Psciculture ,131 unit of tuber crops cultivation , 543 unit of horticulture, supplying of 40401 banana and 30 unit of Vermicompost applied in the project area • 750 families will get an additional income • Reduction in poverty • Increase the job opportunity
3	**Capacity building/skill building of the Community based organizations, farmers ,the officials, and people's representatives**	• Community, PRIs and officials will learn & develop the skills in analyzing the situations , micro planning, participatory monitoring , process documentation, etc that help to improve the efficiency and effectiveness of the projects and programmes

2. Watershed Development Fund (WDF)

One of the mandatory conditions for the selection of villages for watershed projects is people's contribution towards the Watershed Development Fund (WDF). The contribution of WDF shall be a minimum 10 % of cost of NRM works executed on private land only. However, in case of SC/ST, small and marginal farmers, the minimum contribution shall be 5 % of cost of NRM works executed on their land. These contributions would be acceptable either in cash at the time of execution of works or voluntary labour. A sum equivalent to the monetary value of the voluntary labour would be transferred from the watershed project account to the WDF bank account that will be distinct from the Watershed Committee (WC) bank account. Income earned form the assets created under the project on common property resources shall be credited to WDF.

3. Exit protocol

The main source of financial assistance for the post implementation period is Watershed Development Fund (WDF). One of the mandatory conditions for the selection of villages for watershed projects is people's contribution towards WDF. The Contribution to WDF shall be a minimum 10 % of the cost of NRM works executed on private land only. However, in case of SC/ST, small and marginal farmers, the minimum contribution shall be 5 % of cost of NRM works executed on their land. These contributions would be acceptable either in cash at the time of execution of works or voluntary labour. A sum equivalent to the monetary value of the voluntary labour would be transferred from the watershed project account to the WDF bank account that will be distinct from the Watershed Committee (WC) bank account. User charges, sales proceeds and other contributions, disposal amounts of intermediate usufruct rights shall also be deposited in the WDF bank account. Income earned from assets created under the project on common property resources shall also be credited to WDF. For other cost intensive farming system based livelihood activities/interventions such as Aquaculture, Horticulture, Agro-Forestry, Animal Husbandry etc. on private land directly benefiting the individual farmers, the contribution of farmers will be 20 percent for general category and 10 percent for SC/ST beneficiaries and the project funds will 96 meet the cost of farming system activity to a maximum limit of an amount equal to double of the unit cost of the project for watershed development (i.e. Rs 12,000/15,000 per ha, as the case may be). Farmers' contribution i.e. 20 percent for general category and 10 percent for SC/ST of this amount (i.e. a maximum of Rs 4800/6000 and Rs 2400/3000 as the case may be, respectively for general category and SC/ST beneficiaries) will go to WDF. The Secretary, Watershed Committee (WC) shall maintain a completely 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 ratified by the Gram Sabha. The WDF bank account should be operated by the President of the Gram Panchayath and any member from the SHG nominated by the Gram Sabha. Alternatively, the guidelines for the management and utilization of the WDF may be evolved by the concerned Nodal Ministry. After completion of Phase II, at least 50% of the WDF funds shall be reserved for maintenance of assets created on community land or for common use under the project. Works taken up on private land shall not be eligible for repairing/ maintenance out of this Fund. The remaining money may be used as a revolving fund to advance loans to the villagers of the project area who have contributed to the fund. Individuals as well as charitable institutions should be encouraged to contribute generously to this Fund.

4. Project Summary and conclusion

IWMP-II-2012/13 project is located in ParakadavblockPanchayath of Ernakulum district. The project comprises of eight micro-watersheds namelyKuthiyathod watershed (14P18a),Kunnukara watershed(14P19a) , Kurummasseri watershed (14P20a),Kaipillikunn watershed (14P21a) , Kapprasseri watershed (14P22a),Prakadav watershed (16C3a) , Mambra watershed (16C55a) ,Puthenkavuchal watershed (16C55a) . The project area covers the Grama Panchayats of puthenvelikara ,kunnukara,parakadav ,nedumbasseri ,chengamanad . There are 21419 households in the project area and the total population is 85676. The total project cost is Rs. 61942560 .Department of Local Self Government is the nodal department for the implementation of IWMP at the state level. 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 the planning and implementation of the projects at the district level. To help the DPC and to coordinate the project level activities, Watershed Cell Cum Data Centre (WCDC) is working at the district level. parakadav block Panchayath is the Programme Implementing Agency (PIA) of the IWMP-II-2012/13 project. A Block Level Co-ordination Committee (BLCC) has been formed for the timely implementation of the project and to provide help to the PIA in technical and administrative matters related to the project. Watershed Development Team (WDT) has been formed under the PIA. Rajiv Youth Foundation is the Technical Support Organisation (TSO). A cluster approach was followed in the preparation of DPR. The preparation of the DPR involved several rounds of discussions with elected representatives, officials and other stakeholders. A situational analysis was undertaken using secondary data and information collected from different sources. A baseline survey covering all the households in the project area was also conducted. A Logical Framework Analysis was done at the project level for identifying the important problems as well as for the purpose of assessing the present situation. Other 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 in the preparation of DPR. 1: 4000 scaled cadastral maps of each village formed the base map for planning. Field level verification of the identified interventions was undertaken by the DPR preparation team. The 8 micro watersheds in the project area face many common problems because of the similarities existing among the micro watershed.The major problems identified through PRA techniques which have led to the identification of the interventions to be undertaken under the IWMP project are acute drinking water shortage, dumping of waste in to streams, Paddy land conversion, Shortage of agricultural labours .etc

APPENDIX

Appendix – 1

Model detailed estimates of natural resource management activities (Generalworks)

1. Side Protection of Stream Using DR Masonry

Sl no	Particulars	NO	Length	Breadth	Height	Quantity	UNIT	Amount
1	Clearing light jungle including up rooting of vegetation and small trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m outside the periphery of the area enclosed							
		2	225	0.7		315	m2	
			315	**m2**	**@**	**377**	**/100m2**	**1187.55**
2	Earth work excavation in ordinary soil Iin or under water or liquid mud and depositing with initial lead up to 50m and lift up to 1.5m including neat banking							
	foundation of side protection	2	225	0.6	1.2	324	m3	
						324		
			324.00	**m3**	**@**	**1340.23**	**10m3**	**43423.45**
3	Dry stone masonry for Retaining wall							
	foundation	2	225	0.6	0.4	108	m3	
	Superstructure	2	225	0.5+0.3	1.2	216	m3	
				2				
						324	m3	
			324.00	**m3**	**@**	**1676**	**m3**	**543024.00**
5	CC 1:3:6 using 20mm (nominal size)hard granite broken stone including all form work watering curing etc complete							
	belt over DR masonry	2	225	0.3	0.075	10.125	m3	
						10.125	m3	
			11.00	**m3**	**@**	**57.97**	**10dm3**	**63767.00**
								651402.00
					VAT,WWF		6%	39084.12
	unforeseen charges							9513.88
								700000

2. Desilting of a stream and vetiver Planting

Sl no	Particulars	NO	L	B	H	QTY	Unit	Amount
1	Clearing light jungle including uprooting of vegetation and small trees of girth up to 30cm including rooting out and removal of rubbish up to a distance of 150m outside the periphery of the area enclosed							
		2	3000	0.7		4200	m2	
			4200	**m2**	**@**	**377**	**/100m2**	**15834.00**
2	Earth work excavation in ordinary soil Iin or under water or liquid mud and depositing with initial lead up to 50m and lift up to 1.5m including neat banking							
		1	3000	2	0.6	3600	m3	
						3600		
			3600.00	**m3**	**@**	**1340.23**	**10m3**	**482482.80**
3	supplying vetiver to plant as side protection			**2x3000**	**20000nos**	**@**	**2**	**40000.00**
				0.3				
								538316.80
					VAT,WWF		6%	32299.01
					Unforeseen Charges			29384.19
								600000

3. Rain Water Recharging Structures

Description	QTY	Unit	Rate	Unit	Amount
Earth work excavation in ordinary soil and depositing up[to 50m and lead up to 1.5m including neat banking (other than building), Supplying ,laying and jointing 160mm dia or nearest 4kg/cm2 pvc Gutter pipe including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 160mm dia or nearest PVC Stopper including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 160mm dia PVC Dropper including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 160mm dia or nearest PVC Center Stopper including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 160mm dia or nearest G I clamp 2' including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 110mm dia 4kg/cm2 pvc pipe including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 110mm dia 4kg/cm2 PVC holded pipe including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 110mm 4kg/cm2 pvc male adaptor including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 110mm pvc Treaded end cap including all specials solvent cement etc complete for external work, Supplying ,laying and jointing 110mm pvc T (supreme) including all specials solvent cement etc complete for external work Supplying ,laying and jointing 110mm pvc Elbow (supreme) including all specials solvent cement etc complete for external work Supplying ,laying and jointing 110mm pvc bent including all specials solvent cement etc complete for external work Supplying ,laying and jointing 110mm clamp (heavy) including all specials solvent cement etc complete for external work Supplying ,laying and jointing 110mm coupling including all specials solvent cement etc complete for external work, 1" cycle screw, 2.5" cycle screw, M zeal 100gm, Solvent star bond 500ml , plumbing charges, Filter tank made up of concrete 2'dia 2'ht with concrete cover slab filled with filter media 0.5"jelly,baby jelly and charcoal, filter media, transportation and painting, name board writing and super vision charges.	1	NO	23679	NO	23679
VAT,WWF				**6%**	**1421**
TOTAL					**25100**