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INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
IWMP II – ALATHUR D 1

Project Implementing Agency : Alathur Block Panchayath

Technical Support Organization : Deena Dayal Sevak Sangh

Part 1

1a. Introduction

Watershed can be defined as the area of land that drains to a particular point along a stream. Each stream has its own watershed. Topography is the key element affecting this area of land. The boundary of a watershed is defined by the first elevations surrounding the stream.

Watershed is that area in which all the precipitation converges and drains past a particular point, or in other words watershed is an area from which runoff, resulting frond product precipitation flows past a single point into a large stream, river, lake or ocean. A watershed may be only a few hectares as in the case of small ponds, or hundreds of sq.km as in case of rivers. Watershed has become an acceptable unit of planning for optimum use and conservation of soil and water resources.

A watershed is a hydrological unit which produces water, as an end product by the interaction of rainfall and watershed factor. In some watershed the aim may be to produce maximum quantity of water distribution throughout the year. In another watershed, the priority may be to reduce the peak rates as runoff for minimizing the floods.

Watershed development and management is an integration of technology within the natural boundary of a drainage area for optimum development of land, water and plant resources to meet the basic minimum needs of the people in a sustained manner.

1 b. Project Background

Watershed management is a single window, integrated area development programme. Integrated watershed management cannot perhaps be achieved just by following integration of resources using multidisciplinary approach with the funding or support provided alone under any watershed programme. This may also involve harmonized use of resources available from other ongoing or existing spectral and development schemes in the area or district. Such resources can be dovetailed with the watershed programmes that will not only help useful convergence of various schemes and programmes for overall development of the area but also in effective monitoring.

Watershed management is the study of relevant character of a watershed aimed at the sustainable distribution of its resources and the process of creating and implementing plans, programmes, and projects to sustain and enhance watershed functions that affect the plant, animal, and human community within watershed boundaries. Features of a watershed that agencies seek to manage include water supply, water quality, and drainage, storm water runoff water rights and the overall planning and utilization of watershed.

Watershed management implies the wise use of soil, water, and bio resources in a watershed to obtain optimum production with minimum disturbance to environment. The basic objective of watershed management is to solve the problems of soil and water based on the concept that all the resources are interdependent and must therefore be considered together. Among all the interventions envisaged in watershed management measures, water resource development and management gain primary importance.

A new concept of training and capacity building in integrated watershed management is most important both for field level project staff and officers. Apart from enhancing technical skill of project staff, this would also provide opportunities to

community members develop their capacity to sustain the programme as the future custodians of the programme at the time of withdrawal.

Programme will be sustainable only if it continues to operate after withdrawal of monetary or technical supports. In Integrated Watershed Management Programme the participation of local community is assured since the different works on private as well importance of "participation" for sustainability in watershed management programmes.

Collective participation of people is imperative due to inter dependence of beneficiaries. Transfer of responsibility within their community is a key requisite for ensuring the sustainability.

1 c. Need and Scope for Watershed Development

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 live stock centered 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 d. Main Objectives

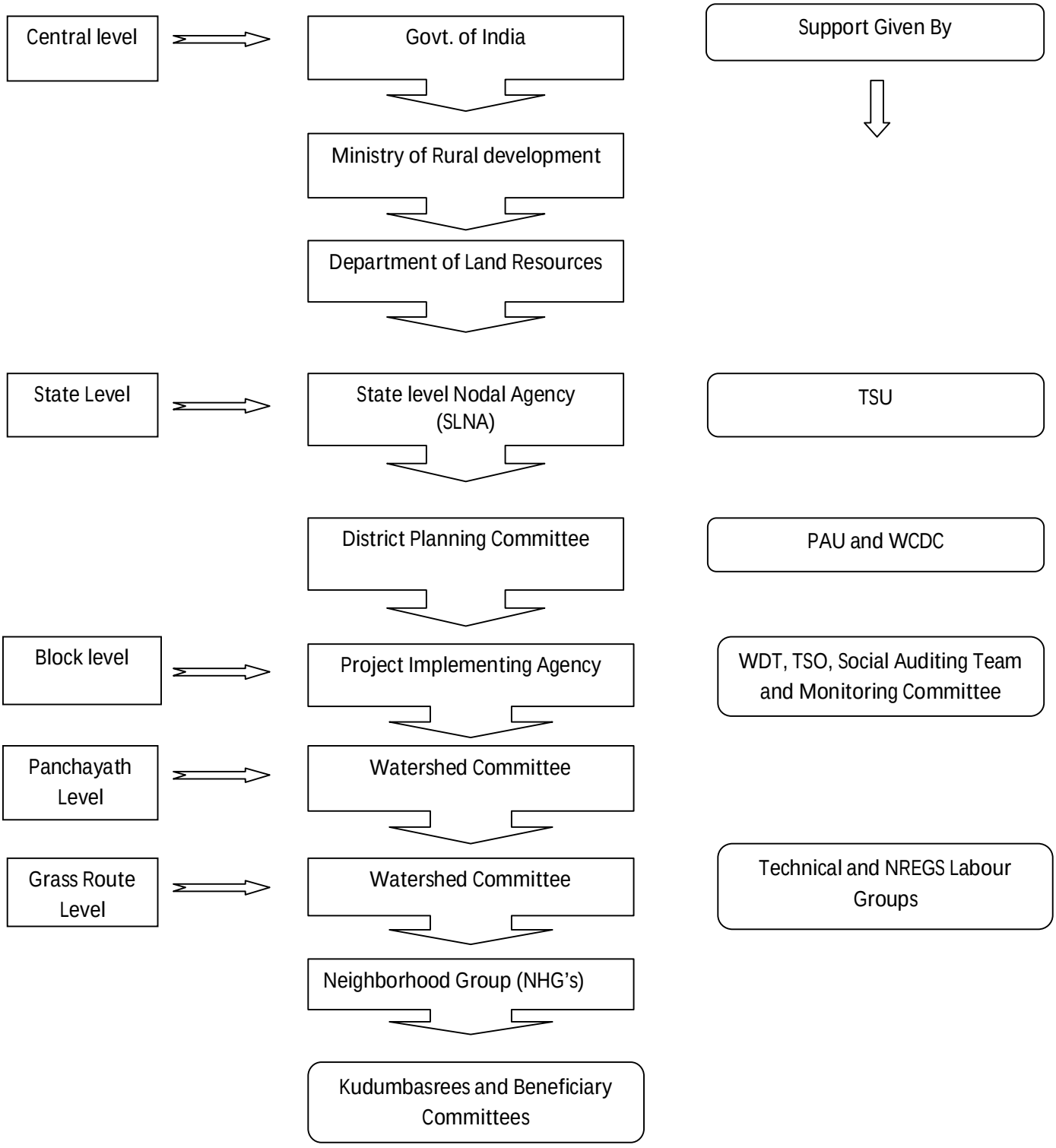
- Main objective of IWMP is to preserve and conserve the ecology, restore and develop degraded natural resources by arresting soil loss, improving soil health and soil moisture.
- Rain water harvesting and recharging of ground water table enables multi cropping and introduction of diverse agro based activities which help to provide sustainable livelihood to the people residing in watershed area.

- To promote livestock development, fishery management, and to encourage dairying and marketing of dairy products.
- Improving the capacity of community to manage common natural resource.

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

- 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 e. Organizational Setup



1 f. Funding Pattern

Sl. No.	Particulars	Percentage of Fund	Amount
01.	Administration Cost	10.00%	96,42,000.00
02.	Monitoring	1.00%	9,64,200.00
03.	Evaluation	1.00%	9,64,200.00
04.	Entry Point Activities	4.00%	38,56,000.00
05.	Institution & Capacity Building	5.00%	48,21,000.00
06.	DPR	1.00%	9,64,200.00
07.	Watershed Development Works	56.00%	5,39,95,200.00
08.	Livelihood Activities	9.00%	86,77,800.00
09.	Production System & Micro Enterprises	10.00%	96,42,000.00
10.	Consolidation Phase	3.00%	28,92,600.00
Total		**100.00%**	**9,64,20,000.00**

1 g. Funding Flow

State Level

⇩

District level

⇩

PIA

⇩

Panchayath

⇩

Watershed Committee

⇩

NHG's, SHG, UG and Skilled labour Group

Part 2:

2 a. General Description of the project Area

Alathur is a small town in Palakkad district of Kerala, South India. It is the head quarters of Alathur Taluk. It is situated at a distance of 24 km from the district head quarters, at the south west end of the district, on the way to Thrissur. Alathur taluk is predominantly rural with an agriculture-based economy. Some Details about the project area are;

Occupation : The main occupation is agriculture. The main crop is paddy in the plains and rubber in the hilly areas. There are other crops like ginger, banana and vegetables like pumpkin, bitter gourd and egg plant. There is no industry worth mentioning in Alathur Taluk. Alathur town was once well known for its *beedi* (Cigarette made of leaf) making units. This was a *cottage industry*, with people making the product from their homes and delivering it to the manufacturing company for packing and labelling. But due to the general campaign against smoking, beedi production has come down drastically. Another cottage industry is the agarbatti (Incense) units found in the area. Recently some factories like steel manufacturing plants have come up near Manjalur in Erimayur Panchayat. There used to be a large number of rice mills engaged in parboiling and dehusking of paddy, but with the paddy cultivation becoming unattractive, many of them have been closed down**.**

Educational institutions **:** There are a number of schools up to the higher secondary level within Alathur Taluk. There are two colleges for Arts & Science and one Engineering College

Transportation **:** The National Highway No. 47 passes through the entire length of Alathur Taluk. Hence the place is well connected to all parts of Kerala, inclulding the state capital. A number of private and government buses ply on this road between Thrissur and Palakkad. Alathur does not find a place in the railway map. This is due to

the presence of the mountainous terrain at Kuthiran, on the way to Trissur. But a recent government decision to revive the plan to construct the Kollengode-Trissur railway line may come as a blessing to Alathur.

Forest :The forest area near Choolanur called Mayiladumpara has a considerable population of peafowl's. The Forest Department has declared the area as a sanctuary. There is an irrigation dam at Mangalam Dam, which is the main source of water for the crops in areas like Vandazhi, Kizhakkencheri, Mudappallur and Vadakkenchery.

In Gereral : For the good of farmers many activities has implemented by the government for increasing the production and productivity. Integrated Watershed Management Programme is one of the projects put forward by the Central Government which is done through integrating the different projects which comes under various departments for the betterment of people so that people will get the benefit equally. IWMP is implemented through Panchayat raj and people participation. For the successful functioning of this programme there is a special administrative system and technical support organization.

2 b. Watersheds and Code

Sl No	Name of Watershed	Code	Total Area	Treatable area
1	Puliakalathodu Watershed	16C22c	365 ha	266 ha
2	Thippilikkayam Watershed	20B39ax	2485 ha	2269 ha
3	Vattapparathodu Watershed	20B39ay	1086 ha	928 ha

4	Padangattathodu Watershed	20B39az	432 ha	381 ha
5	Mangalamdam Watershed	20B39aw	775 ha	764 ha
6	Odamthodu Watershed	20B39ba	614 ha	481 ha
7	Ayyappanmudi Watershed	20B39bb	1424 ha	1339 ha

2 d. Project Details

Location

Longitude	:	76° 29'21.19" to 76° 36'34.86"E
Latitude	:	10° 26'09.85" to 10° 32'39.64"N
Name of State	:	Kerala
Name of District	:	Palakkad
Name of Block	:	Alathur
Name of Project	:	IWMP II, Alathur D I

Details of IWMP II Alathur D I

Blocks	:	Alathur and Nenmara
Panchayaths	:	Kizhakkenchery

Villages	:	Vandazhy Kizhakkenchery II Mangalam Dam
Financial year of sanction	:	2009-2010
Project duration	:	5 Years
Total Area	:	7181 Ha
Treatable Area	:	6428 Ha
Project cost	:	Rs – 9,64,20,000.00
Entry Point Activities	:	Rs – 38,56,800.00
No. of. NHG's	:	45

2 e. Climate

The district is mainly drained by two rivers, viz Bharathapuzha and Bhavani Rivers. Of these Bhavani is east flowing and form a tributary of Cauvery River. Bharathapuzha River can be divided into 50 watersheds and 290 mini watersheds. Soil erosion is more in the upstream parts of the basin. Dendrite is the common drainage pattern.

The district has a humid climate with a very hot season extending from March to June in the Western Part of district whereas it is less humid in the Eastern sector. The district receives maximum rainfall during the South West monsoon followed by the North East monsoon.

The other months receive considerably less rainfall. The temperature is pleasant from December to February. The annual rainfall varies from 1757.6 to 2849.5 mm based on long term normal. The district receives on an average of 2348 mm of rainfall annually. Major rainfall is received during June to September in the South West monsoon (71%). The North West monsoon contributes about 18%. The Western part of

the district around Mannarghat receives the maximum rainfall (2849 mm) whereas in the rain shadow area of Chittur in the Eastern part receives the minimum rainfall (1758 mm).

At Palakkad the maximum temperature ranges from 28.1 to 39.5 whereas the minimum temperature ranges from 22.2 to 25.30. The average annual maximum temperature is 32.30 and the average annual minimum temperature is 23.40. The wind is predominantly from West and East during morning as well as in the evening hours. The wind speed is high is during August (13.6 kmph). The humidity is higher the monsoon period ie, from June to September. It is around 90% during this period. All through the year, the humidity is high during the morning.

MONTHLY AVERAGE OF MAXIMUM TEMPERATURE

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

MONTHLY AVERAGE OF MINIMUM TEMPERATURE (^{0}C)

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

MONTHLY TOTAL RAINFALL (In mm)

YEAR / MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
2000	0	9.5	0.0	56.4	47.7	602.6	327.9	518.2	143.8	194.9	70.1	42.0
2001	0.0	51.6	0.0	155.3	142.0	791.2	497.8	225.8	162.5	239.8	143.9	0.0
2002	0.0	0.0	2.7	57.9	222.9	472.0	376.4	420.9	51.1	421.3	70.8	0.0
2003	0.0	90.6	62.6	182.4	19.8	503.6	403.6	232.4	81.0	354.6	44.8	19.2
2004	0.0	0.0	4.1	105.0	463.3	729.7	347.1	486.7	122.2	305.2	42.8	0.0
2005	21.0	45.0	0.0	238.3	101.4	567.6	736.6	271.8	453.7	121.1	126.2	112.9
2006	0.0	0.0	36.1	16.7	396.6	688.4	470.4	426.7	500.6	352.9	133.9	0.0
2007	0.0	0.0	0.0	53.9	184.8	728.4	1307.5	483.0	629.0	297.4	34.4	6.0
2008	0.0	46.9	117.5	13.6	73.2	535.1	322.7	175.1	302.0	345.7	7.6	0.0
2009	0.0	0.0	141.9	52.5	158.6	378.9	1076.2	295.5	294.8	160.0	262.8	28.8
2010	0.0	0.0	0.0	114.5	130.5	681.2	572.5	273.4	174.1	430.9	245.1	10.5
Average	1.9	22.1	33.2	95.1	176.4	607.2	585.3	346.3	265.0	293.1	107.5	19.9

2 f. Geology

The Achaean crystalline are the major rock type's en- countered in the district. Charnockites, hornblende gneiss, migmatites and gneisses occupy a major part of the district. Schistose rocks associated with hornblende biotite gneiss are mainly seen in the Chittoor and Attapady area, in the northeastern parts of the district.

Hard rock's of the Achaean crystalline complex exist in the Palakkad district with a wide range of rock types of different metamorphic grades. The rock types met within the district can be broadly classified into three groups viz., (i) The granulate group of rocks consisting of charnockites, basic granulites and the khondalites comprising garnet-sillimanite gneiss, calc granulites, crystalline limestone, sillimanite quartzite and associated migmatite gneiss, (ii) The leuco-to mescoratic gneissic group of rocks consisting of schistose, micaceous and amphibolites rocks intruded by basic and ultramafic dykes and, (iii) the coarse pink pegmatite rich granitic rocks. A tentative geological succession of the rock types is given below:

Recent : Top soil, valley fill and riverside alluvium

Sub-recent : Latterite

Archaean : Pegmatite's, quartz vein, dolerite, gabbros, granites, Quartz-mica schist, hornblende biotitic gneiss, ultramafics, charnockite khondalites and calc- granulites

2 g. Socio-Economical Details

Age wise Classification

Sl. No	Particulars	0-5	15-May	15-40	40-60	60 Above	Total
1	Male	282	759	1993	1278	419	4731
2	Female	281	695	2003	1208	398	4585
	Total	563	1454	3996	2486	817	9316

Education Wise Classification

Sl No.	Educational Details	Male	Female	Total
1	UP	1428	1383	2811
2	High School	1480	1333	2813
3	Higher Secondary	951	1055	2006
4	Degree	253	294	547
5	Post Graduate	123	119	242
6	Technical	148	50	198
7	Nil	348	351	699
	Total	**4731**	**4585**	**9316**

Employment Analysis

Sl No.	Employment	Male	Female	Total
1	Agriculture	1441	1380	2821
2	Business	191	48	239
3	Coolie	1067	1019	2086
4	Government	108	105	213
5	Gramine Job	151	37	188
6	MGNREGS	135	308	443
7	Pension	76	36	112
8	Student	1002	1077	2079
9	Technical	146	162	308
10	Nil	414	413	827
	Total	4731	4585	9316

Income Analysis

Sl No.	Income	No. of Families
1	0-5000	338
2	5001-10000	581
3	10001-25000	1100
4	25001-50000	536
5	50001-100000	161
6	Above 100001	60
	Total	2776

Social Conditions

Sl No	Items	Yes	No	Total
1	Toilet	1720	1056	2776
2	Cattle shed	361	2415	2776
3	Electricity	1852	924	2776

House wise Classification

Sl No	House Type	No. of Families
1	Better Home	788
2	Partially Better	1683
3	Not Better	219
4	Temporary Shelter	86
	Total	2776

2 h. Demography and Land Distribution

According to the 2011 census Palakkad district has a population of 2,810,892, roughly equal to the nation of Jamaica or the US state of Utah. This gives it a ranking of 138th in India (out of a total of 640). The district has a population density of 627 inhabitants per square kilometre (1,620 /sq mi). Its population growth rate over the decade 2001-2011 was 7.39 %. Palakkad has a sex ratio of 1067 females for every 1000 males, and a literacy rate of 88.49 %.

2 i. Details of Land use and major Crops

Sl no	Watershed	Agriculture plantation (rubber)	Agriculture plantation (coconut)	Agriculture plantation (mixed)	Double crop-paddy	Built-up area	River/ water bodies
1	16C22c	178		89			
2	20B39ax	1808	1	533			122
3	20B39ay	988		81			17
4	20B39az	432					
5	20B39aw	356	9		25		61
6	20B39ba	553	11				49
7	20B39bb	980			108	3	20

2 j. Live stock details

Sl No		Feature	Quantity
1		**Milk animals**	
	a	Cow	324
	b	Buffalo	24
	c	Goat	1247
2		**Others**	
	a	Poultry	2897
	b	Duckery	54
	c	Piggery	34

2 k. Methodologies adopted for setting up of the activities

Following methodologies were adopted for find out the feasible community based activities. They are:

1) Participatory Rural Appraisal (PRA)
2) Household survey
3) Primary &Secondary Data collection
4) NHG formation
5) Group gathering and Meetings
6) Trainings/ Awareness creation
7) Field Visit

PRA Programmes were the significant and enthusiastic exercise to enhance the village level planning of IWMP. These exercises were conducted in all watersheds for the internal support to extending and carry out of the progressive characteristics of IWMP Programmes. Its initiation has been helped

to internalize the features like people centered Project through the Participatory approach. It has also envisaged the present needs and future thrusts of society. Other noteworthy tips are the Watershed community has realized their strength and capacity to take up such projects without external supports. The following tools were applied in the process of DPR Preparation.

- Social and Resource Mapping
- Transact Walk
- Ranking and Prioritizing of Public works
- Socio Economic Dimension Ranking (Sample)
- Problem Tree Analysis
- Resource Inflow and Out Flow
- Pair wise and Matrix
- Livelihood Planning

Significance of the Participatory Rural Appraisal (PRA)

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. First hand and secondary data collection will help us the strategy formulation.

Following steps were followed for the preparation of the plan:

- Delineation of watershed map from the topo sheet
- Collection of cadastral map from revenue department
- Formation of study team and training
- Watershed based PRA
- Identification of public works and field level measurement
- Secondary data collection from agriculture and other department
- Consolidation of the data collected from the field
- Preparation of the DPR and PRA reports
- Submission of the DPR to SLNA

Sustainability assurance strategies

The term sustainability describes the ability of a project to maintain and acceptable level of benefit flows through its life. A programme is sustainable of that continue to operate after withdrawal of monitoring or technical support of the project Transfer of responsibility of running with in their communities is key requisite for ensuring the sustainability

Steps of people's participation in watershed development programme

- Take grass root level approach in planning and mobilizing, peoples contribution for the project
- Discus plans and options with the leaders have influence in the communities

- Discus plans and options with the leaders have influence in the communities
- Appeal to people individual or collective interest
- Organize the stake holders in to a water users association ensure active involvement by making beneficiary contribute their time and money
- Involve all stake holders in the planning, implementation, monitoring and evaluation

Benefits of participatory approach

- Access to indigenous expertise or local knowledge
- Tacking in to conservation needs of different groups and individual in the project proposal
- Awareness of financial or other limitation to prepare a plan suitable to all
- Identification sensitive issues and ways to avoid the harmful effects
- Overcoming conflicts to reach a consciousness on project components

Specific success criteria

- Reduce the rate of Erosion to the barest minimum, less than 1 ton of soil per hector per year.
- Drought control
- Area brought under cultivation
- Availability of pure drinking water throughout the year or the scarcity period is reduced to the minimum.
- Restoration .of the natural resources
- Equal status for women
- Decrease the unemployment problem.

- Brought the watershed community in the mainstream of the society.
- Improved vegetative cover.
- Favorable and positive attitude towards organic farming
- Food security
- Clean water bodies

Following are the areas, which have developed to measure the impacts

- Reduction of soil erosion
- Improvement in vegetation cover
- Improvement in crop yield
- Increase in water table
- Improved soil health
- More income from the farm
- Improvements in the life standard of the watershed community
- Leadership and communication skills
- Initiated development movements by the community
- Functioning of the livelihood support systems
- People who are practicing the organic farming
- Improvement in the health and milk yield of livestock

2 I. Activities Proposed

Components or Treatments in the watershed

The following are some of the ways and means by which the watershed should be treated in order to achieve the objectives of watershed development. The treatment may be different for different soil conditions, topography, rainfall pattern etc. Based on the above factors, watershed development plan can be prepared and implemented with the operation or involvement of the people or farmers in the watershed.

- Entry Point Activities

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

- Rain water harvesting

Rain water harvesting means collecting rain, storing and preserving it for the dry season. It can be practiced at any place where rainfall occurs and it has a particular advantage in hilly areas.

- Contour bunds

As its name indicates, the bund follows the contour, at close spacing and by provision of small earth ties. Its construction can be mechanized and the technique is suitable for implementing on a large scale. Whether mechanized or not it is more economical. The second advantage of contour bund is their suitability to the cultivation of crops or fodder between the bunds.

- Mulching

Mulching is the practice of providing soil cover by spreading stubble, trash or organic materials. The use of organic mulches has the advantage of minimizing the impact of raindrops and controlling splash, reducing evaporation, controlling weeds, reducing soil temperature during day time, encouraging microbial growth and adding nutrients to the soil.

- Vegetative fencing and hedges.

Live hedges and contour strips of grasses or shrubs can be raised alone or in combination with mechanical measures to control soil erosion.

- Fodder grass

Grasses control water erosion through a three tier action of canopy, runners and roots. By adopting grass land management measures such as controlled or rotational grazing, fencing, land preparation for moisture conservation, weed control, etc the soil and water conservation can be ensured in grass lands.

- Agro forestry

Agro forestry is the production of crops and forest plants or animals or both simultaneously on the same unit of land. It is a suitable land management system conserving soil, water biomass, and meeting the multiple needs for food, fuel, fodder, fiber etc. different agro forestry practices can be adopted depending upon local compatibility and needs.

- Horticulture

The growing of perennial horticulture crops, including plantation crops, will give a permanent protective cover for the soil. In high rainfall areas of the humid tropics this higher level tree cover for the soil helps in reducing the erosive action of highly intensive rainfall.

- Centripetal bunds

This is the practice of taking circular bunds around the bottom of tree like coconut. The bunds are made in such a way that the center portion of the bund is

lowered and the outer portion is raised. Those bunds capture water from the tree and retained for a very long period and completely percolate to the soil very slowly.

- Earthen Contour Bunds

Contour bunds are simple and low cost method of checking of velocity of runoff in the ridge area of any watershed. A contour bund is constructed along a contour line. These bunds slow down the velocity of runoff, check soil erosion and improve local soil moisture profile. Hence contour bunds become appropriate measure for controlling run off and soil erosion in the ridge.

- Check Dams

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

- Percolation ponds

Percolation pond, like an irrigation tank, is a structure to impound rainwater flowing through a watershed, and a waste weir to dispose of the surplus flow in excess of the storage capacity of lake created.

Livelihood components

IWMP project is aimed to bring all the stake holders in to the mainstream of the society to ensure the sustainability of the assets created. This is a people lead and people owned project. This means to ensure the participation from its planning itself. We have developed a strategic multi window plan to monitoring the sustainability of the livelihood initiatives. Mobilization of maintenance grant, livelihood enhancement and capacity building process for both WDT and PIA are the enlightened characteristics of the Project. Formation and strengthening of the village watershed committee, SHGs, farmers clubs are the major mechanisms of the projects to mobilize the community.

Participation of the community will be ensured in the beginning itself also. The watershed committee has a vital important role in the project implementation and they will act as local level project management unit.

The livelihood activities the watershed program will be implemented as a loan component cum Revolving Fund. The support provided by PIA to the Watershed Committee as a Revolving Fund Assistance (RFA). This fund will be credited in a separate bank account jointly operated by WC and WDT representatives. It will be made mandatory for the participants in the Livelihood Program to become member in SHG/NHG and set aside part of their earnings

pooled into a group credit fund. Through the group approach the pressure will increase on project preparation, grounding the activity, timely repayment, mutual support and organised marketing. Apart from that through the sale of milk, cow dung, calf, egg, meat etc. will provide occasional higher amounts to enhance dimensions of the savings in the individual account and correspondingly the group credit fund. The fund so created and maintained will become handy while the farmer plans to replace or increase the stock apart from meeting financial urgencies that might crop up. In the individual cases, the dairy units, poultry units and the related fodder grass cultivation will be on their own property for which the families have title deeds. Here, it needs special mention that average land holding of the participant families is half an acre for Cow and 10 cents for Back Yard poultry.

The following are the criteria for selection of the beneficiaries:

- Membership in either Self Help Group –SHG or NHG
- Individual, family and group grantee for repaying the loan amount
- Required minimum deposit amount (according to the program norms)
- Minimum infrastructure facilities for running livelihood venture

- Adequate skill for maintaining the livelihood venture

Process of Implementation:

- Identification of Beneficiaries by the WC with the support of WDT
- Formation of Beneficiary Groups (NHGs)
- General Awareness Creation on Livelihood measures
- Preparation of Project Proposal jointly by individual, group and WC
- Collecting the documents from individual, family and group
- Releasing of fund to group as Revolving Fund
- Arranging the infrastructures for livelihood venture by individual / group
- Grounding the activity including insurance coverage
- Repayment
- Process monitoring and documentation

Repayment schedule:

The WC and WDT will finalize the interest rate as per the timely guidance from IWMP. The rate of interest will be finalized on the coming watershed Gramasabha in consideration with IWMP guidelines. Repayment schedule is depended on the total capital investment and the nature of the project. It is proposed to prepare the repayment schedule as per the duration of the project. Maximum repayment period for a group is 3 years and minimum is 1 year. Maximum loan limit up to 2 lakhs and the amount will be increased later.

Implementation Mode:

Selected beneficiary will deposit advance amount as their deposit to Watershed Committee along with the necessary documents including the minutes of concerned SHG/NHG. After verifying the applications WC will release the necessary amount for each beneficiary through the group. It is proposed to provide 90 % of the total cost will be given to the group. 10% will consider as the farmers' contribution. Once the money

received, the group will take necessary steps to grounding the activity according to the project proposal and repay the loan amount in time including interest to the WC. The initial deposit will reimburse the beneficiary through the group, once the loan closed.

Livelihood activities Proposed and it's Feasibility:

1. Goat rearing

Goat is the first domestic animal in the world and it is known as the poor man's cow. In India, it is a very important component in dry land farming system. Marginal or undulating lands unsuitable for other types of animals like cow or buffalo, goat is the best alternative. With very low investments goat rearing can be made in to a profitable venture for small and marginal farmers. Goats are reared for milk and meat. Goat is a multi functional animal and plays a significant role in the economy and nutrition of landless, small and marginal farmers in the country. Goat rearing is an enterprise, which has been practiced by a large section of population in rural areas. Goats can efficiently survive on available shrubs and trees in adverse harsh environment in low fertility lands where no other crop can be grown.

Advantages of rearing goat:

- Kerala has a very good market in the field.
- The initial investment needed for Goat farming is low
- Due to small body size and docile nature, housing requirements and managing problems with goats are less
- Goats are prolific breeders and achieve sexual maturity at the age of 10-12 months gestation period in goats is short and at the age of 16-17 months it starts giving milk. Twinning is very common and triplets and quadruplets are rare
- In drought prone areas risk of goat farming is very much less as compared to other livestock species

- Goats are ideal for mixed species grazing. The animal can thrive well on wide variety of thorny bushes, weeds, crop residues, and agricultural by-products unsuitable for human consumption
- The goat meat is more lean (low cholesterol) and relatively good for people who prefer low energy diet especially in summer and sometimes goat meat (chevon) is preferred over mutton because of its "chew ability".
- Goat milk is easy to digest than cow milk because of small fat globules and is naturally homogenized. Goat milk is said to play a role in improving appetite and digestive efficiency. Goat milk is non allergic as compared to cow milk
  - and it has anti-fungal and anti bacterial properties and can be used for treating urogenital diseases of fungal origin.
  - Goats are 2.5 times more economical than sheep on free range grazing under semi arid conditions.
  - Goat creates employment to the rural poor besides effectively utilizing unpaid family labor. There is ample scope for establishing cottage industries based on goat meat and milk products and value addition to skin and fibre.
  - The people of the watershed area are very much interested to rear the goat because most of the people have past experience or somebody is already doing this project. It is proposed to promote the unit for the women and tribal community of the area.

2. Milch Cow and Calf rearing

- The watershed communities of the area are familiar with animal husbandry practices especially cow rearing. People are getting reasonable price for the milk and milk related products. Marketing system is very much organized through the cooperative societies. Promotion of calf rearing is a support to the farmers to find out additional income for their livelihood. Apart from this we will provide first priority for the people who have the cattle shed.

3. Poultry

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

4.Tailoring unit

Nowadays people are fond of wearing the variety of cloths with newly fashioned and designed. There is ample scope for setting up such a unit in the area. Eager to pensioning new foam dressing provides the scope for the emerging entrepreneurs. Increasing demands of passionate dressing helps getting more income. So the proposed unit will be a successful venture among the livelihood activities.

5. Vegetable cultivation

The agriculture sector of the watersheds is mainly based on traditional crops and giving much more importance to the cultivation of the cash crops especially Mango, Coconut, Areca nut and banana are the major cash crops. Moreover the vegetable cultivation is being an extensive area of their income status. So it has wide potentials for the dependence of their income generating needs as well as the food security. Promotion of vegetables in each household are proposed to initiate in the watershed. Select the vegetables like climber, Shrubs, trees and small variety plants. Apart from this banana, tapioca and yam cultivation can also be initiated. Cool season, summer and rainy season vegetable will be promoted as a group venture.

6. Bee Keeping

In Kerala Bee-keeping is done by farmers as a source of additional income. Rubber planters place beehives in rubber plantations and gain a good return from it without any risk. To promote bee keepers and to bring pure trustable honey in the market, Kerala Kerala Khadi and Villages Industries Board introduced a honey with

brand name 'Naruten' in the market. Ayurveda Industry is the major consumer of pure honey.

Results expected

- Women in the community will be empowered with occupational and financial stake to support the otherwise sinking families with prospects of fast recovery and forward movement.
- Scientifically managed domestic dairy units and backyard poultry unit will be established in the watershed area with an assured daily income of Rs.100 at the minimum.
- A revived and popular dairy, poultry farming culture will have been placed in the rural agro-climate aiding and abetting organic agriculture, bio diversity and the rural life in its entirety.
- The dairy farming sector as second line of village economy will be gaining sustainability and progress through local availability of quality stock of animals through scientific calf upbringing.
- Nutritional life and level of food security of the community will be enhanced with sufficient availability of milk, meat and egg.
- Thrift and Credit attributes and revolving fund concepts inbuilt in the program will be acting as safeguards against future financial disasters in the community.

Sustainability enhancement activities

The proposed activities assures economic viability from the angles of steadily increasing market prices in its products and network channels where price is offered on the spot, the favorable environmental aspects that offer healthy climate and natural feeding for animals etc. Also, savings and credit system is integrated in the program, which will take care of the replacement of the stock matched with bank finance, as may be required. The Revolving Fund concepts, group approach system, formation of NHGs/SHGs, monitoring by WC etc., acting as supportive

components, will not only enhance the chances of success of the program but also play major roles in the continuity / sustainability of the project

Monitoring parameters

WC and WDT will support the monitoring committee for the smooth functioning of the program. WC, Monitoring Committee Members and WDT will regularly monitor the project applying parameters given below.

- Level of awareness and accusation of skills
- Level of participation and sense of ownership
- Income Generation Activities and its maintenance
- Increase in income level
- Increase in employment
- Increase in Production and productivity
- Increase in availability of food and degree of food security
- Repayment of Revolving Fund
- Gender integration in the Livelihood Program
- Linkages with Govt. schemes

Training and capacity building programme

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

Watershed committee has a vital role in this project. The project aims, to bring the community in the main stream of the society. Apart from this, systematic and scientific soil and water conservation mechanism has to be initiated through the people. This project will bring a systematic and scientific approach in each and every intervention.

2 I. Details of Project - Watershed Basis

SL NO	Name of Watershed	Total area	Treatable area	Project cost	No of NHGs	Panchayat	Block Panchayat
1	AYYAPPANMUDY	1424 ha	1339 ha	20085000	14	Kizhakkanchery	Alathoor
2	VATTAPPARATHODU	1086 ha	928 ha	13920000	1	Kizhakkanchery	Alathoor
3	ODAMTHODU	614 ha	481 ha	7215000	3	Kizhakkanchery	Alathoor
4	PADANGATTATHODU	432 ha	381 ha	5715000	1	Kizhakkanchery	Alathoor
5	PULIKKALATHODU	365 ha	266 ha	3990000	0	Kizhakkanchery	Alathoor
6	MANGALAM DAM	775 ha	764 ha	11460000	15	Vandazhy, Kizhakkanchery	Nenmmara
7	THIPPILIKKAYAM	2485 ha	2269 ha	34035000	11	Vandazhy, Kizhakkanchery	Nenmmara

2 m. Fund Distribution – Year wise

Total Treatable Area in Hector - **6428**

Hector Rate - **15000.00**

Total Amount - **96420000.00**

Sl. No.	Item	Percentage of fund	First year 2011-12		Second year 2012-13		Third Year 2013-14		Total
			Percentage	Amount	Percentage	Amount	Percentage	Amount	
1	Administration Cost	**10%**	40.00	3856800.00	40.00	3856800.00	20.00	1928400.00	9642000.00
2	Monitoring	**1%**	25.00	241050.00	25.00	241050.00	50.00	482100.00	964200.00
3	Evaluation	**1%**	25.00	241050.00	25.00	241050.00	50.00	482100.00	964200.00
4	Entry Point Activities	**4%**	100.00	3856800.00	0.00	0.00	0.00	0.00	3856800.00
5	Institution & Capacity Building	**5%**	80.00	3856800.00	10.00	482100.00	10.00	482100.00	4821000.00
6	DPR	**1%**	100.00	964200.00	0.00	0.00	0.00	0.00	964200.00
7	Watershed Development Works	**56%**	30.00	16198560.00	60.00	32397120.00	10.00	5399520.00	53995200.00
8	Livelihood Activities	**9%**	70.00	6074460.00	30.00	2603340.00	0.00	0.00	8677800.00
9	Production System & Micro Enterprises	**10%**	50.00	4821000.00	40.00	3856800.00	10.00	964200.00	9642000.00
10	Consolidation Phase	**3%**	0.00	0.00	0.00	0.00	100.00	2892600.00	2892600.00
Total		**100%**		**40,110,720.00**		**43,678,260.00**		**12,631,020.00**	**96,420,000.00**

2 n. Fund Divisions – Watershed Basis

Watershed Name	Percentage	Ayyappan mudi	Odam thodu	Padangattu thodu	Tippili kkayam	Vatta para	Mangal dam	Puliyikkara thodu	Total
Hector Rate		15000	15000	15000	15000	15000	15000	15000	
Hector in Each Watershed		1339	481	381	2269	928	764	266	**6428**
Total Amount		**20085000**	**7215000**	**5715000**	**34035000**	**13920000**	**11460000**	**3990000**	**96420000**
Administration Cost	**10%**	2008500	721500	571500	3403500	1392000	1146000	399000	**9642000**
Monitoring	**1%**	200850	72150	57150	340350	139200	114600	39900	**964200**
Evaluation	**1%**	200850	72150	57150	340350	139200	114600	39900	**964200**
Entry Point Activities	**4%**	803400	288600	228600	1361400	556800	458400	159600	**3856800**
Institution & Capacity Building	**5%**	1004250	360750	285750	1701750	696000	573000	199500	**4821000**
DPR	**1%**	200850	72150	57150	340350	139200	114600	39900	**964200**
Watershed Development Works	**56%**	11247600	4040400	3200400	19059600	7795200	6417600	2234400	**53995200**
Livelihood Activities	**9%**	1807650	649350	514350	3063150	1252800	1031400	359100	**8677800**
Production System & Micro Enterprises	**10%**	2008500	721500	571500	3403500	1392000	1146000	399000	**9642000**
Consolidation Phase	**3%**	602550	216450	171450	1021050	417600	343800	119700	**2892600**
Total		**20085000**	**7215000**	**5715000**	**34035000**	**13920000**	**11460000**	**3990000**	**96420000**

Thippilikkayam Watershed

Introduction

This is one of the top watershed regions. Thippilikayam situates as the border of Kizakkenchery and Vandazy panchayat. The important feature of this is the existence of scheduled tribes who are known as "kadar". The main attraction in this place is a waterfall called "Allingal waterfall". The main streams are "Kunjiyarpathi", Pothenthodu" and "Thaligakallu".

Height	-	683 ft
Total area	-	2465 ha
Treatable area	-	2269 ha
Project Cost	-	Rs - 3, 40, 35,000/-

Border

- North – Kadappara
- South – Thaligakallu
- East – Pothenthodu
- West – Kunjiyarpathi

Latitude: 76° 32'33.82" to 76° 36'34.86"E

Longitude: 10°26'35.83"to10°30'56.67"N

Landscape

This is a place where there are hills, slopes, mountains, rocks, etc. the people here mainly depends on agriculture sector and the crops cultivated here are pepper, coffee, Cardamom , rubber, banana, coconut, areca nut etc. the main crop is rubber. There are a lot of forest area most of which are under government. The main feature is the existence of medicinal plants

Water resource

People get the water for their daily use from the "kayam". And also there are streams, sub streams etc for irrigation purpose. "Onampuza" which starts from Cherupara and "Randampuza" which starts from Thippilikayam joins at

Mangalamdam which also functions as water resource. There are different types of natural water resources still wells; bore wells etc are used for irrigation purpose.

Socio- Economic details

Age wise Classification

Sl. No	Particulars	0-5	5-15	15-40	40-60	60 Above	Total
1	Male	56	186	468	317	111	1138
2	Female	56	145	467	313	99	1080
Total		112	331	935	630	210	2218

Education Wise Classification

Sl No.	**Educational Level**	**Male**	**Female**	**Total**
1	UP	343	270	613
2	High School	434	398	832
3	Higher Secondary	216	246	462
4	Degree	34	42	76
5	Post Graduate	23	33	56
6	Technical	13	9	22
7	Nil	75	82	157
	Total	**1138**	**1080**	**2218**

Employment Analysis

Sl No.	**Employment**	**Male**	**Female**	**Total**
1	Agriculture	324	324	648
2	Business	32	7	39
3	Coolie	233	286	519

4	Government	43	39	82
5	Garmin Job	43	21	64
6	MGNREGS	38	67	105
7	Pension	23	12	35
8	Student	234	167	401
9	Technical	56	63	119
10	Nil	112	94	206
	Total	**1138**	**1080**	**2218**

Income Analysis

Sl No.	**Income**	**No. of Families**
1	0-5000	89
2	5001-10000	164
3	10001-25000	333
4	25001-50000	114
5	50001-100000	23
6	Above 100001	5
	Total	**728**

Social Conditions

Sl No.	**Particulars**	**Yes**	**No**	**Total**
1	Toilet	394	334	728
2	Cattle shed	153	575	728
3	Electricity	439	289	728

House wise Classification

Sl No.	House Type	No. of Families
1	Better Home	173
2	Partially Better	487
3	Not Better	45
4	Temporary Shelter	23
	Total	**728**

Infrastructure Facilities

Sl. No.	Infrastructure Type	No.
	Educational Instiutions	
1	Govt LPS Kadappara	1
2	(Thaligakallu)Anganwadi	1
3	(Ponkandam)Anganwadi	1
4	(Kadappara)Anganwadi	1
	Service Institutions	
5	Post Office	1
6	Primary health centre	1
7	Ration shop	1
	Societies	
8	SNDP	1
9	Transportation Facility	Yes

Landscape

This is a place where there are hills, slopes, mountains, rocks, etc. the people here mainly depends on agriculture sector and the crops cultivated here are pepper, coffee, cardum, rubber, banana, coconut, areca nut etc. the main crop is rubber. There are a lot of forest area most of which are under government. The main feature is the existence of medicinal plants.

Water resource

People get the water for their daily use from the "kayam". And also there are streams, sub streams etc for irrigation purpose. "Onampuzha" which starts from Thippilikkayam joins at Mangalamdam which also functions as water resource. There are different types natural water resources still wells; bore wells etc are used for irrigation purpose.

3.1. d. Problems

Soil erosion is the main problem here. This badly affects agriculture which in turn affects the life of farmers. The solution for this problem is planting trees, planting covering plants such as "myukuna" etc. which acts as protection for soil. Disturbance of wild animals which destroy the crops is also a problem the solution for which is solar fencing.

3.1. e. Development

Development is not in progress in this region. There is no transport facility because of this people here have to walk 7-8 km to get a bus. Also primary facility such as schools, hospitals etc are not there.

3. I.f. Watershed Interventions

3.1. f. 1. Entry Point Activity

Thippilikayam Gravity Drinking Water Supply Scheme:

EPA is done as a part of IWMP. In Thippilikayam watershed the EPA work is Thippilikayam Gravity Drinking Water Supply Scheme. The purpose of the scheme is to give sufficient water for drinking and agricultural purpose. In this watershed people mainly depends on agriculture based jobs. The major crops of the watershed are rubber, coconut, banana, pepper, areca nut etc. Rubber is the major crop. At present situation one of the main problems of this area is scarcity of water. Most of the people don't get sufficient water for their daily use. They get water from the pipe which is connected to the stream. There is a *Kayam* (great depth) in Thippilikayam stream in which there is water for 365 days. Watershed committee members and our technical members visited *Kayam* in Thippilikayam stream with the help of local people then we got an idea about EPA work. The work proposed by people is this, that is, water from the *Kayam* in Thippilikayam stream is carried through pipelines under gravity and collected in 3 tanks below capacity of which is 25000 lt. From these tanks, water is supplied to each household. During summer, the region experiences severe drinking water shortage. This will be useful both during rains and summer.

Before this there was a water supply system implemented by Forest Department unfortunately the system was there for only two months because of lack of supervision. If proper operation, maintenance and supervision are there the gravity drinking water supply scheme will be a success. The beneficiary group that is NHG committee members must be active for the proper maintenance of the water supply scheme.

Objectives

- To supply water for 200 household.
- To reduce shortage of water.
- To improve agricultural production.

3.I.f.2. Fund Distribution – Year Wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *THIPPILIKKAYAM*

Total Treatable Area in Hector - 2269

Hector Rate - 15000

Total Amount - 34035000

Sl. No.	Item	%of fund	Total	First year 2011-12		Second year 2012-13		Third Year 2013-14		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	3403500	25%	850875	25%	850875	25%	850875	25%	850875
2	Monitoring	1%	340350	25%	85088	25%	85088	25%	85088	25%	85088
3	Evaluation	1%	340350	25%	85088	25%	85088	25%	85088	25%	85088
4	Entry Point Activities	4%	1361400	100%	1361400						
5	Institution & Capacity Building	5%	1701750	50%	850875	25%	425438	25%	425438		
6	DPR	1%	340350	100%	340350						
7	Watershed Development Works	56%	19059600	15%	2858940	30%	5717880	30%	5717880	25%	4764900
8	Livelihood Activities	9%	3063150			50%	1531575	50%	1531575		
9	Production System & Micro Enterprises	10%	3403500			50%	1701750	50%	1701750		
10	Consolidation Phase	3%	1021050							100%	1021050
	Total	**100%**	**34035000**		**6432615**		**10397693**		**10397693**		**6807000**

3.I.f.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF THIPPILIKKAYAM WATERSHED													
Development Works in Watershed (NRM)													
Sl No	**Activities**	**code**	**TOTAL PROJECT**			**IWMP PROJECT**				**CONVERGENCE**		
			Unit Cost	**Quantity**	**Amount**	**Quantity**	**Amount**	**Beneficiary share**	**IWMP Fund**	**Quantity**	**Fund**	**Convergence**
i	**EPA-Gravity drinking water supply scheme**				**1404600**							
1	Areca nut Basin	AB	16	11034	176544					11034	176544	MGNREGS
2	Bio Gas	BG	24000	19	456000					19	456000	ANERT
3	Coconut Basin	CB	110.6	6225	688174	6225	688174		688174			
4	Collar Bund	CLB	96.28	10715	1031640					10715	1031640	BGRF

5	Compost Pit	CP	700	124	86800					124	86800	MGNREGS
6	Contour Teraccing	CT	449	164311	73775639					164311	73775639	MGNREGS
7	Centri petal taracing	CPT	110.6	4920	543906					4920	543906	MGNREGS
8	Earthern Bund	EB	65	17221	853473					17221	853473	MGNREGS
9	Platform	PF	270	533	143910					533	143910	MGNREGS
10	Rain Pit	RP	72.36	38403	2778841					38403	2778841	MGNREGS
11	Rain Water Harvasing tank	RWHT	40000	146	2920000					146	2920000	PRI
12	Side Protection	SP	1276	1905	2430780					1905	2430780	BGRF

13	Stone Bund	SB	96.28	307126	29570091	1858 26	17891327		17891327	12130 0	11678764	PRI
14	Vegetative Fencing	VF	30	2995	59900					2995	59900	MGNREGS
15	Vermi Compost	VC	20000	2	30000					2	30000	AGRICULTURE DEPT
	Gully Plugging											
16	Pothanthodu	1			30510		30510		30510			
17	Pothanthodu	2			38985		38985		38985			
18	Pothanthodu	3			40680		40680		40680			
19	Pothanthodu	4			12995		12995		12995			
20	Pothanthodu	5			12995		12995		12995			
21	Pothanthodu	6			12995		12995		12995			
22	Pothanthodu	7			12995		12995		12995			
23	Pothanthodu	8			12995		12995		12995			
24	Pothanthodu	9			12995		12995		12995			
25	Kunjiyarpathy	1			32770		32770		32770			

26	Kunjiyarpathy	2			32770		32770		32770			
27	Kunjiyarpathy	3			32770		32770		32770			
28	Kunjiyarpathy	4			32770		32770		32770			
29	Kunjiyarpathy	5			32770		32770		32770			
30	Roopathar oad Estse Sub Stream-1	1			4520		4520		4520			
31	Roopathar oad Estse Sub Stream-1	2			3390		3390		3390			
32	Roopathar oad Estse Sub Stream-1	3			6780		6780		6780			
33	Roopathar oad Estse Sub Stream-1	4			6780		6780		6780			
34	Roopathar oad Estse Sub Stream-2	1			6780		6780		6780			
35	Roopathar oad Estse Sub Stream-2	2			6780		6780		6780			
36	Roopathar oad Estse Sub	3			6780		6780		6780			

	Stream-2											
37	Roopathar oad Estse Sub Stream-2	4			6780		6780		6780			
38	Roopathar oad Estse Sub Stream-2	5			3390		3390		3390			
39	Roopathar oad Estse Sub Stream-2	6			3390		3390		3390			
40	Roopathar oad Estse Sub Stream-2	7			3390		3390		3390			
41	Roopathar oad Estse Sub Stream-3	1			3390		3390		3390			
42	Roopathar oad Estse Sub Stream-3	2			3390		3390		3390			
43	Roopathar oad Estse Sub Stream-3	3			3390		3390		3390			
44	Roopathar oad Estse Sub Stream-3	4			3390		3390		3390			

45	Roopathar oad Estse Sub Stream-3	5			3390		3390		3390				
46	Roopathar oad Estse Sub Stream-3	6			3390		3390		3390				
47	Roopathar oad Estse Sub Stream-3	7			3390		3390		3390				
48	Edivettikk unnu Stream-1	1			3390		3390		3390				
49	Edivettikk unnu Stream-1	2			3390		3390		3390				
50	Edivettikk unnu Stream-1	3			3390		3390		3390				
51	Edivettikk unnu Stream-1	4			3390		3390		3390				
52	Edivettikk unnu Stream-1	5			3390		3390		3390				
53	Edivettikk unnu Stream-1	6			3390		3390		3390				
54	Edivettikk unnu Stream-2	1			7910		7910		7910				
55	Edivettikk unnu	2			7910		7910		7910				

	Stream-2											
56	Edivettikkunnu Stream-2	3			7910		7910		7910			
57	Edivettikkunnu Stream-2	4			7910		7910		7910			
58	Edivettikkunnu Stream-2	5			7910		7910		7910			
59	Kadapara Mele 1	1			6215		6215		6215			
60	Kadapara Mele 1	2			6215		6215		6215			
61	Kadapara Mele 1	3			6215		6215		6215			
62	Kadapara Mele 1	4			565		565		565			
63	Kadapara Mele 1	5			6215		6215		6215			
64	Kadapara Mele 1	6			3390		3390		3390			
65	Kadapara Mele 2	1			3390		3390		3390			
66	Kadapara Mele 2	2			3390		3390		3390			
67	Kadapara Mele 2	3			3390		3390		3390			
68	Kadapara Mele 2	4			3390		3390		3390			
69	Kadapara Mele 2	5			3390		3390		3390			
70	Kadapara Mele 2	6			3390		3390		3390			

71	Kadapara Mele 2	7			3390		3390		3390			
72	Kadapara Mele 2	8			3390		3390		3390			
73	Kadapara Mele 2	9			3390		3390		3390			
74	Kadapara Mele 2	10			3390		3390		3390			
75	Thippilikayam Sub Stream -1	1			5650		5650		5650			
76	Thippilikayam Sub Stream -1	2			5650		5650		5650			
77	Thippilikayam Sub Stream -1	3			5650		5650		5650			
78	Thippilikayam Sub Stream -1	4			5650		5650		5650			
79	Thippilikayam Sub Stream -1	5			5650		5650		5650			
80	Thippilikayam Sub Stream -1	6			5650		5650		5650			
81	Thippilikayam Sub Stream -1	7			5650		5650		5650			
82	Thippilikayam Sub Stream -1	8			5650		5650		5650			
83	Thippilikayam Sub Stream -2	1			3390		3390		3390			

84	Thippilikayam Sub Stream -2	2			5650		5650		5650			
85	Thippilikayam Sub Stream -2	3			5650		5650		5650			
86	Thippilikayam Sub Stream -2	4			5650		5650		5650			
87	Thippilikayam Sub Stream -2	5			5650		5650		5650			
88	Thippilikayam Sub Stream -2	6			5650		5650		5650			
89	Thippilikayam Sub Stream -3	1			5650		5650		5650			
90	Thippilikayam Sub Stream -3	2			5650		5650		5650			
91	Thippilikayam Sub Stream -3	3			5650		5650		5650			
92	Thippilikayam Sub Stream -3	4			5650		5650		5650			
93	Thippilikayam Sub Stream -3	5			5650		5650		5650			
94	Thippilikayam Sub Stream -3	6			5650		5650		5650			
95	Thippilikayam Sub	7			5650		5650		5650			

	Stream -3											
96	Thippilikayam Sub Stream -3	8			6215		6215		6215			
97	Thippilikayam Sub Stream -3	9			6215		6215		6215			
98	Thippilikayam Sub Stream -3	10			6215		6215		6215			
99	Thippilikayam Sub Stream -3	11			6215		6215		6215			
100	Thippilikayam Sub Stream -3	12			6215		6215		6215			
101	Thippilikayam Sub Stream -3	13			6215		6215		6215			
102	Thippilikayam Sub Stream -3	14			6215		6215		6215			
103	Thippilikayam Sub Stream -3	15			6215		6215		6215			
104	Thippilikayam Sub Stream -5	1			6215		6215		6215			
105	Thippilikayam Sub Stream -5	2			6215		6215		6215			
106	Thippilikayam Sub Stream -5	3			6215		6215		6215			

107	Thippilikayam Sub Stream -5	4			6215		6215		6215			
108	Thippilikayam Sub Stream -5	5			6215		6215		6215			
109	Thippilikayam Sub Stream -5	6			6215		6215		6215			
110	Thippilikayam Sub Stream -5	7			6215		6215		6215			
111	Thippilikayam Sub Stream -6	1			6215		6215		6215			
112	Thippilikayam Sub Stream -6	2			6215		6215		6215			
113	Thippilikayam Sub Stream -6	3			6215		6215		6215			
114	Thippilikayam Sub Stream -6	4			6215		6215		6215			
115	Thippilikayam Sub Stream -6	5			6215		6215		6215			
116	Thippilikayam Sub Stream -7	1			6215		6215		6215			
117	Thippilikayam Sub Stream -7	2			6215		6215		6215			
118	Thippilikayam Sub	3			6215		6215		6215			

	Stream -7												
119	Thippilikayam Sub Stream -7	4			6215		6215		6215				
120	Thippilikayam Sub Stream -7	6			6215		6215		6215				
121	Thippilikayam Sub Stream -7	7			6215		6215		6215				
122	Thippilikayam Sub Stream -7	8			6215		6215		6215				
123	Thippilikayam Sub Stream -8	1			6215		6215		6215				
124	Thippilikayam Sub Stream -8	2			6215		6215		6215				
125	Thippilikayam Sub Stream -8	3			6215		6215		6215				
126	Thippilikayam Sub Stream -8	4			6215		6215		6215				
127	Check Dam at Kunjiyarpathy				4,520,000		4520000	98040	4421960				
	Total				**122336443**		**23965646**	**98040**	**23867606**		**96966197**		

3. II. Vattapparathodu Watershed

3. II. a. Introduction

Vattapparathodu watershed Situates in Kizakkenchery panchayat. It is southernmost side of Palakkad District. There are 136 families situated in this area.In this watershed small as well as large scale farmers are living . There are two streams in this watershed, they are Mannennakayam and vattaparathodu. Mannennakayam starts from Kunjiyarpathy Hills and Vattappara thodu starts from thrissur Dist. And its flow ends at cherupra.

Height - 928 ft
Total area - 1086 ha
Treatable area - 928 ha
Project Cost - Rs- 1, 39, 20,000 / -

Border

- North – Mangalamdam
- South – Pulichal mountains
- East – Randampuza
- West - Vellimudi

Socio- Economic details

Age wise Classification

Sl. No	Particulars	0-5	5-15	15-40	40-60	60 Above	Total
1	Male	4	17	67	45	7	140
2	Female	4	21	43	49	4	121
Total		**8**	**38**	**110**	**94**	**11**	**261**

Education Wise Classification

Sl No.	**Educational Level**	**Male**	**Female**	**Total**
1	UP	23	21	44
2	High School	50	32	82
3	Higher Secondary	26	23	49
4	Degree	18	27	45
5	Post Graduate	6	2	8
6	Technical	5	1	6
7	Nil	12	15	27
	Total	**140**	**121**	**261**

Employment Analysis

Sl No.	Employment	Male	Female	Total
1	Agriculture	49	29	78
2	Business	6	3	9
3	Coolie	43	34	77
4	Government	1	0	1
5	Gramine Job	5	4	9
6	MGNREGS	3	13	16
7	Pension	1	0	1
8	Student	22	25	47
9	Technical	1	0	1
10	Nil	9	13	22
	Total	**140**	**121**	**261**

Income Analysis

Sl No.	Income	No. of Families
1	0-5000	32
2	5001-10000	29
3	10001-25000	28
4	25001-50000	27
5	50001-100000	15
6	Above 100001	5
	Total	**136**

Social Conditions

Sl No.	Particulars	Yes	No	Total
1	Toilet	33	103	136
2	Cattle shed	2	134	136
3	Electricity	12	124	136

House wise Classification

Sl No.	House Type	No. of Families
1	Better Home	34
2	Partially Better	87
3	Not Better	9
4	Temporary Shelter	6
	Total	**136**

3. II.C. Infrastructure Facilities in Vattaparathodu

In Vattaparathodu watershed there isn't any educational institutions, societies, or hospitals. But there is one temple named churupara Maha Deva Temple. And there are only light transport facilities in the watershed.

Landscape

Lots of hills, plains, and rocks are there. The main cultivation here is paddy, rubber, tapioca, cashew, coconut, areca nut, vegetable etc. Waste lands are less in this region.

Water resource

The water resource such as streams and wells are used for irrigation purpose and as drinking water.

3. II. d. Problems

Drinking water scarcity is a main problem which can be solved by rain water harvesting and by protecting the existing water resources. Lots of streams flow from slopes to plains. But these are not protected well and sometimes flood and soil erosion happens because of changing the direction of these streams by migrates.

3. II.e. Development

Lack of irrigation facility, lack of electricity, lack of transport facility etc also have effected development in this area, Development is in a slow progress because the

agriculture products are selling for low cost here and quality items are exporting and the items that we export come back to us in a new form. It is a main obstacle for the development. So to solve these problems there should be small scale industry through which the agricultural products can sell.

3. II. f. Watershed Interventions

3. II f. 1. Entry Point Activity

Construction of Shuttered Check dam at Mannannakayam thodu:

The purpose of the scheme is to give sufficient water for drinking and agricultural purpose. In this watershed people mainly depends on agriculture based jobs. The major crops of the watershed are rubber, coconut, pepper, areca nut etc. Rubber is the major crop. At present situation one of the main problems of this area is scarcity of water. About 40 households residing in the middle of Mannannakayam thodu and Vattapparathodu, face severe drinking water scarcity during summer. This was understood by us through our field visits to the area. Hence, construction of a check dam at Mannannakayam thodu was identified as EPA. The surveying and leveling of the_work has been completed. This will augment groundwater in nearby wells and enhance water availability. Through this project, the people in this region are assured of water availability throughout summer. Apart from drinking water, water can be made useful for various purposes like bathing, washing etc. The people here will require less quantity of water as they have small land holdings.

Objectives

- To supply water for 40 household.
- To reduce shortage of water.
- To improve agricultural production.

3.II.f.2. Fund Distribution Year -wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *VATTAPPARATHODU*

Total Treatable Area in Hector - 928

Hector Rate - 15000

Total Amount - 13920000

Sl. No.	Item	%of fund	Total	First year 2011-12		Second year 2012-13		Third Year 2013-14		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**1392000**	25%	348000	25%	348000	25%	348000	25%	348000
2	Monitoring	1%	**139200**	25%	34800	25%	34800	25%	34800	25%	34800
3	Evaluation	1%	**139200**	25%	34800	25%	34800	25%	34800	25%	34800
4	Entry Point Activities	4%	**556800**	100%	556800						
5	Institution & Capacity Building	5%	**696000**	50%	348000	25%	174000	25%	174000		
6	DPR	1%	**139200**	100%	139200						
7	Watershed Development Works	56%	**7795200**	15%	1169280	30%	2338560	30%	2338560	25%	1948800
8	Livelihood Activities	9%	**1252800**			50%	626400	50%	626400		
9	Production System & Micro Enterprises	10%	**1392000**			50%	696000	50%	696000		
10	Consolidation Phase	3%	**417600**							100 %	417600
	Total	**100%**	**13920000**		**2630880**		**4252560**		**4252560**		**2784000**

3.II.f.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF VATTAPPARATHODU WATERSHED													
Development Works in Watershed (NRM)													
Sl No	**Activities**	**Code**	**TOTAL PROJECT**			**IWMP PROJECT**				**CONVERGENCE**			
			Unit Cost	**Quantity**	**Amount**	**Quantity**	**Amount**	**Beneficiary share**	**IWMP Fund**	**Quantity**	**Fund**	**Convergence**	
i	**Check dam**				1250000				1250000				
1	Areca nut Basin	AB	16	40	640					40	640	MGNREGS	
2	Coconut Basin	CB	110.55	323	35707.65	323	35708		35708				
3	Collar Bund	CLB	96.28	260	25032.8	260	25033		25033				
4	Compost Pit	CP	700	6	4200					6	4200	MGNREGS	
5	Earthen Bund	EB	49.56	800	39648					800	39648	MGNREGS	
6	Mulching	ML	20	223	4460					223	4460	MGNREGS	
7	Platform	PF	270	13185	3559950		0		0	13185	3559950	MGNREGS	
8	Rain Pit	RP	72.36	8783	635538					8783	635537.9	MGNREGS	
9	RWHT		20,000.00	7	140000					7	140000	PRI, BRGF	
10	Side Protection	SP	1,276.00	520	663520	520	663520		663520				
11	Stone Bund	SB	96.28	37625	3622535	37319	359307		3593073	306	29461.68	MGNRE	

							3					GS
12	Vegitive Fencing	VF	20	850	17000					850	17000	MGNREGS
	Gully Plugging											
13	Mannanakayam	1			56500		56500		56500			
14	Mannanakayam	2			56500		56500		56500			
15	Mannanakayam	3			56500		56500		56500			
16	Mannanakayam	4			56500		56500		56500			
17	Mannanakayam	5			56500		56500		56500			
18	Mannanakayam	6			56500		56500		56500			
19	Mannanakayam	7			56500		56500		56500			
20	Mannanakayam	8			56500		56500		56500			
21	Mannanakayam	9			56500		56500		56500			
22	Mannanakayam	10			56500		56500		56500			
23	Mannanakayam	11			56500		56500		56500			
24	Mannanakayam	12			56500		56500		56500			
25	Mannanakayam	13			56500		56500		56500			
26	Mannanakayam	14			56500		56500		56500			
27	Mannanakayam	15			56500		56500		56500			

28	Mannanakaya m	16			56500		56500		56500			
29	Mannanakaya m	17			56500		56500		56500			
30	Mannanakaya m	18			56500		56500		56500			
31	Mannanakaya m	19			56500		56500		56500			
32	Mannanakaya m	20			56500		56500		56500			
33	Mannanakaya m	21			56500		56500		56500			
34	Mannanakaya m	22			56500		56500		56500			
35	Mannanakaya m	23			56500		56500		56500			
36	Mannanakaya m	24			56500		56500		56500			
37	Mannanakaya m	25			56500		56500		56500			
38	Vattaparatho du	1			56500		56500		56500			
39	Vattaparatho du	2			56500		56500		56500			
40	Vattaparatho du	3			56500		56500		56500			
41	Vattaparatho du	4			56500		56500		56500			
42	Vattaparatho du	5			56500		56500		56500			
43	Vattaparatho du	6			56500		56500		56500			
44	Vattaparatho du	7			56500		56500		56500			
45	Vattaparatho	8			56500		56500		56500			

	du											
46	Vattaparatho du	9			56500		56500		56500			
47	Vattaparatho du	10			56500		56500		56500			
48	Vattaparatho du	11			56500		56500		56500			
49	Vattaparatho du	12			56500		56500		56500			
50	Vattaparatho du	13			56500		56500		56500			
51	Vattaparatho du	14			56500		56500		56500			
52	Vattaparatho du	15			56500		56500		56500			
53	Vattaparatho du	16			56500		56500		56500			
54	Vattaparatho du	17			56500		56500		56500			
55	Vattaparatho du	18			56500		56500		56500			
56	Vattaparatho du	19			56500						56500	
57	Vattaparatho du	20			56500						56500	
58	Vattaparatho du	21			56500						56500	
59	Vattaparatho du	22			56500						56500	
60	Vattaparatho du	23			56500						56500	
	Total				**12710231**				**7996834**		**4713398**	

3. III. Padangattuthodu Watershed

3. III. a. Introduction

Padangattathodu watershed situates in Kizhakkanchery Panchayath. It is the southern side of Palakkad District. There are 98 families situated in this area. The population density is comparatively low in this area. The major crop is rubber. It is one of the hill area watersheds in Alathur Block. Main stream in this watershed is Kavilupara spring. People mostly depend on his water source for daily usages.

Height – 865 ft
Total area - 432 ha
Treatable area – 381 ha
Project Cost – Rs. 5715000/-

Boarder

- North - Mangalamdam
- South - Thrissur District
- East - Vattapparathodu
- West - Odamthodu

3. III. b. Socio- Economic details

Age wise Classification

Sl. No	Particulars	0-5	5-15	15-40	40-60	60 Above	Total
1	Male	7	14	42	29	10	102
2	Female	6	10	29	33	2	80
Total		13	24	71	62	12	182

Education Wise Classification

Sl No.	Educational Level	Male	Female	Total
1	UP	33	28	61
2	High School	20	17	37
3	Higher Secondary	23	11	34
4	Degree	13	8	21
5	Post Graduate	3	4	7
6	Technical	1	0	1
7	Nil	9	12	21
	Total	**102**	**80**	**182**

Employment Analysis

Sl No.	Employment	Male	Female	Total
1	Agriculture	37	29	66
2	Business	2	0	2
3	Coolie	23	21	44
4	Government	1	0	1
5	Gramine Job	3	0	3
6	MGNREGS	3	7	10
7	Pension	1	0	1
8	Student	20	15	35
9	Technical	2	0	2
10	Nil	10	8	18
	Total	**102**	**80**	**182**

Income Analysis

Sl No.	Income	No. of Families
1	0-5000	25
2	5001-10000	12
3	10001-25000	32
4	25001-50000	23
5	50001-100000	5

6	Above 100001	1
	Total	**98**

Social Conditions

Sl No.	Particulars	Yes	No	Total
1	Toilet	21	77	98
2	Cattle shed	11	87	98
3	Electricity	62	36	98

House wise Classification

Sl No.	House Type	No. of Families
1	Better Home	23
2	Partially Better	62
3	Not Better	9
4	Temporary Shelter	4
	Total	**98**

3. III. C. Infrastructure Facilities in Padangattathodu

Infrastructure Type						
Educational institutions	**No**	**Service institutions**	**No**	**Societies**	**No**	**Transport facility**
Anganwadi (Nanma,Anugraha, Akshaya ,Aiswarya	4	Nil		Nil		Yes (KSRTC,2 Trip)

3. III. d. Problems

Lots of streams flow from slopes to plains. But these are not protected well and sometimes flood and soil erosion happens because of changing the direction of these

streams by migrates Drinking water scarcity is a main problem which can be solved by rain water harvesting and by protecting the existing water resources.

3. III. e. Development

The main obstacle for the development is lack of irrigation facility, lack of electricity, lack of transport facility etc also have affected development in this area development is in a slow progress because the agriculture products are selling for low cost here and quality items are exporting and the items that we export come back to us in a new form. So to solve these problems there should be small scale industry through which the agricultural products can sell.

3. III. e. Watershed Interventions

3. III.e. 1. Entry Point Activity

Kavilupara Spring Protection and Drinking Water Project:

From many years the main problem in this region is drinking water shortage. So to find out a solution for this problem water shed committee has discussed about this and decided to protect the spring in this region. So EPA in Padangattathodu watershed was found out as the protection of spring in the Kavilupara region and construction of a FC storage tank of capacity 17,000 litres. Water supply will be made available through pipes from the tank to about 60 households. Most of the people don't get sufficient water for their daily use. They get water from the pipe which is connected to the tank. This will solve the problem of drinking water shortage in the area.

Objectives

- To supply water for 60 household.
- Will be helpful in reducing shortage of water.

3.III.e.2. Fund Distribution – Year wise

WMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *PADANGATTA THODU*

Total Treatable Area in Hector - 381

Hector Rate - 15000

Total Amount - 5715000

Sl. No.	Item	%of fund	Total	First year 2011-12		Second year 2012-13		Third Year 2013-14		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**571500**	25%	142875	25%	142875	25%	142875	25%	142875
2	Monitoring	1%	**57150**	25%	14288	25%	14288	25%	14288	25%	14288
3	Evaluation	1%	**57150**	25%	14288	25%	14288	25%	14288	25%	14288
4	Entry Point Activities	4%	**228600**	100%	228600						
5	Institution & Capacity Building	5%	**285750**	50%	142875	25%	71438	25%	71438		
6	DPR	1%	**57150**	100%	57150						
7	Watershed Development Works	56%	**3200400**	15%	480060	30%	960120	30%	960120	25%	800100
8	Livelihood Activities	9%	**514350**			50%	257175	50%	257175		
9	Production System & Micro Enterprises	10%	**571500**			50%	285750	50%	285750		
10	Consolidation Phase	3%	**171450**							100%	171450
	Total	**100%**	**5715000**		**1080135**		**1745933**		**1745933**		**1143000**

3.III.e.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF PADANGATTA THODU WATERSHED												
Development Works in Watershed (NRM)												
Sl No	**Activities**	**code**	**TOTAL PROJECT**			**IWMP PROJECT**				**CONVERGENCE**		
			Unit Cost	**Quantity**	**Amount**	**Quantity**	**Amount**	**Beneficiary share**	**IWMP Fund**	**Quantity**	**Fund**	**Convergence**
i	**EPA-Kavilupara spring protection**	-			910700				910700			
1	Coconut Basin	CB	110.55	1566	173121					1566	173121.3	MGNREGS
2	Coffee		35	100	3500					100	3500	PRI
3	Compost Pit	CP	700	6	4200					6	4200	MGNREGS
4	Fodder Cultivation	FC	391	25	9775					25	9775	Dairy
5	Foresting	AF	37.4	160	5984					160	5984	Forest dept
6	Mulching	ML	20	374	7480					374	7480	MGNREGS
7	Platform	PF	270	7050	1903500					7050	1903500	MGNREGS
8	Rain Pit	RP	72.36	2845	205864					2845	205864	MGNREGS
9	RWHT		20,000.00	164	3280000					164	3280000	PRI
10	Stone Bund	SB	83.72	44495	3725080	24257			2030796	20238	1694284	MGNREGS
11	Vegitive Fencing	VF	20	1480	29600					1480	29600	MGNREGS
	Gully Plugging											

12	Kavilupara thodu	1			5,650				5,650			
13	Kavilupara thodu	2			4,520				4,520			
14	Kavilupara thodu	3			4,520				4,520			
15	Kavilupara thodu	4			11,300				11,300			
16	Kavilupara thodu	5			7,345				7,345			
17	Kavilupara thodu	6			5,650				5,650			
18	Kavilupara thodu	7			5,650				5,650			
19	Kavilupara thodu	8			4,520				4,520			
20	Kavilupara thodu	9			4,520				4,520			
21	Kavilupara thodu	10			4,520				4,520			
22	Kavilupara thodu	11			6,215				6,215			
23	Kavilupara thodu	12			3,955				3,955			
24	Kavilupara thodu	13			3,955				3,955			
25	Kavilupara thodu	14			10,170				10,170			
26	Kavilupara thodu	15			5,650				5,650			
27	Kavilupara thodu	16			4,520				4,520			
28	Kavilupara thodu	17			6,215				6,215			

29	Kavilupara thodu	18			5,650				5,650			
30	Kavilupara thodu	19			4,520				4,520			
31	Kavilupara thodu	20			5,085				5,085			
32	Kavilupara thodu	21			5,000				5,000			
33	Kavilupara thodu	22			3,500				3,500			
34	Kavilupara thodu	23			5,085				5,085			
35	Kavilupara thodu	24			3,390				3,390			
36	Kavilupara thodu	25			5,085				5,085			
37	Kavilupara thodu	26			5,085				5,085			
38	Kavilupara thodu	27			2,260				2,260			
39	Kavilupara thodu	28			5,085				5,085			
40	Kavilupara thodu	29			5,085				5,085			
41	Kavilupara thodu	30			5,085				5,085			
42	Kavilupara thodu	31			5,085				5,085			
43	Kavilupara thodu	32			5,085				5,085			
	Public Works (Chappatu)											
44	Kavilupara thodu				30,000				30,000			
45	Kavilupara				30,000				30,000			

	thodu											
46	Kavilupara thodu				30,000				30,000			
	Total				**10517764**				**3200456**		**7317308**	

Mangalamdam Watershed

3. IV. a. Introduction

The main portion of Alathur D1 project is mangalamdam. This is the only town ship watershed in Alathur project. There is a huge beautiful dam is located in this watershed called mangalamdam which is 48 km south of Palakkad town. This is in Vandazhi Panchayath. The people depend on agriculture and business for their daily livings. People using canals flow from the dam site for their irrigation purposes.

Height	-	98 ft
Total area	-	775 ha
Treatable area	-	764 ha
Project Cost	-	11460000/-

Boarder

- North – Odukur
- South – Dam reservoir
- East – Thippilikkayam
- West – Ayyappanmudi watershed

Socio- Economic details

Age wise Classification

S l. No	Particulars	0-5	5-15	15-40	40-60	60 Above	Total
1	Male	105	255	672	357	130	1519
2	Female	105	232	694	354	127	1512
Total		**210**	**487**	**1366**	**711**	**257**	**3031**

Education Wise Classification

S l No.	Educational Level	Male	Female	Total
1	UP	360	387	747
2	High School	429	408	837
3	Higher Secondary	395	413	808
4	Degree	67	98	165
5	Post Graduate	56	61	117
6	Technical	78	22	100
7	Nil	134	123	257
	Total	**1519**	**1512**	**3031**

Social Conditions

S l No.	Particulars	Yes	No	Total
1	Toilet	557	189	746
2	Cattle shed	69	677	746
3	Electricity	580	166	746

House wise Classification

S l No.	House Type	No. of Families
1	Better Home	267
2	Partially Better	401
3	Not Better	56
4	Temporary Shelter	22
	Total	**746**

Employment Analysis

S l No.	Employment	Male	Female	Total
1	Agriculture	385	356	741
2	Business	112	32	144
3	Coolie	366	299	665
4	Government	35	53	88
5	Gramine Job	34	8	42
6	MGNREGS	23	93	116
7	Pension	33	13	46
8	Student	344	423	767
9	Technical	22	56	78

10	Nil	165	179	344
	Total	**1519**	**1512**	**3031**

Income Analysis

S l No.	Income	No. of Families
1	0-5000	65
2	5001-10000	125
3	10001-25000	320
4	25001-50000	165
5	50001-100000	43
6	Above 100001	28
	Total	**746**

Infrastructure Facilities

Sl. No.	Infrastructure Type	No.
Educational Institutions		
1	Lourde Matha HSS	1
2	CBSE School	2
3	Anganwadi	5
Service Institutions		
4	Police Station	1
5	Canara Bank	1
6	Federal Bank	1
7	PDC Bank	1
8	Ration Shop	2
9	Akshaya Computer Centre	1

10	Fisheries Society	1
11	ICDP Sub center	1
12	Kindergarten	1
13	Post Office	1
14	Irrigation Office	1
15	PWD Rest House	1
Societies		
16	Milk society	1
Transportation Facility		In Kilo Meter
17	Mudapallur Mangalam dam road	3.5
18	Kaniyamangalam	1.5
19	4cent road	1
20	Kallanakara vadakkekalam road	1.5
21	Kavarakulamb sivakshethram road	0.500
22	Odukoor IHDP road	0.400
23	Odukoor mosque road	1
24	Ponkandam Mangalam dam road	0.200
25	Mangalam dam-veezhly road	0.300
26	Odukoor – poosarikulamb earthen road	0.500

A beautiful place which consists of many wild animals such as deer, wild elephant, rare species of birds etc on the fringes of reservoir

Water resource

Mangalam dam is the main water resource which is constructed across the river 'Cherukunnapuza' a tributary of Mangalamdam River. The water is used for irrigation purpose and domestic use. The left bank canal was completed to irrigate 3639 ha of land in the Palakkad district.

Land use

Most of the inhabitants are from Perumbavur, Kottayam and Chalakudy. The main crops cultivated here are rubber, pepper, coffee and tapioca plantations.

3. IV. d. Problems

Mangalamdam is situated in a business culture, so its affects its agriculture lands in the way of shortage of coolies. Irrigation water scarcity is also affecting the farming of this area. Urbanization is another important matter which affects the agricultural sector.

3. IV. e. Development

Mangalamdam is in a town area, so the development of agriculture sector is low. As compared to other watershed people are more educated so the more scope is to the industrial development. Service educational and transportation facilities are available in this area.

3. IV. f. Watershed Interventions

3. IV. f. 1. Entry Point Activity

Renovation of Kalamada Pond in Vadakkekalam:

Mangalam dam has 775 ha area out of which764 ha area is selected as area for project. For this the estimated RS is 1, 14, 60000 and for EPA work is RS 4, 58,400. So the renovation of Kalamada pond in Vadakkekalam is identified as EPA in Mangalam Dam watershed. This was put forward by the representatives of the

Mangalam Dam Watershed Committee during the General body meeting. This will serve as a water source for about 250 households in Pullorkulam, Pannikulambu, Kallanakara and Choorakodu.

Many years ago, this was in good condition. Later on, few individuals encroached some portions of the pond and it became nonoperational. This is the reason behind the committee members suggesting such a work. The surveying and leveling of the pond has been completed. As indicated earlier, since the sides of the pond were encroached by few individuals, the panchayat should interfere in making the measurements of the pond and get its boundaries fixed.

Objectives

- It will be helpful for agricultural purpose if this pond is renovated.
- Pottery makers will get their raw materials i.e., clay without any cost.

3.IV.f.2.Fund Distribution – Year Wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *MANGALAM DAM*

Total Treatable Area in Hector - 764

Hector Rate - 15000

Total Amount - 11460000

Sl. No.	Item	%of fund	Total	First year 2010-11		Second year 2011-12		Third Year 2012-13		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**1146000**	25%	286500	25%	286500	25%	286500	25%	286500
2	Monitoring	1%	**114600**	25%	28650	25%	28650	25%	28650	25%	28650
3	Evaluation	1%	**114600**	25%	28650	25%	28650	25%	28650	25%	28650
4	Entry Point Activities	4%	**458400**	100%	458400						
5	Institution & Capacity Building	5%	**573000**	50%	286500	25%	143250	25%	143250		
6	DPR	1%	**114600**	100%	114600						
7	Watershed Development Works	56%	**6417600**	15%	962640	30%	1925280	30%	1925280	25%	1604400
8	Livelihood Activities	9%	**1031400**			50%	515700	50%	515700		
9	Production System & Micro Enterprises	10%	**1146000**			50%	573000	50%	573000		
10	Consolidation Phase	3%	**343800**							100%	343800
	Total	**100%**	**11460000**		**2165940**		**3501030**		**3501030**		**2292000**

3.IV.f.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF MANGALAM DAM WATERSHED

Development Works in Watershed (NRM)

Sl No	Activities	code	TOTAL PROJECT			IWMP PROJECT				CONVERGENCE		
			Unit Cost	Quantity	Amount	Quantity	Amount	Beneficiary share	IWMP Fund	Quantity	Fund	Convergence
i	**AAP- Pond renovation**				835000		835000		835000			
1	Areca nut Basin	AB	16	1255	20080					1255	20080	MGNREGS
2	Bio Gas	BG	24,000	3	72000					3	72000	ANERT
3	Coconut Basin	CB	110.55	5362	592769	5362	592769		592769.1			
4	Colar Bund	CLB	96.28	140	13479.2					140	13479.2	MGNREGS
5	Compost Pit	CP	700	264	184800					264	184800	MGNREGS
6	Earthen Bund	EB	49.56	6010	297855.6					6010	297856	MGNREGS
7	Fodder Cultivation	FC	391	10	3910					10	3910	Dairy
8	Mulching	ML	20	3832	76640					3832	76640	MGNREGS
9	Paddy Farm Bund	PFB	49.56	1435	71119					1435	71119	MGNREGS
10	Platform	PF	270	9360	2527200					9360	2527200	MGNREGS
11	Renovation of New Well	REWL	6,000.00	2	12000					2	12000	PRI

12	Rain Pit	RP	72.36	5254	380179					5254	380179	MGNREGS
13	Rain Water Harvesting Tank	RW HT	20,000	46	920000					46	920000	PRI , BRGF
14	Side Protection	SP	1,276.00	4320	5512320					4320	5512320	PRI , BRGF
15	Stone Bund	SB	96.28	42990	4139077	28669			2760251	14321	1378826	PRI
16	Vegitive Fencing	VF	20	4710	94200					4710	94200	MGNREGS
17	Vermi Compost	VC	15,000	3	45000					3	45000	Agri. Dept
	Public Works											
18	Renovation of a pond in Cheriyachal				920,000				641,760		278240	BRGF
19	Renovation of a pond in Cheriyachal (kavarakulammbu)				215,000				215,000			
20	Renovation of a pond in Srambikulambu				784,514				784,514			
21	Renovation of a pond in vadakkekalam				119,393				119,393			
22	Side protection with dry rubble masonry				190,839				105,800		85,039.00	BRGF
	Total				**17192375**		**592769**	**0**	**6054487**		**11972888**	

3. V. Odamthodu Watershed

3. V. a. Introduction

Odamthodu situates between Padangattathodu and Ayyapanmudi. It is situated in Kizhakkenchery panchayath. About 173 families staying here. Rubber is the main crop. People more depend on agriculture for their daily living. The main water source in this area is Odamthodu. The two sides of this watershed are rounded with forest land.

Height	-	885 ft
Total area	-	614 ha
Treatable area	-	418 ha
Project Cost	-	Rs. 7215000/-

Boarder

- North – Mangalamdam
- South – Thrissur District
- East - Padangattathodu
- West – Ayyappanmudi

Landscape

This place consists of valleys, hills, mountains etc. As this is a hilly area the water that they get during rainy season flow away and it cause severe water shortage during summer. There is not enough water for agricultural purpose and it is badly effecting agricultural production.

Water resource

The water resources here are streams, sub streams, wells, bore wells etc.these are mainly used for agricultural purpose and domestic use.

Land use

There is plantation area which mainly cultivates rubber. Other crops are banana, pepper, coconut, coffee, areca nut, acajou etc. Paddy is not cultivated here and vegetable cultivation is for nominal.

Socio- Economic details

Age wise Classification

Sl. No	Particulars	0-5	5-15	15-40	40-60	60 Above	Total
1	Male	7	50	93	75	18	243
2	Female	7	28	93	64	16	208
Total		**14**	**78**	**186**	**139**	**34**	**451**

Education Wise Classification

S l No.	**Educational Level**	**Male**	**Female**	**Total**
1	UP	55	34	89
2	High School	86	78	164
3	Higher Secondary	57	49	106
4	Degree	19	23	42
5	Post Graduate	3	3	6
6	Technical	8	5	13
7	Nil	15	16	31
	Total	**243**	**208**	**451**

Employment Analysis

S l No.	**Employment**	**Male**	**Female**	**Total**
1	Agriculture	37	19	56
2	Business	7	3	10
3	Coolie	56	62	118
4	Government	2	1	3
5	Gramine Job	7	0	7
6	MGNREGS	34	56	90
7	Pension	6	7	13
8	Student	67	35	102
9	Technical	12	9	21
10	Nil	15	16	31
	Total	**243**	**208**	**451**

Income Analysis

S l No.	Income	No. of Families
1	0-5000	52
2	5001-10000	48
3	10001-25000	15
4	25001-50000	32
5	50001-100000	19
6	Above 100001	7
	Total	**173**

Social Conditions

S l No.	Particulars	Yes	No	Total
1	Toilet	68	105	173
2	Cattle shed	17	156	173
3	Electricity	92	81	173

House wise Classification

S l No.	House Type	No. of Families
1	Better Home	35
2	Partially Better	112
3	Not Better	24
4	Temporary Shelter	2
	Total	**173**

3. V. c. Infrastructure Facilities in Odamthodu

Infrastructure Type						
Educational institutions	No	Service institutions	No	Societies	No	Transport facility

Anganwadi (chembakapara)	1	Forest office	1	Nil		Earthen dam – Choorupara road
		Health centre	1			

3. V. d. Problems

During rainy season flood and drought badly affects this region. Life of people totally changes during this time as cultivation of crops during rainy season is not possible.

Solutions:

Making of stone bunds is a solution for flood and planting of trees and rain water harvesting is a solution for drought.

3. V. e. Development

Lack of irrigation facility, lack of electricity, lack of transport facility etc also have affected development in this area. Development is in a slow progress because the agriculture products are selling for low cost here and quality items are exporting and the items that we export come back to us in a new form. It is a main obstacle for the development. So to solve these problems there should be small scale industry through which the agricultural products can sell.

3. V. f. Watershed Interventions

3. V. e. 1. Entry Point Activity

Construction of check dam across Odamthodu:

There is 614 ha in Odamthodu watershed out of which 481 ha is selected as treatable area, for this the estimated amount is 720000 and for EPA work the estimated amount is 288600. The EPA work in this region has identified as to build a shuttered check dam across Odamthodu. If this check dam is built it will be beneficial for the people in this region as it will reduce the water shortage.

As this is a hilly area the water that they get during rainy season flow away and it cause severe water shortage during summer. There is not enough water for agricultural purpose and it is badly effecting agricultural production. It will be beneficial for agricultural purpose and for daily use if the dam is built.

Objectives

- People will get enough water for daily use.
- It will enhance production of agriculture.
- This will help in the reduction of water scarcity.

3.V.e.2. Fund Distribution – Year wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *ODAMTHODE*

Total Treatable Area in Hector - 481

Hector Rate - 15000

Total Amount - 7215000

Sl. No.	Item	%of fund	Total	First year 2010-11		Second year 2011-12		Third Year 2012-13		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**721500**	25%	180375	25%	180375	25%	180375	25%	180375
2	Monitoring	1%	**72150**	25%	18038	25%	18038	25%	18038	25%	18038
3	Evaluation	1%	**72150**	25%	18038	25%	18038	25%	18038	25%	18038
4	Entry Point Activities	4%	**288600**	100%	288600						
5	Institution & Capacity Building	5%	**360750**	50%	180375	25%	90188	25%	90188		
6	DPR	1%	**72150**	100%	72150						
7	Watershed Development Works	56%	**4040400**	15%	606060	30%	1212120	30%	1212120	25%	1010100
8	Livelihood Activities	9%	**649350**			50%	324675	50%	324675		
9	Production System & Micro Enterprises	10%	**721500**			50%	360750	50%	360750		
10	Consolidation Phase	3%	**216450**							100%	216450
	Total	**100%**	**7215000**		**1363635**		**2204183**		**2204183**		**1443000**

3.V.e.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF ODAMTHODE WATERSHED												
Development Works in Watershed (NRM)												
Sl No	**Activities**	**code**	**TOTAL PROJECT**			**IWMP PROJECT**				**CONVERGENCE**		
			Unit Cost	**Quantity**	**Amount**	**Quantity**	**Amount**	**Beneficiary share**	**IWMP Fund**	**Quantity**	**Fund**	**Convergence**
i	**Entry Point Activity - Check dam**				**1541500**							
1	Areca nut Basin	CB	110.6	497	54943					497	54943	MGNREGS
2	Bio Gas	CP	700	88	61600					88	61600	ANERT
3	Coconut Basin	CT	449	433	194417					433	194417	MGNREGS
4	Colar Bund	ML	20	239	4780					239	4780	BGRF
5	Compost Pit	PF	270	3725	1005750					3725	1005750	MGNREGS
6	Contour Teraccing	RP	72.36	7101	513828.36					7101	513828	MGNREGS
7	Centri petal taracing	RWHT	20000	333	6660000					333	6660000	MGNREGS
8	Earthern Bund	SF	35	4720	165200					4720	165200	MGNREGS
9	Platform	SP	1276	2323	2964148	1727	2203652		2203652	596	760496	BGRF
10	Rain Pit	SB	96.28	25178	2424138	1,459			140473	23719	2424138	MGNREGS
	Gully Plugging											
11	Sivaji Stream	1			4520		4520		4520			
12	Sivaji Stream	2			4520		4520		4520			

13	Sivaji Stream	3			4520		4520		4520			
14	Sivaji Stream	4			4520		4520		4520			
15	Sivaji Stream	5			4520		4520		4520			
16	Sivaji Stream	6			4520		4520		4520			
17	Sivaji Stream	7			4520		4520		4520			
18	Sivaji Stream	8			4520		4520		4520			
19	Sivaji Stream	9			4520		4520		4520			
20	Sivaji Stream	10			4520		4520		4520			
21	Manala Padangattathodu	1			4520		4520		4520			
22	Manala Padangattathodu	2			4520		4520		4520			
23	Manala Padangattathodu	3			4520		4520		4520			
24	Manala Padangattathodu	4			4520		4520		4520			
25	Manala Padangattathodu	5			4520		4520		4520			
26	Manala Padangattathodu	6			4520		4520		4520			
27	Manala Padangattathodu	7			4520		4520		4520			
28	Manala Padangattathodu	8			4520		4520		4520			

29	Manala Padangattathodu	9			6780		6780		6780			
30	Manala Padangattathodu	10			4520		4520		4520			
31	Chadachikunnu Padangattatodu	1			4520		4520		4520			
32	Chadachikunnu Padangattatodu	2			4520		4520		4520			
33	Chadachikunnu Padangattatodu	3			4520		4520		4520			
34	Chadachikunnu Padangattatodu	4			4520		4520		4520			
35	Chadachikunnu Padangattatodu	5			4520		4520		4520			
36	Chadachikunnu Padangattatodu	6			4520		4520		4520			
37	Chadachikunnu Padangattatodu	7			4520		4520		4520			

38	Chadachikunnu Padangattatodu	8			4520		4520		4520			
39	Chadachikunnu Padangattatodu	9			4520		4520		4520			
40	Chadachikunnu Padangattatodu	10			4520		4520		4520			
41	Chadachikunnu Padangattatodu	11			16950		16950		16950			
	Total				**15745115**		**2358462**		**2498935**			

3. VI. Ayyappanmudi Watershed

3. VI. a. Introduction

Ayyappanmudi watershed situates in Kizakkenchery Panchayat. It is the southernmost side of Palakkadu District. This is a hilly area. The highest point of this watershed is 'Kava" which is in the border of Palakkadu district. The important feature of this watershed is, this is the watershed with more agriculturalists as compared to other six watersheds. The main attraction in this place is, its Greenery. The main stream is "Karimkayamthodu".

Height	-	810 feet
Total area	-	1424 ha
Treatable area	-	1339 ha
Project cost	-	Rs. 2, 00, 85,000.00/-

Borders

- North – Kakkanchery & Konnakalkadavu Watersheds
- South – Thrissur District
- East – Odamthodu Watershed
- West - Palakkuzhy Watershed

3. VI. b. Socio- Economic details

Age wise Classification

Sl. No	Particulars	0-5	15-May	15-40	40-60	60 Above	Total
1	Male	103	237	651	455	143	1589
2	Female	103	259	677	395	150	1584
Total		206	496	1328	850	293	3173

Education Wise Classification

Sl No	Educational Level	Male	Female	Total
1	UP	614	643	1257
2	High School	461	400	861
3	Higher Secondary	234	313	547
4	Degree	102	96	198
5	Post Graduate	32	16	48
6	Technical	43	13	56
7	Nil	103	103	206
Total		**1589**	**1584**	**3173**

Employment Analysis

Sl No.	Employment	Male	Female	Total
1	Agriculture	609	623	1233
2	Business	32	3	37
3	Coolie	346	317	666
4	Government	26	12	42
5	Gramine Job	59	4	68
6	MGNREGS	34	72	112
7	Pension	12	4	23
8	Student	315	412	735
9	Technical	53	34	96
10	Nil	103	103	216
	Total	**1589**	**1584**	**3173**

Income Analysis

Sl No.	Income	No. of Families
1	0-5000	75
2	5001-10000	203
3	10001-25000	372
4	25001-50000	175
5	50001-100000	56
6	Above 100001	14

	Total	**895**

Social Conditions

Sl No.	**Particulars**	**Yes**	**No**	**Total**
1	Toilet	647	248	896
2	Cattle shed	109	786	897
3	Electricity	667	228	898

House wise Classification

Sl No.	**House Type**	**No. of Families**
1	Better Home	256
2	Partially Better	534
3	Not Better	76
4	Temporary Shelter	29
	Total	895

3. VI. c. Infrastructure Facilities in Ayyapanmudi

Infrastructure Type						
Educational institutions	No	Service institutions	No	Societies	No	Transport Facility
Anganwadi (vakkala)	1	Post office	1	Hridaya arts & sports club	1	Yes
Anganwadi (VRT)	1	Primary health centre	1			
Anganwadi(Manala)	1					

Anganwadi (kakkancheri)	1					
Anganwadi (Parassery)	1					

Land use

This is a place where there are hills, slopes, mountains, rocks, etc. the people here mainly depends on agriculture sector and the crops cultivated here are Paddy, coconut ,banana, pepper, areca nut, rubber, vegetable cultivation, ginger, acajou, tapioca, Cardamom etc. The main crop is rubber. There are a lot of forest areas.

Water resource

People of the hill areas depend more on strings and in summer, they depending the strings from Kava. Whereas, the others depends water supply schemes, irrigation canals and Karikayamthodu. The Pottiya dam was one of the famous irrigation channels of this place. The paddy production of the Kakkenchery mainly depends the canal from Manngalam dam. There are different types of natural water resources still wells; bore wells etc are used for irrigation purpose.

3. VI. d. Problems

Lots of streams flow from slopes to plains. But these are not protected well and sometimes flood &soil erosion happens because of changing the direction of these streams by migrates. High demands of labour's is the another main problem faced by the people of Ayyappanmudi watershed. Other problems are many of cultivable land, ponds & streams deteriorate changes in climate, globalization etc increases.

Solution

These problems can be solved by making stone bunds in slope areas, planting trees, animal protection, protecting schemes, ponds, sub streams, making of check dam, afforestation, irrigation projects, vegetative fencing etc. if these solutions are implemented then the problems can be solved easily.

3. VI. e. Development

As Ayyapanmudi is a hilly area in Kizakkenchery panchayat, development is not in progress. Lack of irrigation facility, lack of electricity, lack of transport facility etc also have affected development in this area.

Long term projects

- Watershed based development
- Activities which increases the production and productivity in agricultural sector.
- Activities which ensure irrigation facility.
- Giving awareness of, making and maintenance of rain water harvesting tank.
- Small scale organization which give emphasis to agriculture sector.
- Planning projects which help the marketing of agriculture products.
- Activity which can make waste land useful for agriculture.
- Programmes which encourage fish farming.
- Protection of existing ponds, rivers, streams etc.
- Tree planting, garden of medicinal plants.

Economic development

Ayyapanmudi watershed region was a prosperous agriculture sector in Kizakkenchery panchayat but now a day the situation is entirely different. A change has come in the development in agriculture sector due to change in view points about employment because new generation has no interest in agriculture & they are seeking for more profitable jobs, this has become a reason for lack of skilled labour in agriculture sector.

Economic development is in a slow progress because the agriculture products are selling for low cost here & quality items are exporting & the items that we export come back to us in a new form. It is a main obstacle for the development. So to solve

these problems there should be small scale industry through which the agricultural products can sell.

Challenges for development

Challenges faced by agricultural sector are

- Lack of irrigation facility
- Lack of high productivity seeds
- Flood & soil erosion during rainy season
- Insufficiency of skilled labour
- Non mechanization in agricultural sector
- Increase in production cost
- Lack of marketing facility, unstable price, low cost of agricultural products
- Scarcity of drinking water due to lack of rainfall which happens due to climatic changes

3. VI. f. Watershed Interventions

3. VI. f. 1. Entry Point Activity

Construction of check dam with footbridge across Karinkayamthodu at Anakkuzhipadam:

There are more than250 families living in the both sides of karingayam stream. Most of these people are related to agricultural sector. Irrigation and drinking water facility of these people are depending up on this stream but during summer they experience severe shortage of drinking water. As a solution for this problem there was a dam across this stream but before six years this dam was broken *(POTTIYA DAM)* and because of this people living there again experience drinking water shortage and it is affecting agricultural sector also. The EPA estimate amount in IWMP is not enough for the reconstruction of *POTTIYA DAM* so in this situation the watershed committee has decided to construct a check dam with Foot Bridge across Karinkayam stream. It will be beneficial for the people if the check dam is built. This will act as a remedy for drinking water problem, assurement of watershed development, increasing the production and production capacity in agriculture sector, irrigation and it will be more helpful as a solution for the transportation problem to the both sides of Karinkayam stream.

3.VI.f.2.Fund Distribution- Year Wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *AYYAPPAN MUDI*

Total Treatable Area in Hector - 1339

Hector Rate - 15000

Total Amount - 20085000

Sl. No.	Item	%of fund	Total	First year 2010-11		Second year 201-12		Third Year 2012-13		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**2008500**	25%	502125	25%	502125	25%	502125	25%	502125
2	Monitoring	1%	**200850**	25%	50213	25%	50213	25%	50213	25%	50213
3	Evaluation	1%	**200850**	25%	50213	25%	50213	25%	50213	25%	50213
4	Entry Point Activities	4%	**803400**	100%	803400						
5	Institution & Capacity Building	5%	**1004250**	50%	502125	25%	251063	25%	251063		
6	DPR	1%	**200850**	100%	200850						
7	Watershed Development Works	56%	**11247600**	15%	1687140	30%	3374280	30%	3374280	25%	2811900
8	Livelihood Activities	9%	**1807650**			50%	903825	50%	903825		
9	Production System & Micro Enterprises	10%	**2008500**			50%	1004250	50%	1004250		
10	Consolidation Phase	3%	**602550**							100%	602550
	Total	**100%**	**20085000**		**3796065**		**6135968**		**6135968**		**4017000**

3.VI.f.3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF AYYAPPAN MUDI WATERSHED													
Development Works in Watershed (NRM)													
Sl No	**Activities**	**code**	**TOTAL PROJECT**			**IWMP PROJECT**				**CONVERGENCE**		
			Unit Cost	**Quantity**	**Amount**	**Quantity**	**Amount**	**Beneficiary share**	**IWMP Fund**	**Quantity**	**Fund**	**Convergence**
i	**AAP- Check dam**				**2000000**				2000000			
1	Areca nut Basin	AB	16	119	1904					119	1904	MGNREGS
2	Bio Gas	BG	24,000	5	120000					5	120000	ANERT
3	Bund Strengthening	BS	37	1000	37000					1000	37000	MGNREGS
4	Coconut Basin	CB	110.55	18334	2026824					18334	2026823.7	MGNREGS
5	Earthen Bund	EB	49.56	3540	175442					3540	175442	MGNREGS
6	Fodder Cultivation	FC	391	41	16031					41	16031	Dairy dept
7	Mulching	ML	20	10429	208580					10429	208580	MGNREGS
8	New Well	MWL	15,000	3	45000					3	45000	PRI
9	Platform	PF	270	31713	8562510					31713	8562510	MGNREGS
10	Polithin Pond	PLP	30,000	3	90000					3	90000	Agri. Dept
11	Rain Pit	RP	72.36	28594	2069062	2732	197688		197688	25862	2069062	MGNREGS
12	Side Protection	SP	1,276	3345	4268220					3345	4268220	BGRF
13	Stone Bund	SB	96.28	171253	16488239	86475	8325813		8325813	84778	8162426	PRI,BRGF
14	Vegitive	VF	20	3925	78500					3925	78500	MGNREGS

	Fencing											
15	Vermi Compost	VC	15,000	2	30000					2	30000	AGRICULTURE DEPT
16	Well Renovation	WR	6,000	9	54000					9	54000	PRI
	Check Dams											
17	Near Pottiadam	1			120,000.00							
18	Anakkuzhippadam	2			150,000.00							
	Gully Plugging											
19	Karimkayam	1			31,640.00				31,640.00			
20	Karimkayam	2			35,030.00				35,030.00			
21	Karimkayam	3			47,460.00				47,460.00			
22	Karimkayam	4			31,640.00				31,640.00			
23	Karimkayam	5			23,730.00				23,730.00			
24	Karimkayam	6			38,420.00				38,420.00			
25	Karimkayam	7			21,470.00				21,470.00			
26	Karimkayam	8			38,420.00				38,420.00			
27	Karimkayam	9			31,640.00				31,640.00			
28	Karimkayam	10			25,990.00				25,990.00			
29	Karimkayam	11			22,600.00				22,600.00			
30	Karimkayam	12			19,210.00				19,210.00			
31	Karimkayam	13			11,300.00				11,300.00			
32	Karimkayam	14			11,300.00				11,300.00			
33	Karimkayam	15			11,300.00				11,300.00			
34	Vattappara Sub Stream	1			11,300.00				11,300.00			
35	Karikayam Top	1			25,990.00				25,990.00			
36	Karikayam Top	2			25,990.00				25,990.00			

37	Karikayam Top	3			26,380.00				26,380.00			
38	Karikayam Top	4			25,990.00				25,990.00			
39	Karikayam Sub Stream -1	1			6,780.00				6,780.00			
40	Karikayam Sub Stream -1	2			10,170.00				10,170.00			
41	Karikayam Sub Stream -1	3			6,780.00				6,780.00			
42	Karikayam Sub Stream -1	4			5,650.00				5,650.00			
43	Karikayam Sub Stream -1	5			5,650.00				5,650.00			
44	Karikayam Sub Stream -1	6			5,650.00				5,650.00			
45	Karikayam Sub Stream -1	7			4,520.00				4,520.00			
46	Karikayam Sub Stream -1	8			4,520.00				4,520.00			
47	Karikayam Sub Stream -1	9			4,520.00				4,520.00			
48	Karikayam Sub Stream -1	10			3,955.00				3,955.00			
49	Karikayam Sub Stream -1	11			3,955.00				3,955.00			
50	Karikayam Sub Stream -1	12			3,955.00				3,955.00			
51	Karikayam Kava	1			12,430.00				12,430.00			
52	Karikayam Kava	2			11,300.00				11,300.00			
53	Karikayam Kava	3			15,820.00				15,820.00			

54	Karikayam Kava	4			15,820.00				15,820.00			
55	Karikayam Kava	5			13,560.00				13,560.00			
	Total				**37193147**		**8523501**	**0**	**11175336**		**25945499**	

3. VII. Pulaikalathodu Watershed

3. VII a. Introduction

Pulikkalathodu watershed is one of the Watersheds in Alathur Block at Palakkad district. It is around 20 km away from Mangalam dam in Palakkadu district .The water shed is held on the hilly area in the Agricultural area, Most of the part of it coming under two persons estate, so there is no people are living in this area. But this is completely an agricultural area. The man agricultural crops are rubber, pepper, coffee, coconut, and areca nut etc Even though it is on the hilly area but it is best for cultivation. But, the most of the part of pulikkalathodu watershed is slopes to the Thrissur district Pulikalathodu watershed is also nearly th forest area of Thrissur district .its north east area is Thippilikayam and south area nearby Thrissur District.

Height	-	978 ft
Total area	-	365 ha
Treatable area	-	266 ha
Project Cost	-	Rs - 3990000 / -

Border

- North – Thrissur Dist
- South – Thippilikkayam Watershed
- East – Thippilikkayam
- West – Thippilikkayam

3. VII. b. Socio Economic Details

In Pulikkalathodu watershed, the land ownership is shared by two persons. So the socio economic details are nil.

3. VII. c. Infrastructural Facilities

No Infrastructural facilities are available in Pulikkalathodu watershed

3. VII. d. Problems

Pulikkalathodu watershed is one of the highest watersheds in the Alathur block. In the area, the wild animals like elephant, pig etc are destroying the agricultural land. It is a area with 365 hectors, but the ownership of the land is in two persons. The major problems in this watershed are soil erosion, water scarcity, wind etc. and another major problem in this area is the lack of transportation facilities.

3. VII. e. Development

It is the best place for agricultural activates. So we need to utilize the facilities in the watershed by controlling soil erosion. Pulikkalathodu watershed is wished with good climate and greenery. So once it developed it will be one of the famous tourist places in Kerala.

3. VII. f. Watershed Interventions

3. VII. f. 1. Entry Point Activity

Reconstruction and Renovation of Pond in Puliakalathodu:

This watershed situates at the top. Total area of this watershed is 365ha out of this treatable area is 266 ha. There are two main estates in this watershed and this is a plantation area which consist of many crops such as nutmeg, cardamom, pepper etc and various types of herbal plants

The main EPA work in this watershed is the protection of the pond .Out of this seven watersheds this pond is at the top which is perennial This pond is near to AYYAPPAN KOVIL. If the mud in the pond is remove and if the sides of pond is protected the water can be used for hectors of land for irrigation purpose.

VII. f. 2. Fund Distribution -Year Wise

IWMP II ALATHUR D1 Fund Distribution – Year wise

Name of PROJECT *PULIYIKKALA THODU*

Total Treatable Area in Hector - 266

Hector Rate - 15000

Total Amount - 3990000

Sl. No.	Item	%of fund	Total	First year 2010-11		Second year 2011-12		Third Year 2012-13		Forth Year 2013-14	
				%	Amount	%	Amount	%	Amount	%	Amount
1	Administration Cost	10%	**399000**	25%	99750	25%	99750	25%	99750	25%	99750
2	Monitoring	1%	**39900**	25%	9975	25%	9975	25%	9975	25%	9975
3	Evaluation	1%	**39900**	25%	9975	25%	9975	25%	9975	25%	9975
4	Entry Point Activities	4%	**159600**	100 %	159600						
5	Institution & Capacity Building	5%	**199500**	50%	99750	25%	49875	25%	49875		
6	DPR	1%	**39900**	100 %	39900						
7	Watershed Development Works	56%	**2234400**	15%	335160	30%	670320	30%	670320	25%	558600
8	Livelihood Activities	9%	**359100**			50%	179550	50%	179550		
9	Production System & Micro Enterprises	10%	**399000**			50%	199500	50%	199500		
10	Consolidation Phase	3%	**119700**							100 %	119700
	Total	**100%**	**3990000**		**754110**		**1218945**		**1218945**		**798000**

3.VII. f. 3. Development Works in Watershed (NRM)

DETAILED CONVERGENCE ACTION PLAN OF PULIYIKKALA THODU WATERSHED												
Development Works in Watershed (NRM)												
-	-	-	TOTAL PROJECT			IWMP PROJECT				CONVERGENCE		
Sl No	Activities	Code	Unit Cost	Quantity	Amount	Quantity	Amount	Beneficiary share	IWMP Fund	Quantity	Fund	Convergence
i	**Entry Point Activity - Pond**				259600				259600			
1	Areca nut Basin	AB	16	250	4000	250	4000		4000			
2	Coffee		35	500	17500	500	17500		17500			
3	Compost Pit	CP	700	6	4200	6	4200		4200			
4	Contour Terracing	CT	449	500	224500	500	224500		224500			
5	Earthen Bund	EB	49.56	2000	99120	2000	99120		99120			
6	Fodder Cultivation	FC	391	200	78200	200	78200		78200			
7	Foresting	AF	37.4	500	18700	500	18700		18700			
8	Stone Bund	SB	96.28	2000	192560	2000	192560		192560			
9	Vermi Compost	VC	15,000	2	30000	2	30000		30000			
10	EPA - Pond								259600			
	Total				**928380**		**668780**		**928380**			

4. Expected Outcome

4.I. Result Frame Work of the project

Major activities and outputs

No	Activity	Outputs
1	Community Organizations	Community structures are formed (Watershed Committee, SHG, etc) WC will be registered under societies registration act for the successful undertaking of the project activities and its objectives. The structures formed participate in the planning and implementation of the IMWP
2	Participatory Micro planning for DPR	Present status of the area, analysis of the problems, base line data and bench marks for impact analysis, potentials and limitations, critical assessment of present agri service delivery systems, action strategies and plans. Net plans and farm plans for each household, in GIS platform
3	Capacity building/skill building of the Community based organizations, farmers ,the officials, and people's representatives	Acquisition of knowledge, skill development, development of positive mind set among different stakeholders officials and willingness to accept a facilitating role, good governance, Improved coordination and cooperation among various stakeholders, convergence of schemes, increased people participation in developmental activities
4	Watershed works /soil & water management interventions	Various site specific treatment measures for soil, water and biomass conservation are implemented. This will start addressing the issues such as soil erosion, soil ill health, water degradation, low crop production and

		productivity, etc.
5	Soil analysis and soil health cards	The health of the soil is assessed and the farmers are educated on soil nutrient management and its relation with crop production. Farmers are motivated to undertake soil nutrient management practices
6	Farmer participatory seed banks	Seeds of short term crops especially local varieties will be produced and propagated. The seed requirement of the farmers will be met at local level. Availability of quality seeds. Local seed varieties are protected.
7	Irrigation water management and micro irrigation systems	Systems for proper management of the irrigation water are installed. The farmers will be trained on the irrigation systems. Micro irrigation systems are introduced in the villages.
8	Soft ware development for ICT activities	Soft ware for agro services are developed
9	Documenting Indigenous Technical Knowhow in agriculture and allied sector developing Village Knowledge Bank / Centre and its application	The ITKs are documented and are available for the use of the farmers to improve agricultural practices
10	Process documentation and dissemination of learning	Documentation of the whole process of action – reflection - and action cycles of the process and the learning is disseminated. This will produce Report, Successful Models and case studies
11	Livelihood activities	Livelihood activities are implemented. Families earn income to meet their livelihood expenses

Expected Outcomes

1. Improvement in crop production, agricultural income and living standards
2. Reduction in soil and nutrient loss
3. Increase in ground water level
4. Drinking water availability throughout the year to all the members of the community
5. Biodiversity is protected
6. Application of Information and Communication Technology (ICT) for agriculture improvement
7. Reduction in poverty rate
8. The planning , implementation and operation & maintenance systems and practices of IWMP will become more effective
9. Community, PRIs and officials will learn & develop the skills in doing micro planning, developing and applying result frame work document, participatory monitoring , process documentation, etc that help to improve the efficiency and effectiveness of the projects and programmes.
10. Best practices and norms for using water, soil and other natural resource are developed by the community.
11. The schools in the project area, NGOs and planners will get chance to learn the project results in dissemination programmes and it would be an education process for them
12. Best practices and success stories will be documented and disseminated

Expected Impact

Goal	**Impacts**	**Indicators of Impact**
The ultimate goal of the project is to generate sustainable development through management of natural resource base, agricultural production and livelihoods with increased people participation and application of	The results of the IWMP project will motivate the policy makers, planners and authorities to incorporate such systems in the projects being managed / implemented by them. The learning and	The systems incorporated in other projects of the PRIs and Government. The policy level changes

appropriate technology.	success of the project will contribute to policy and advocacy level.	
	Sustained and productive People participation in developmental programmes	Attendance in Grama Sabha, Watershed Committees, UGs and SHGs
		Decisions in the GS, UG, UG, and SHGs
		Watershed management fund and beneficiary contribution
	Capacity building of the community to plan and manage developmental programmes	Awareness and Knowledge about the programme and its guidelines
		The level of functioning of community organizations and timely completion of the interventions and social audit practices
		Number of people acquiring new skills relating to integrated watershed management, production and livelihood systems
		Knowledge on environmental issues and the need for sustainable development
		Quality of maintenance of records, registers and accounts by the community organizations
		Increase in number of deprived

		and poor people acquiring leadership roles
		Women participation and sharing of responsibilities in Community organizations, programme planning, implementation and monitoring
	Community will exercise pro active control on the developmental projects and programmes which will in turn generate good governance and proper service delivery.	Nature of involvement of technical officials in programme planning, implementation
		Timely Field visits, technical supervision and guidance for the activities and field level problems
		Timely Technical sanction and Administrative sanction
		Timely release of project assistance to the beneficiaries
		Maintenance of records, registers and accounts
	Augmenting the ground water level	Increase in the summer mean Water table
		Increase in the number of perennial wells and ponds
	Sustained availability of drinking water	Number of households that could overcome the drinking water problem
		Number of cases of water borne diseases in the watersheds- decreasing trend

		Rate of reduction to the drudgery of women
	Stream flow characteristics	Increase in the number of days of stream flows in the case of non perennial streams
		Increase in the quantity of stream flow and water availability in the upper portions of the watershed
	Soil erosion is reduced	Decrease in the loss of soil per annum per unit area
		Reduction in stream bank erosion and gully erosion
	Soil productivity	Increase in organic matter content of surface horizon
		Increase in the water holding capacity of the soil
		Improvement in the soil infiltration rate
		Improvement in the soil percolation rate
		Improvement in the activity of soil organisms
	Agricultural production and productivity is improved	Increase in the average annual yield from coconut palms
		Increase in the average yield of latex from rubber growing areas
		Increase in the total annual vegetable production of the

		watersheds
		Increase in the types of fruits and quantity of fruits produced from the watersheds
		Increase in the gross cultivated area
		Increase in the unit production of cereal crops
		Decrease in the cultivable barren and fallow lands
		Adoption of cropping systems like crop rotation, mixed cropping, multi level cropping
		Increase in the irrigated area in the watersheds
		Increase in the micro irrigation systems and irrigation pump sets
		Availability of fodder in the watersheds-increase
	Progress in Dairy and animal husbandry	Increase in the cattle population
		Increase in the total milk production of the watershed
		Increase in the milk collection centre's and cooperative societies
		Increase in the family income from dairying
		Egg production in the watersheds

		Increase in the poultry, piggery and rabbit rearing units
	Non conventional source of energy is promoted	Increase in the number of bio gas plants
	Proper marketing system is developed	Distance to the markets – decrease
		Number of farmer's markets in the watersheds- increase
	Seed security at local level	The availability of seeds in sufficient quantity and quality to the farmers, locally
	ICT use make the process ease	The level of use of ICT by the farmers

4. II. Exit Protocol

Through the Projects like IWMP, we are coordinating the people and constitute committees among them and they are doing or lead the project. The activity motivates the local people to engage in social works. If all the people think like this way, it will happens a dramatic change in our society