Pariyaram
06-02-2013

Joint Development Commissioner
SLNA
Trivandrum

Dear Sir,

Sub: **IWMP I – Submission of Project Proposal and Action Plan regarding**

Love & Greetings from SUSTHIRA!!!

We are happy to inform you that the Project Proposal and Action plan of IWMP –I have been revised with all the corrections and suggestions proposed by you and SLNA and is ready for your kind consideration and favourable action. As you know we have taken all effort to make the document most systematic and the activities proposed are according to the analysis done based on the data collected from individual watersheds through baseline survey and PRA. We hope that you will do the needful to implement the programmes in a most effective manner and bring the expected results.

If you need further clarifications please feel free to contact us. We will be available on all working days in our office at your disposal and are ready to provide any service related to the Project Plan and its effective implementation.

Thanking you for all that you had been to us and with all warm personal regards, I remain.

Sincerely Yours,

S/d
Sunny Asariparambil
Director, Susthira

Encl: as s/a.

Integrated Watershed Management Programme (IWMP)

Thrithala Block Panchayath, Palakkad Dist.

DETAILED PROJECT REPORT

IWMP - I

Prepared by

SUSTHIRA

Centre for Sustainable Development Studies and Action

(Technical Support Organization)

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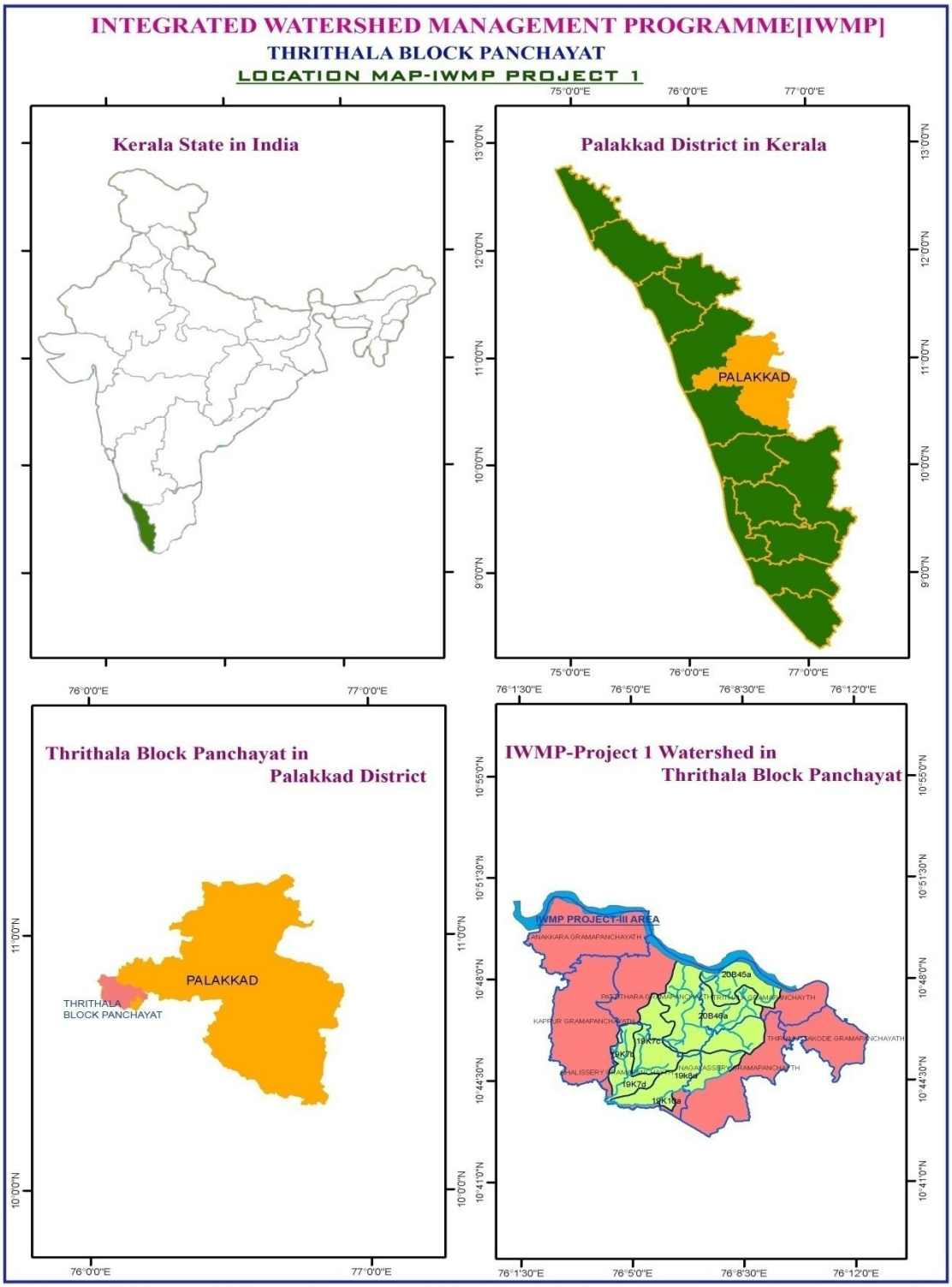
INTEGRATED WATERSHED MANAGEMENT PROGRAMME[IWMP]
THRITHALA BLOCK PANCHAYAT
LOCATION MAP-IWMP PROJECT 1
Kerala State in India
Palakkad District in Kerala
PALAKKAD
Thrithala Block Panchayat in
Palakkad District
PALAKKAD
THRITHALA
BLOCK PANCHAYAT
IWMP-Project 1 Watershed in
Thrithala Block Panchayat
IWMP PROJECT-III AREA
20B45a
20B46a
19K7c
19K7b
19K7d
19K8a
19K15a
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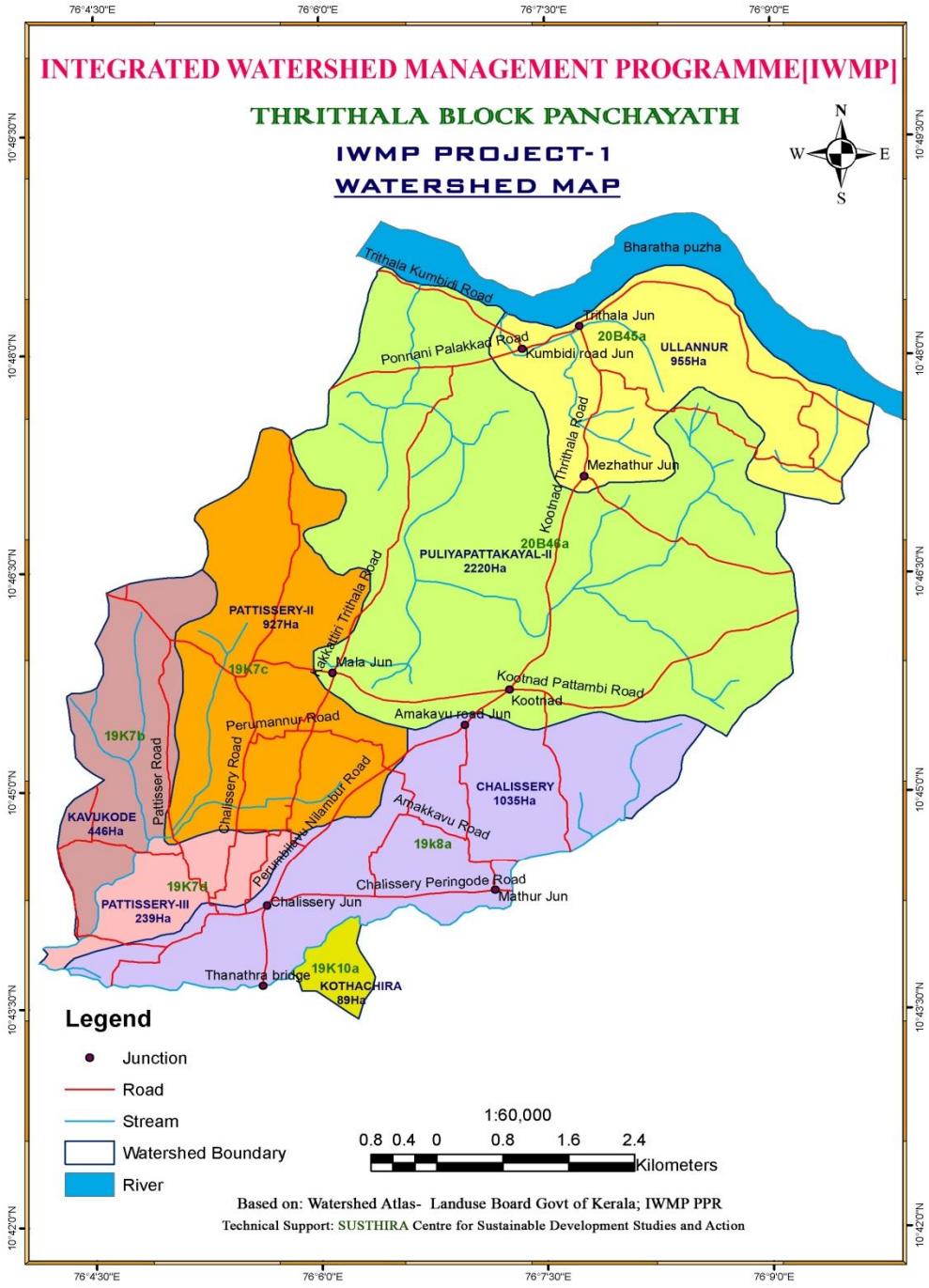
INTEGRATED WATERSHED MANAGEMENT PROGRAMME[IWMP]
THRITHALA BLOCK PANCHAYATH
IWMP PROJECT-1
WATERSHED MAP
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76°6'0"E
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76°9'0"E
10°49'30"N
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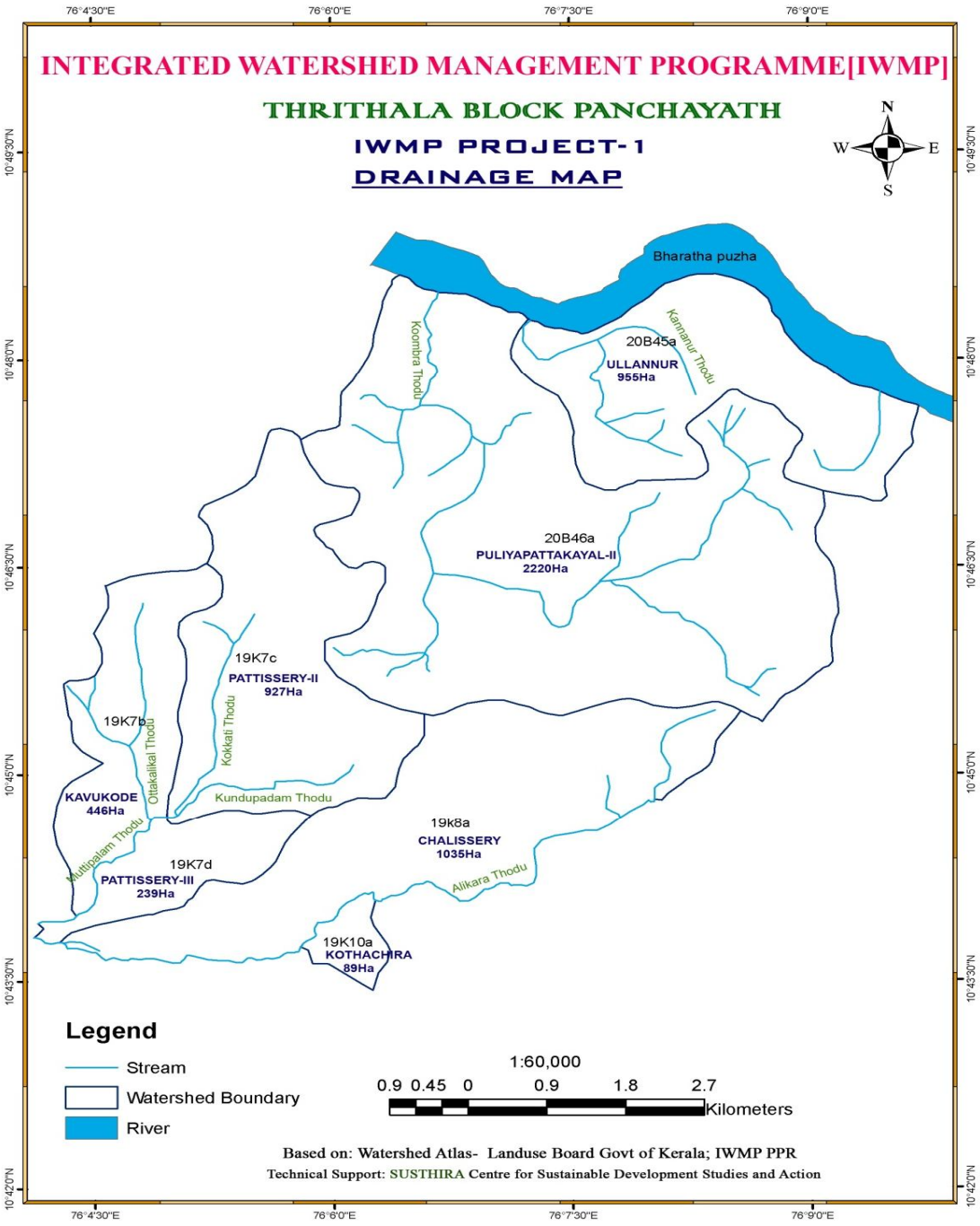
10°43'30"N
10°42'0"N
Bharatha puzha
Trithala Kumbidi Road
Trithala Jun
20B45a
ULLANNUR
955Ha
Ponnani Palakkad Road
Kumbidi road Jun
Mezhathur Jun
Kootnad Thrithala Road
20B46a
PULIYAPATTAKAYAL-II
2220Ha
PATTISSERY-II
927Ha
19K7c
Mala Jun
Kootnad Pattambi Road
Kootnad
Amakavu road Jun
Perumannur Road
19K7b
Pattisser Road
Chalissery Road
CHALISSERY
1035Ha
KAVUKODE
446Ha
Amakkavu Road
19k8a
Chalissery Peringode Road
Mathur Jun
19K7d
PATTISSERY-III
239Ha
Chalissery Jun
Thanathra bridge
19K10a
KOTHACHIRA
89Ha
Legend
Junction
Road
Stream
Watershed Boundary
River
1:60,000
0.8 0.4 0 0.8 1.6 2.4
Kilometers
Based on: Watershed Atlas- Landuse Board Govt of Kerala; IWMP PPR
Technical Support: SUSTHIRA Centre for Sustainable Development Studies and Action


INTEGRATED WATERSHED MANAGEMENT PROGRAMME[IWMP]
THRITHALA BLOCK PANCHAYATH
IWMP PROJECT-1
DRAINAGE MAP
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76°4'30"E
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Bharatha puzha
Koombra Thodu
Kannanur Thodu
20B45a
ULLANNUR
955Ha
20B46a
PULIYAPATTAKAYAL-II
2220Ha
19K7c
PATTISSERY-II
927Ha
19K7b
Kokkati Thodu
Ottakalikal Thodu
KAVUKODE
446Ha
Kundupadam Thodu
Muttipalam Thodu
19K7d
PATTISSERY-III
239Ha
19k8a
CHALISSERY
1035Ha
Alikara Thodu
19K10a
KOTHACHIRA
89Ha
Legend
Stream
Watershed Boundary
River
1:60,000
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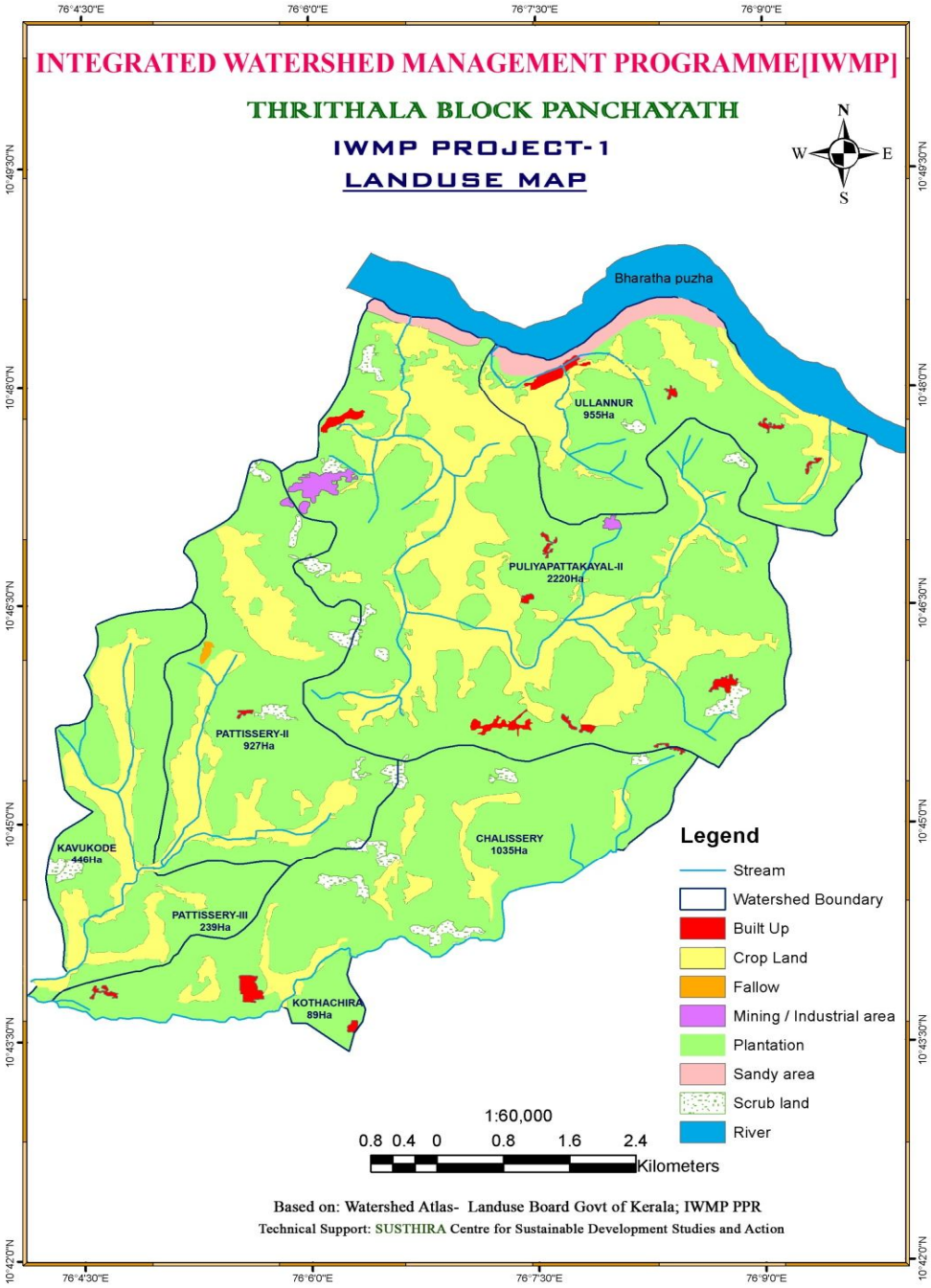
Kilometers
Based on: Watershed Atlas- Landuse Board Govt of Kerala; IWMP PPR
Technical Support: SUSTHIRA Centre for Sustainable Development Studies and Action


INTEGRATED WATERSHED MANAGEMENT PROGRAMME[IWMP]
THRITHALA BLOCK PANCHAYATH
IWMP PROJECT-1
LANDUSE MAP
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76°4'30"E
76°6'0"E
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76°9'0"E
10°49'30"N
10°48'0"N
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Bharatha puzha
ULLANNUR
955Ha
PULIYAPATTAKAYAL-II
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PATTISSERY-II
927Ha
KAVUKODE
446Ha
CHALISSERY
1035Ha
PATTISSERY-III
239Ha
KOTHACHIRA
89Ha
Legend
Stream
Watershed Boundary
Built Up
Crop Land
Fallow
Mining / Industrial area
Plantation
Sandy area
Scrub land
River
1:60,000
0.8 0.4 0 0.8 1.6 2.4
Kilometers
Based on: Watershed Atlas- Landuse Board Govt of Kerala; IWMP PPR
Technical Support: SUSTHIRA Centre for Sustainable Development Studies and Action

PART – I

1. Introduction

Environmental protection is an increasingly pressing issue all over the world. Ozone depletion, green house effect, global climate changes or global warming, etc, are the main issues in environment. Every land area is a part of some watershed or the other. We can identify our watershed by exploring the water body to which the water from our area drains to.

In the most general term watershed management is important for the improvement and maintenance of good water quality in our watershed. In the recent years the water quality standards have come under stress due to increasing population, depleting water resources, bad management practices. Addressing all the issues that concerns the water resources of our watershed, in any way, come under the watershed management strategy.

Village Watershed Committees and SHGs are formed and micro planning is done for individual families. Along with area treatment, improved agricultural practices, promotion of appropriate agro-horti systems, promotion of support activities like biogas; enterprises by women, agro service centres, etc., are promoted as part of integrated approach towards the programme. The activities are planned, implemented and managed by the community itself through village watershed committees and self help groups. These people's organizations handle the responsibility of maintaining the area treatment and sustaining the activities initiated in the programme.

1.1. Integrated Watershed Management Programme (IWMP)

Natural resources play a special role in the life of the poor. While all human societies are linked to ecological processes and healthy ecosystems that produce the requirements for life, rural poor people depend significantly more on natural capital than do other parts of the population. Natural ecosystems have several characteristics that make them attractive and accessible as a source of income to the rural poor. For the rural poor, natural resources foster cohesion and strengthen the safety net for the whole community.

Integrated Watershed Management is an important activity for development of rural community. It not only helps restore the quality of life of people but also enriches the land, vegetation and helps retain soil moisture in a sustainable manner.

Integrated Watershed Management Programme (IWMP) is a modified programme of erstwhile Drought Prone Areas Programme (DPAP), Desert Development Programme (DDP) and Integrated Wastelands Development Programme (IWDP) of the Department of Land Resources (DoLR). The scheme was launched during 2009-10. The programme is being implemented as per Common Guidelines for Watershed Development Projects 2008. The main objectives of the IWMP are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. The outcomes are prevention of soil erosion, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area.

1.2. The salient features of IWMP are as below:

The salient features of IWMP in comparison with Pre-IWMP are as below:

Sl. No.	Contents	Existing provisions- Pre- IWMP	Provisions under IWMP
1.	Programmes	Three programmes IWDP, DPAP, DDP	Single Programme IWMP
2.	Project Area	One micro-watershed (500 ha average size)	A cluster of micro-watersheds (1000 ha to 5000 ha)
3.	Selection of watershed	Project area did not exclude assured irrigation area	Assured irrigation area excluded from project area
4.	Cost per ha.	Rs. 6,000	Rs. 12,000 for plains and Rs.15,000 for difficult and Hilly areas
5.	Central Share and State Share	75 : 25 for DPAP and DDP, 92:8 for IWDP	90 : 10 for IWMP
6.	Project Period	5 years	4 to 7 years
7.	Number of Installments	5 - (15%, 30%, 30%, 15%, 10%)	3 - (20%, 50%, 30%)
8.	Fund Allocation	Training & Community Mobilization 5% Admm. 10% Works 85%	Institution & Capacity building - 5%, Monitoring & Evaluation 2% Admn. 10% Works & Entry Point Activities - 78% Consolidation 5%
9.	Institutional Support	Weak Institutional	Dedicated Institutional Structures Support arrangements at Central, State, District, Project and Village level

10.	Planning	No separate component	1% for DPR Preparation with scientific inputs
11.	Monitoring & Evaluation	No separate budget provision for midterm & final evaluation	2% of project cost earmarked for Monitoring & Evaluation. Provision for evaluation after every phase of the project
12.	Sustainability	Weak mechanism with WDF as a tool	Consolidation Phase with WDF and livelihood component as a tool
13.	Livelihood	Not included	Included as a Component

1.3. Criteria for allocation of target area to States under IWMP

Keeping in view the mandate of the Department of Land Resources and its watershed schemes, the following criteria are adopted for the allocation of target area among the States.

- Identified DPAP/DDP areas in the State as percentage of total DPAP and DDP area in the country
- Total treatable wastelands in the State as percentage of total treatable wastelands in the country
- Total SC/ST population of the State as percentage of total SC/ST population of the country
- Percentage of rainfed area in the State to total cultivated area in the country

1.4. Objectives of IWMP

The general objective of the IWMP is to restore the degraded rangeland and improve the production in the watersheds of Thrithala Block Panchayat by more efficient utilization of natural resources through the proper and effective implementation of Integrated Watershed Management Programme plan. The NRM technique will control the surface runoff, increase the soil moisture content, conserve the soil, improve the natural plant cover, and improve the vegetation production.

1.5. Specific objectives include:

- Restoring and rehabilitating the degraded rangelands of the targeted ecosystems through the effective use of soil and water resources and improve livestock production.

- Improving the capacity of communities' to manage common natural resources.

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

- Spreading the use of water harvesting structures as a sustainable and renewable water resource to help in ecosystem restoration and maintain the land and livestock productivity.

- Increasing the productivity of natural vegetation and shrubs in order to decrease feed demand for livestock animal in the watershed areas and increase the income of the participating livestock owners.

- Disseminating appropriate water harvesting techniques for restoration of water table, risk management and drought mitigation.

- Improving on-site infiltration/soil-moisture.

- Reducing on-site soil erosion/soil loss.

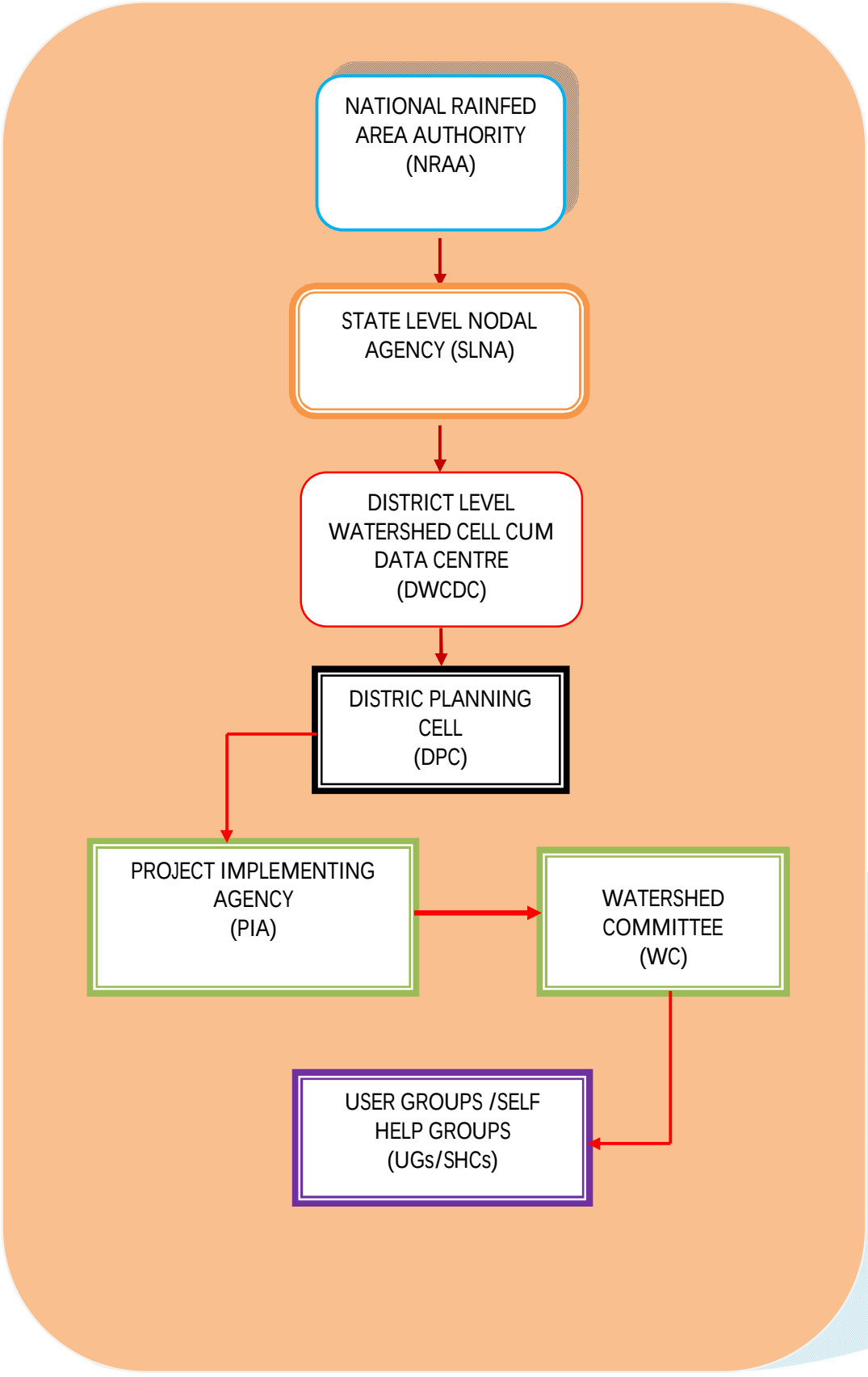
1.6. Need of the IWMP Project

Natural Resource Management is very crucial for the survival of any human society. The watershed area is prone to soil erosion and degradation. This area is required to be treated so that further degradation of the soil can be checked. As agriculture and horticulture is the major activity it will help to increase the income levels of the people at the watershed area. The livelihood promotion programmes will help to develop entrepreneurship capacity among the population and serve as an example for the villagers to come up with similar initiatives at their own. It will increase the income levels of the people. Majority of the BPL households are meeting their livelihood needs from agriculture and horticulture production. Development of sustainable livelihoods for the assetless families in the watershed area is a major objective of the project. The livelihood options and income of all the BPL households will be enhanced once the project is properly implemented. The area under agriculture and horticulture and its productivity will be increased as a result of the increase in irrigation facilities and other activities aimed at expansion of the same. The lack of fodder availability will be addressed by the pasture development and nursery rising. Moreover the households practicing livestock activities will be benefited through the distribution of fodder seeds and fodder plants. The micro enterprises sector will be revived as a result of the implementation of the project. The number of working days will also be increased.

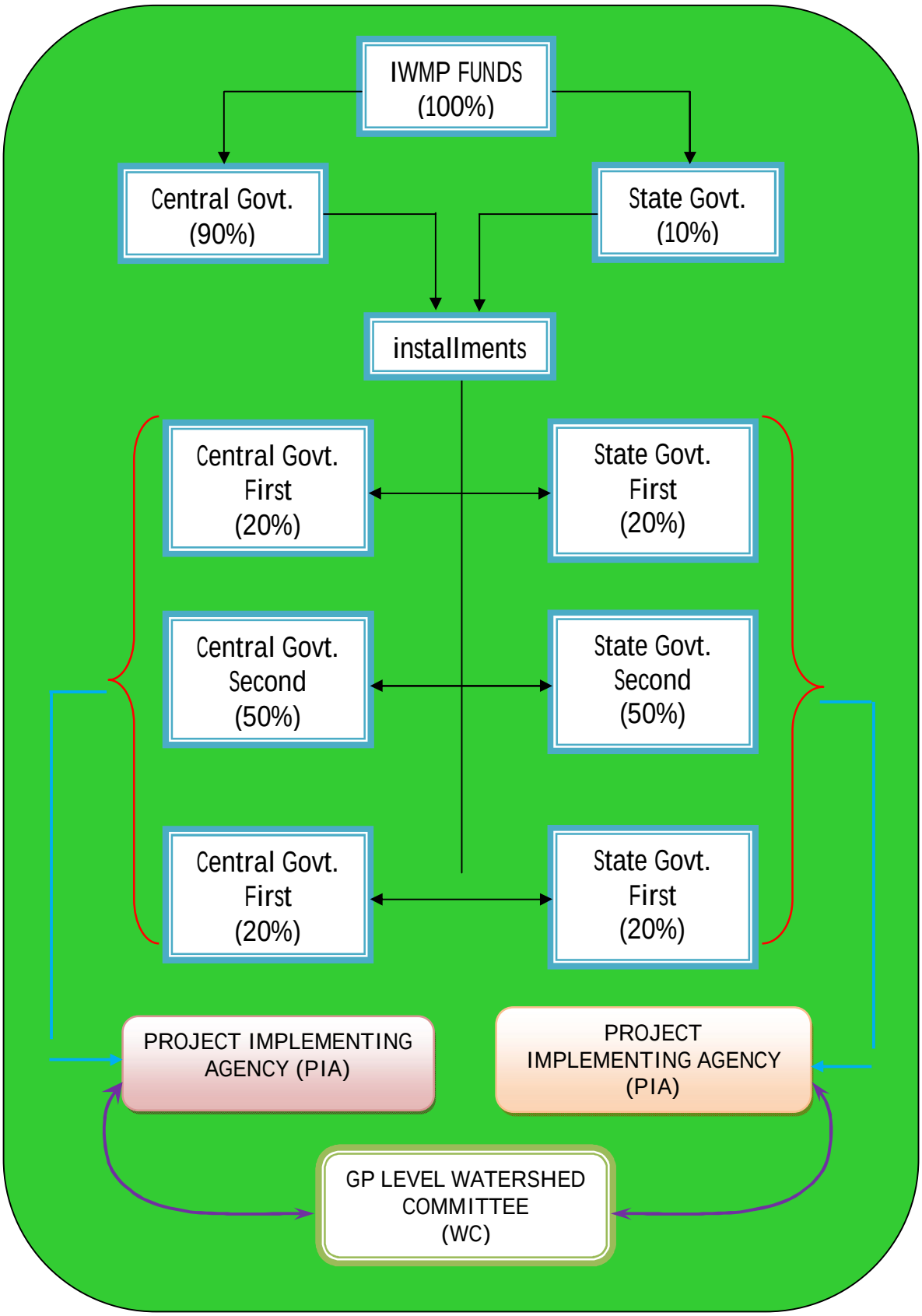
1.7. Organizational Setup

- The following are the Institutional arrangements made for the effective implementation of IWMP Project:

Flow Chart Showing Organizational Set-Up



1.8. Fund Flow


IWMP FUNDS
(100%)
Central Govt.
(90%)
State Govt.
(10%)
installments
Central Govt.
First
(20%)
State Govt.
First
(20%)
Central Govt.
Second
(50%)
State Govt.
Second
(50%)
Central Govt.
First
(20%)
State Govt.
First
(20%)
PROJECT IMPLEMENTING AGENCY (PIA)
PROJECT IMPLEMENTING AGENCY (PIA)
GP LEVEL WATERSHED COMMITTEE (WC)

2. DISTRICT (PALAKKADU)

In the past, this land was known as Palakkattussery Etymologist traces the word Palakkad from Palanilam meaning the dry area. Palakkad has a long history dating back to the Paleolithic Period which was substantiated by a number of megalithic relics discovered from this region. It also housed the Capitals of two Kingdoms such as Palakkad and Kollengode, which were in prominence till a Century back.

Palakkad or Palghat is the land of Palmyrahs and Paddy fields. Along with Kuttanadu, Palakkad is a major Paddy growing area of the state. It is often called as the "Gateway of Kerala" The Sahya Ranges bordering the region and the 32 k.m. long gap in the mountains exert a dominant influence on the climate of the region. This Gap is known as "Palakkad Gap".

Palakkadu District came into existence on 1st January 1957. It ranks the first in area (4480 Sq. Kms). The district has an area of 173600 ha of forest. It occupies the first position among the districts in the percentage of agricultural labourers (33.6%). Palakkadu District is called the "rice bowl" of Kerala on account of its net sown area (118701 Ha) under paddy cultivation.

The district has five Taluks, 4 Statutory Towns, one census Town, 13 Community Development Blocks and 90 Panchayatsa. The district now consists of two Revenue Divisions of Ottappalam comprising of Ottappalam and Mannarkadu Taluks (66 Villages) and Palakkadu comprising of Palakkadu, chittur and Alathur Taluks (90 Villages). There are five Taluks, 156 Villages in this district. Under the Self Government System, the District is divided into 4 Statutory Towns and 13 blocks consisting of 90 Panchayats.

Palakkadu consists of four micro – sub regions: - (i) Pattambi undulating plains (ii). Mannarkkadu – Palakkadu forested hills (iii) Palakkadu Gap and (iv) Chittut Forested Hills. The district is bounded on the east by the Coimbatore District of Tamil Nadu, on the North and North-West by Malappuram District and on the south by Thrissur District. It lies between 10^{o} 20' and 11^{o} 14' North latitude and between 76^{o} 20' and 76^{o} 54' east longitudes.

The Western Ghat Mountain Ranges which dominate in the district has an average altitude of 1538 meters with two peaks, Angida and Karimala of more than 1900 meters. The continuity of the majestic Western Ghats stretch over 100 Kms., is broken at Palakkadu. The main rivers are the Bharathapuzha (Nila), the Chitturpuzha, The Gayathripuzha, The Thoothapuzha, The Bhavani River and the Siruvani River. There are five forest dicvisions – Mannarkkadu, Silent Valley National Park (Wild Life) Palakkadu, Parambikkulam Wild Life and Nemmara.

Six out of the ten completed irrigation projects of Kerala are in Palakkadu District. They are, Walayar, Malampuzha, Cheerakkuzhi, Gayathri (Meenkara, Chulliyar), Mangalam and Pothundy. The total ayacut of all these completed projects is 77306 ha. In addition to this, two major irrigation projects – Chitturpuzha and Kanhirapuzha are also in progress. The total ayacut of these two projects is 54200 hectares. Thrithala is one of the 13 block Panchayats in the District and the IWMP project is sanctioned for the Block Panchayat and the pre planning works are in progress.

An official Census 2011 detail of Palakkad, has been released by Directorate of Census Operations in Kerala. In 2011, Palakkad had population of 2,810,892 of which male and female were 1,360,067 and 1,450,825 respectively. With regards to Sex Ratio in Palakkad, it stood at 1067 per 1000 male compared to 2001 census figure of 1066. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. There was change of 7.39 percent in the population compared to population as per 2001. In the previous census of India 2001, Palakkad District recorded increase of 9.88 percent to its population compared to 1991. The initial provisional data suggest a density of 627 in 2011 compared to 584 of 2001. Palakkad Population constituted 8.42 percent of total Kerala Population. Sex Ratio of Palakkad District is now 1067, while child sex ratio (0-6) is 962 per 1000 boys. Children below 0-6 age were 288,366 which form 10.26 of total Palakkad District population. Total area under Palakkad district is of about 4,480 sq.kms.

Average literacy rate of Palakkad in 2011 were 88.49 compared to 84.35 of 2001. If things are looked out at gender wise, male and female literacy were 92.27 and 84.99 respectively. For 2001 census, same figures stood at 89.52 and 79.56 in Palakkad District. Total literate in Palakkad District were 2,232,190 of which male and female were 1,119,360 and 1,112,830 respectively. In 2001, Palakkad District had 1,938,818 in its total region.

3. BLOCK PANCHAYAT (THRITHALA)

3.1. Brief History

Thrithala, Palakkad is an important archaeological site of Kerala. Thrithala is located at a distance of 75 kilometers from Palakkad, in Ottappalam Thaluk on the banks of the River Bharatapuzha. The most fascinating thing about Thrithala is that it is an ancient archaeological site of Kerala and is still well preserved even today. The place is known for its excellent Ayurvedic treatments that are offered in some of the best resorts and hospitals built there.

Thrithala is famous for its Shiva temple that has an interesting story behind it. According to a legend, the child Agnihotri was bathing in the river along with his mother. He heaped the sand in the form of a mound on a plate ('Thalam' in Malayalam).

When the mother tried to remove the sand, she found that it has solidified in the form of a 'Siva Lingam'. Thus the deity is known as 'Thalathilappan', meaning God in a plate. The idol is said to have the constitution of sand. It is believed that the sharp bend in the river in the area was formed due to the river changing its course on its own, to give space for the temple to be built.

The population consists of mainly Muslims and Hindus. A large number of people are employed in the Arab countries, who have made the area prosperous by their remittances from abroad. Trithala is well known for the excellent traditional Ayurvedic treatment. The Vaidyamadhom Hospital, situated at Mezhathur, is the most famous of them. Another hospital is CNS Ayurveda Chikitsalayam, which specializes in the treatment of children.

Even though Trithala is a part of Palakkad district, people prefer to go to Trissur town for their purchases due to its nearness compared to Palakkad town. Water for the needs of Guruvayur Municipality and the nearby Panchayats of Trissur district is pumped from Thrithala. There is a big pumping station at Trithala with a storage tank at Kootanad. The *Paakkanaar Memorial* built in honour of a Pariah saint, stands near *Thrithala-Koottanad Road*. Thrithala is also the native place of renowned writer and social reformer, V. T. Bhattathiripad. "MT Vasudevan Nair" The great writer born in Kodallur, very near to Trithala village and in Trithala Block.

Location

Thrithala lies to the east of the district and is the smallest among all the blocks. Thrithala Block is in the Ottappalam Taluk of Palakkadu District which consists of seven Grama Panchayats on the banks of the river Bharathapuzha. The total area of the Block Panchayat is 172 Sq. Kms. And is located between the East Longitude 76°1'30" and 76°12'0" & North Latitude 10°41'0" and 10°51'30".

Thrithala comprises of eight villages and seven Panchayats. Agriculture is the major economic activity and is also a source of employment. The net area sown is over 44 per cent of the geographical area. Paddy is the major crop in the block. The next important crop is areca nut. Presently, irrigation is available only to a very small area.

The nearest Railway station to Thrithala is Pattambi, which is only 8 KMs away. Karipur Airport (Kozhikode International Airport) and Nedumbassery International Air Ports are almost at the same distance from Thrithala. Nearest places of Thrithala are Pattambi, Edappal, Koottanad, Kunnamkulam and Kuttipuram.

3.2. Physiography, Relief & Drainage

Thrithala block is a small area with a total geographic extension of 139.85 Sq. Kms. Based on the physical features, Palakkadu district is divided into two natural divisions- midland and highland. The midland region consists of valleys and plains. There is no low land or very high lands in Thrithala Block. ***(Courtesy: Kerala State Land Use Board)***. The midland forms an area of gently undulating topography with hillocks and mounds. Laterite capping is commonly noticeable on the top of these hillocks. The low, flat-topped hillocks forming the laterite plateau range in altitude from 30-200m and are observed between coastal low-land and the foothills.

The watershed area is mainly drained by Bharathapuzha (Nila) and Kanhirakkunnu River and by their tributaries. Besides this, there a number of (about14) small and large streams in the watershed boundary of Thrithala Block. The list is given below:

1. Parappan Thodu
2. Kalladathur-Neeliyad Thodu
3. Padamthodu
4. Mullankunnu-Kundippadam Thodu
5. Chenamkundu Thodu
6. Kokkattithodu
7. Kunupadam Thodu
8. Kavukattu-Ottakkalikkal Thodu
9. Muttippalam Thodu
10. Alikkara Thodu
11. Kannanur Thodu
12. Puliyappattakkayal
13. Kabarodi-Manchodi Thodu
14. Koombra Thodu

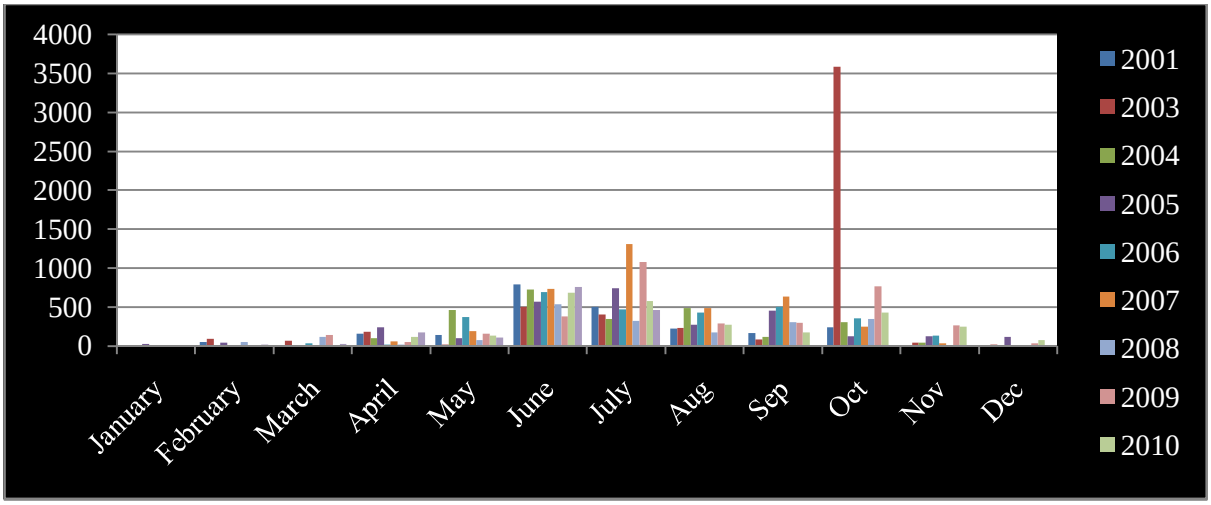
3.3. Rainfall

The Block 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 Thrithala Block receives on an average 2348 mm of rainfall annually. Major rainfall is received during June to September in the southwest monsoon (71%). The northeast monsoon contributes about 18%. The last 10 years of data is presented below and in Figure.

Rainfall Data										
Year & Month	**2001**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
January	0	0	0	21	0	0	0	0	0	0
February	51.6	90.6	0	45	0	0	46.9	0	0	20
March	0	62.6	4.1	0	36.1	0	117.5	141.9	0	21
April	155.3	182.4	105	238.3	16.7	53.9	13.6	52.5	114.5	172.2
May	142	19.8	463.3	101.4	369.6	184.8	73.2	158.6	130.5	108.4
June	791.2	503.6	729.7	567.6	688.4	728.4	533.1	378.9	681.2	759
July	497.8	403.6	347.1	736.6	470.4	1307.5	322.7	1076.2	572.5	456.9
Aug	225.8	232.4	486.7	271.8	426.7	483	175.1	286.5	273.4	0

Sep	162.5	81	122.2	453.7	500.6	629	302	294.8	174.1	0
Oct	239.8	3584.6	305.2	121.1	352.9	247.4	345.7	760	430.9	0
Nov	0	44.8	42.8	126.2	133.9	34.4	7.6	262.8	245.1	0
Dec	0	19.2	0	112.9	0	6	0	28.8	70.5	0
Source: RARS - Pattambi										

Figure: Rainfall variations (2000-2010)



3.4. The Climate

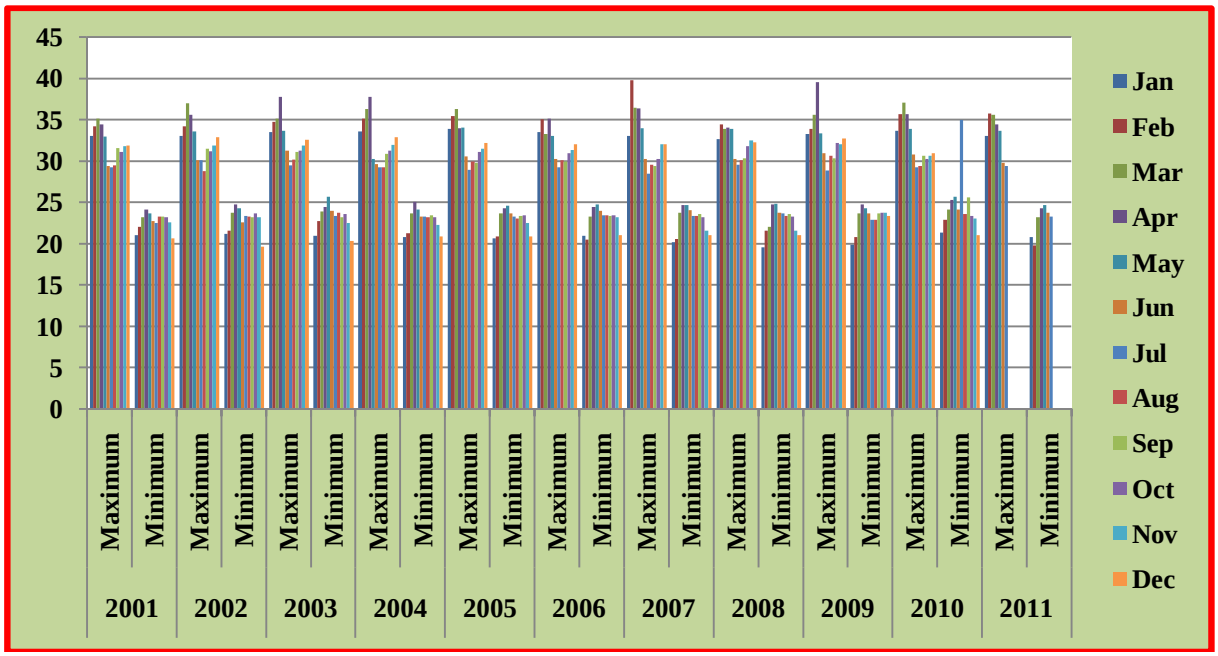
The climate is hot and humid for most part of the year. There is sufficient rainfall. The district is blessed with many small and medium rivers, which are tributaries of the Bharathapuzha River. Based on climatic classifications Thrithala Block experiences humid type of climate. The climate of the watershed has no difference from that of the whole district which is tropical. The obvious fact which strikes an observer, according to William Logan, is the uniformity of temperature in the Malabar area. During dry weather, hot winds blow form the bringing plains of Coimbatore through the Palakkad gap. Maximum & Minimum Temperature of the area is tabulated below:

Temperature Data

Month Year	M/M	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	Maximum	33.1	34.2	35.2	34.5	33	29.4	29.3	29.5	31.6	31.1	31.8	31.9
	Minimum	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	Maximum	33.1	34.2	37	35.6	33.6	30.1	30.1	28.8	31.5	31.2	31.9	32.9
	Minimum	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	Maximum	33.5	34.8	35.2	37.8	33.7	31.3	29.5	30.2	31.1	31.3	31.9	32.6
	Minimum	21	22.8	23.9	24.5	25.7	24	23.4	23.8	23.2	23.6	22.5	20.4
2004	Maximum	33.6	35.2	36.3	37.8	30.3	29.7	29.3	29.3	30.9	31.3	32	32.9
	Minimum	20.8	21.3	23.7	25.1	24.2	23.3	23.3	23.2	23.5	23.2	22.3	20.9
2005	Maximum	33.9	35.5	36.3	34	34.1	30.6	29	30	29.8	31.1	31.5	32.2

	Minimum	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	Maximum	33.5	35.1	33.3	35.2	33.1	30.3	29.3	30.1	30	31	31.4	32.1
	Minimum	21	20.5	23.3	24.5	24.8	24	23.5	23.5	23.4	23.5	23.2	21.1
2007	Maximum	33.1	39.8	36.5	36.4	34	30.3	28.5	29.6	29.4	30.3	32.1	32.1
	Minimum	20.2	20.6	23.8	24.7	24.7	24.1	23.4	23.4	23.6	23.2	21.6	21.1
2008	Maximum	32.7	34.5	33.9	34.1	33.9	30.3	29.6	30.1	30.4	31.8	32.5	32.3
	Minimum	19.6	21.6	22.1	24.8	24.9	23.8	23.7	23.4	23.6	23.3	21.6	21.1
2009	Maximum	33.3	33.9	35.6	39.6	33.4	31	28.9	30.7	30.4	32.2	32.1	32.8
	Minimum	19.9	20.8	23.7	24.8	24.3	23.7	22.9	22.9	23.7	23.8	23.8	23.4
2010	Maximum	33.7	35.7	37.1	35.7	33.9	30.8	29.3	29.4	30.7	30.3	30.7	31
	Minimum	21.4	22.9	24.2	25.3	25.7	24.2	35	23.6	25.6	23.4	23.1	21.1
2011	Maximum	33.1	35.8	35.6	34.5	33.7	29.8	29.4					
	Minimum	20.8	19.8	23.2	24.3	24.7	23.8	23.3					

Source: RARS - Pattambi



3.5. Geology

Thrithala Block Panchayat is situated in Ottappalam Taluk of Palakkadu District which is exclusively in the midland portion. Geologically the area can be divided into three, small hills, slopes and plains. The elevation of the landforms varies from 20 to 120 meters MSL. Most part of the Block consists of alluvial sandy soil and some part is with laterite soil (red soil mixed with pebbles). The classification of the land can be as follows: Low lying terrains, moderately undulating midland terrain and comparatively high undulating terrain.

The land is underlain by Archaean metamorphic complex. They include the granulites group, the gneisses and the schist. Intrusives of pegmatites and quartz veins are also common. The general geologic succession encountered in the area is given below. **(SOURCE: CGWB)**

Recent	Top soil, valley fill and riverine alluvium
Sub-recent	Laterite
Archaean	Pegmatite, quartz vein, dolerite, gabbro, Granites, quartz-mica schist, hornblende biotitic gneiss, ultramafics, charnockite, khondalits and calc-granulites.

The Archaean crystallines are the major rock types encountered in the area. This includes Charnockites, khondalites, calc-granulites, hornblende gneiss, migmatites and gneisses.

3.6. Groundwater Scenario

Groundwater occurs in all the geological formation from Archaean crystalline (hard rock) to recent alluvium (soft rock). Groundwater occurs in phreatic condition in the laterite, alluvium and weathered crystalline. It is in semi confined to confined condition in the deep fractured rocks. Valley fills are noticed along the valley portion and along the river terraces/banks. These are mainly seen in Thrithala blocks along with Mannarghat, Ottapalam and Pattambi. The water level ranges from 2- 12 m bgl (pre-monsoon) and 1- 6 m bgl (post monsoon). The fluctuation is generally high up to 5 m. The yield of dug well ranges from 5 to 20 m^3/ day.

The laterite province is limited in extent, as noticed in Thrithala block. The water level ranges from 4 to 11.0 mbgl during pre monsoon and post monsoon water level ranges from 3 to 8 m mbgl. The fluctuation between pre and post monsoon varies between 2 to 6 m. The yield ranges from 5 to 30 m^3/ day. In these areas the extraction is less. The specific capacity ranges from 10- 125 l/min/mdd. ***(Courtesy: Central Ground Water Board)***

The groundwater assessment was done block wise by Central Ground Water Board using GEC-1997 methodology and is computed based on the data as on March 2004. The assessment on Thrithala Block is shown below in a tabular format.

Details of categorization for ground water development done by the board as on 31.03.2004 shows that there is a significant decline of pre-monsoon and post monsoon water table levels in Thrithala block and the Block is categorized **"critical"** for the future ground water development. The Board recommends that large scale ground water development schemes need to be restricted in Thrithala Block. Another finding of the Board is that Thrithala Block, especially Kappur, Aanakkara and Thrithala Villages are water scares.

3.7. Water Supply and Irrigation

The major irrigation cum water supply scheme is the Regulator cum bridge at Thrithala built on the Velliyankallu Bridge. The main objective of the regulator is drinking water supply. The shutter height of the regulator is 5 m and it can contain a huge quantity of water. This irrigation cum drinking water supply scheme is to provide irrigation facilities to 3997 ha.(gross) in Ottappalam Taluk, drinking water facilities to Kunnamkulam, Chavakkad and Guruvayoor Municipalities and 18 Panchayats in the project area and to connect the Kozhikode-Guruvayoor road which would help to reduce the distance by 11 KM.

9. SOCIO-ECONOMIC DETAILS

Thrithala Block is predominantly known for its agrarian economy. However, the low agricultural wage rate, decline in the area under paddy cultivation, rising operational cost of farming, fall in yield per acre, issues related to collection and storage of produce, uneconomical returns, mechanization of operations, etc. prevailing in the area need a closer look in the context of the launching the IWMP.

9.1. Demographic Details

Population Details	**data**
Male (Scheduled Castes)	15146
Male (Scheduled Tribes)	07
Male (Others)	63255
Total Male	**78408**
Female (Scheduled Castes)	15846
Female (Scheduled Tribes)	6
Female (Others)	69996
Total Female	**85846**
Scheduled Castes Total	30990
Scheduled Tribes Total	13
Others Total	**133251**
Grand Total	**164254**
Population Density	954
Sex Ratio	1095
Total literacy	87.49
Literacy (Male)	91.36
Literacy (Female)	84.04
Courtesy: Panchayat Level Statistics 2001, Department of Economics & Statistics, Thiruvananthapuram	

The population consists of mainly Muslims and Hindus. A large number of people are employed in the Arab countries, which have made the area prosperous by their remittances from abroad.

9.2. Educational Institutions

Thrithala Block has adequate number of educational institutions to provide basic education as well as Higher Secondary education. A latest Detail of Total Schools is given below:

	School	LP Only	UP Only	LP attached UP	LP attached HS	UP attached HS	HS only	Total
THRITHALA	Govt.	21	0	4	2	5	1	**33**
	Aided	21	1	8	0	2	1	**33**
	Unaided	2	0	0	1	0	0	**3**
Total		**44**	**1**	**12**	**3**	**7**	**2**	**69**

9.3. Medical Institutions

- Royal Dental collage,Iron Hills, Chalissery
- Vaidyamadom Vaidyasala & Nursing Home, Mezhathur
- CNS Ayurveda Chikitsalayam, Mezhathur
- Govt. Hospital Trithala

Transport & Communication

The main transportation is through the roads. Conveyance is available throughout the block Panchayat through roads. Bus service is available from all the important places within the block area which connects to major townships like Ottappalam, Palakkadu, and Thrissur. Train service is also available from Pattambi Railway Station which is only 9 Kms. away from the Block Head Quarters. The important roads that pass through the Block Panchayat are Pattambi – Guruvayoor Road, Palakkadu-Ponnani Road, Thrithala – Kottanadu Road and Ponnani – Guruvayoor Road. Another important road is Thrithala – Chalissery Road

9.4. Credit Facilities

Thrithala block is rich with the presence of State Bank of India and its subsidiaries along with branches of Nationalized Banks. There are scheduled banks also in the Block limit. All the banks in the Public and private sector including Cooperative sector are beneficial to the populace. Details of banks in the Block are tabled below:

Sl. No.	Type of Banks	Number
1.	State Bank of India	2
2.	Scheduled Banks	3
3.	Nationalized Commercial banks	5
4.	Branches of District Cooperative Bank	2
5.	Service Cooperative Banks/Credit Sanghoms	7
Total		**19**
Courtesy: Panchayat Level Statistics 2001, Department of Economics & Statistics, Thiruvananthapuram		

9.5. Recreation Facilities

PRANAVAM Arts and Sports Club is the premier association for connecting the people of Thrithala Block. The institution stands for fostering community spirit, connecting with the cultural heritage and providing a forum for social service to the human. Main activities are focused in the areas of Arts, Sports, Social Services and Charity. Thrithala is famed for its Shiva temple. Kattilmadom temple on the Pattambi-Guruvayoor road has archaeological importance. The small granite structure, a testimony of Buddhist influence, built probably during the 9th or 10th century. In Aanakkara Grama Panchayat the Nayyur arts & sports club, Priyadarshini Arts & Sports Club and Chaithanya Arts & Sports Club are some of the means of recreation for the people in the concerned Grama Panchayat. In Malamakkavu, Priyadarshini arts & sports club is a major recreation centre. The cultural centre at Kumbidi is also contributes to its part to uild up the culture of the people. Other centers are: Prathibha Youth Club in Mamalakkavu, Chandrodayam Reading Room & Library, Arunodayam Reading Room & Library in Kudallur, and Yuvashakthi Reading Room & Library in Panniyur. The festivals and traditional celebrations are all opportunities for the people in Thrithala Block for their recreations

9.6. Wage Rate

From reliable sources and from interview with the farmers at the time of PRA (FGD and Economic Ranking) it was revealed that the Maximum wages for male workers ranges from Rs. 250 – 400 and for that of the female is Rs.200 – 250/- per day.

10.AGRICULTURE & PRESENT LAND USE

The details of the watershed area in the Thrithala Block Panchayat covered by Integrated Watershed Management Programme – IWMP is shown below in a tabular format - Thrithala- 1

Watershed Identification	Total Area	Forest	Water Bodies	Built Up Area	Irrigated land	Cultivable waste	Uncultivable waste	Treatable area
IWMP-I/2010-11	5911	Nil	23.22	56.00	Nil	248	0	5911
Total	**5911**	**Nil**	**23.22**	**56.00**	**Nil**	**248**	**0**	**5911**

11. Animal Husbandry

Observations and study of statistics disclosed that People in Thrithala Block are interestingly taking up animal husbandry as one of the subsidiary income source as well as a supplementing venture that foster their agriculture. Data available according to "Panchayat Level Statistics 2001, Dept of E&S, GoK, the details of Animal Husbandry (livestock) in the Block Panchayat is given below:

Sl. No.	Particulars	Number
1.	Hybrid Variety Cattle (Male)	816
2.	Hybrid Variety Cattle (Female)	859
3.	Traditional Male (Breed not known)	696
4.	Traditional female (Breed not known)	7705
5.	He - Buffalo	553
6.	She - Buffalo	78
7.	He-Goat	3622
8.	She-Goat	10097
9.	Pigs	22
10.	Domestic Dogs	3924
11.	Fowl (Indigenous Variety)	19498
12.	Fowl (Hybrid Variety)	421
13.	Duck	18
14.	No. of Milk Societies	7
15.	No. of Butcher Shops	9
Courtesy: Panchayat Level Statistics 2001, Department of Economics & Statistics, Thiruvananthapuram		

12. Soils

The soil of Palakkad district is mainly of four types, namely, peaty (kari), laterite, forest and black. Peaty soil is found only in Thrithala block of Ottappalam taluk. Laterite is also seen in the major portions of Thrithala.

In majority of the watersheds, laterite and red laterite mixed with gravel is found in the hills and valleys. In some cases the upper reach is rich with granite rocks. In the paddy fields and in the plains, the common type of sol is alluvium. The usual depth of the soil in the hill tops is only 0.50 meters. It increases on descending to the valleys between 1 to 1.5 meters. In the paddy fields the alluvium is again reduced to one meter.

13.Problems of Special Mention

Soil erosion is one of the most important issues in all the watersheds. The rate of erosion is highest when soil is not covered by a protective layer of plants or decaying organic matter. Industrial farmland (Cash Crop Land) is particularly susceptible to erosion due to intensive tillage (plowing), which eliminates protective ground cover from the soil surface and destroys root systems that help hold soil together. Many parts of the individual watershed are converted to rubber plantations and banana cultivation and top soil is eroded from such lands. These land face degradation.

The once fertile soil in the watershed has become over fed with nutrients by applying enormous quantity of chemical fertilizers and pesticides. Shift in cultivation – from food crops to cash crops – has increased the tempo of over feeding the soil with nutrients.

Other serious issues as presented by the watershed community during the PRA, especially during the transect are as follows:

- Inadequate soil conservation measures enhances the loss of fertile soil
- Change in land usage like leveling of paddy fields for mixed crops has reduced food crops to a great extent.
- Indiscriminate application of chemical fertilizers and pesticides contaminated the soil and soil humus is reduced
- Acidic nature of the soil prevents seed germination and plant growth

3.8. Criteria and weightage for selection of watershed

S. No.	Criteria	Maxi-mum score	Ranges & scores			
			Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20 % (2.5)

i.	Poverty index (% of poor to population)	10	Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20 % (2.5)
ii.	% of SC/ ST population	10	More than 40 % (10)	20 to 40 % (5)	Less than 20 % (3)	
iii.	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
iv.	% of small and marginal farmers	10	More than 80 % (10)	50 to 80 % (5)	Less than 50 % (3)	
v.	Ground water status	5	Over exploited (5)	Critical (3)	Sub critical (2)	Safe (0)
vi.	Moisture index/ DPAP/ DDP Block	15	-66.7 & below (15) DDP Block	-33.3 to -66.6 (10) DPAP Block	0 to -33.2 (0) Non DPAP/ DDP Block	
vii.	Area under rain-fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80% (5)	Above 70 % (Reject)
viii.	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered (0)
ix.	Degraded land	15	High – above 20 % (15)	Medium – 10 to 20 % (10)	Low- less than 10 % of TGA (5)	
x.	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	
xi.	Contiguity to another watershed that has already been developed/ treated	10	Contiguous to previously treated watershed & contiguity within the micro watersheds in the project (10)	Contiguity within the Micro watersheds in the project but non contiguous to previously treated watershed (5)	Neither contiguous to previously treated watershed nor contiguity within the micro watersheds in the project (0)	
xii.	Cluster approach in the plains (more than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro watersheds in cluster (10)	2 to 4 micro watersheds in cluster (5)	
xiii.	Cluster approach in the hills (more than one contiguous micro-watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)	

	Total	**150**	**150**	**90**	**41**	**2.5**

According to the above criteria, the weightage obtained for the watersheds in Thrithala Block Panchayat selected for treatment under IWMP is tabled below:

Sl. No.	Watershed	Poverty Index	% of SC/ST Population	% of Small & Marginal Farmers	Ground Waters Status	Rain-fed Area	Drinking Water	Degraded Land	Contiguity	Cluster Approach	Total
1.	19K7b	5	3	10	3	15	7.5	5	10	15	74
2.	19K7c	5	3	10	3	15	7.5	5	0	15	64
3.	19K7d	5	3	10	3	15	7.5	0	10	15	69
4.	20B46a	5	5	10	2	15	7.5	5	0	15	65
5.	19K8a	5	3	10	3	15	7.5	5	0	15	64
6.	20B20a	5	3	10	5	15	7.5	10	0	15	71
7.	19K10a	5	3	10	3	15	7.5	0	0	15	59
Grand Total		**65**	**45**	**130**	**36**	**195**	**97.5**	**55**	**50**	**165**	**845**

GRAMA PANCHAYATS INCLUDED IN THE IWMP-I/2010-11

Except Thriumittakkode, all the six Grama Panchayats are included in the project area of Integrated Watershed Management Programme (IWMP). Given below is a brief description of the Panchayats coming under the project area. The block Panchayat area is included in the Midland Agro-Climatic Zone and the height of the area is between 20 to 160 meters from MSL. The topography is undulating with medium sized hills and medium slopes in majority of the parts of the geographic area and a very small portion of the land is with steep slopes. Only in Nagalassery Grama Panchayat there is a forest of the size of 71 Ha which is known as Kotharamanakkadu. Given below is a brief description of the Grama Panchayats included in Thrithala Block Panchayat.

Details of Grama Panchayats in Thrithala Block Panchayat included in the cluster:

Chalissery Grama Panchayat Chalissery P.O., Palakkad - 679536 Office Phone: 04926-256241 Area: 19.20 Sq. Kms.	Nagallassery Grama PanchayatKoottanad P.O., Palakkad – 679533Office Phone: 04926-272080 Area: 26.20 Sq. Kms
Thrithala Grama Panchayat Thrithala P.O., Palakkad - 679 503 Office Phone: 04926-272030 Area: 22.75 Sq. Kms.	Pattithara Grama Panchayat Thalakkassery P.O., Palakkad - 679 538 Office Phone: 04926-272029 Area: 27.27 Sq. Kms

1. Chalissery

The Grama Panchayat has a total geographic area of 19.2 Sq. Kms. Though the Panchayat has formed in 1956, it came into in its present geological nature in 1963 when the Kavukode GP and the Chalissery GP combined together and established as a single Panchayat. The boundaries of the Panchayat are: North – Pattithara GP, South – Nagalassery & Kadavallur GP, East Nagalassery GP and in the west – Kappur & Aalamkode (Malappuram District).

Topographically, Chalissery GP is in the Midland Agro-Ecological zone. The two highest locations are the two hills – Irumbumkunnu and Padadu Kunnu. The main crop of Chalissery is coconut. Besides this, arecanut, paddy, tapioca, rubber, Ginger, plantain and vegetables are all cultivated in the GP. High important is being given to education. Phsiographically the GP can be divided into 4 categories – High plateau, moderate slopes, high altitude slopes and plains. Commonly two types of soil are seen in the area – Laterite Gravel and Sandy Laterite. The major roads that cross the GP are Perinthalmanna – Perumannur Road, Palakkadu Guruvayur Road, Ponnani – Palakkadu Road. Chalissery is known as the market for raw arecanut.

2. Nagalassery

The total geographic area of Nagalassery Grama Panchayat is 26.20 Sq. Kms., and has 17 wards. The total population of the GP is 26643 among which 13421 are women and the rest are men. Literacy rate is 85.83%. Given below are the boundaries of the Grama Panchayat:

North – Thrithala Grama Panchayat
South –Kadangodu GP (Thrissur District)
East – Thriumittakkode GP
West – Chalissery & Pattissery GPs

The GP was formed on 1st January 1961 and the first board of directors was elected and erected on December 20th, 1963. The head quarters of Nagalassery GP is situated in Koottanadu. Mezhathur, the birth place of V.T. Bhatathiripadu is a little ahead of Koottanadu.

Geographically Nagalassery comes under the midland Agro Ecological Zone and has two important hills – on the north Mudavannur hill and on the south Kothachira Hill. In between these two hills there are two rows of hills along the east-west direction. Three watershed areas are identified and the drainage is naturally east to west. However, from the Cheruchalpadam which is situated at the foot of the southern slope of Ottupara hills and in between the Mailanchi hills and Chakkili Hill as the drainage is from west to east. The soil type is generally laterite.

3. Pattithara

The total area of the Panchayat which is situated in Pattithara revenue village is 27.2 Sq. Kms. There are 18 wards in the Grama Panchayat and is bounded in its North by Aanakkara & Paradur GPs, in the south by Nagalassery & Chalissery GPs, in the east by Thrithala, Paradur & Nagalassery GPs and in the west by Kappur & Aanakkara GPs. The Panchayat came into existence on 1.1.1962. The panoramic view of the Panchayat was rich with rivers, streams, ponds and the land was very fertile. It was known for its agricultural produce from time immemorial. The land was owned by devaswoms and Brahmaswoms and later during the land reforms taken place in Kerala state had helped the farmers to occupy major part of the fertile land. According to 2001 census, Pattithara has a total population of 26968 amongst which 12864 are men and the rest 14104 are women. A woman outwits men in the Grama Panchayat in number. The Sex Ratio is 1096. Total literacy is 87.61. Male literacy is 91.27 and female literacy is 84.35. The population density is 991.

As said earlier, Pattithara has rich traditional background in Agriculture. In earlier days, cultivation was mainly done depending upon the rain and irrigation from ponds and streams. The farmers were doing puncha very successfully by making use of the traditional wheels for transferring water from the streams and ponds to the paddy fields. They were using different crops like – Muthira, Chama, Beans, Uzhunnu (Bengal Gram) etc. for cultivation besides paddy. The other major crop was coconut and arecanut and Pattithara was known for its arecanut which were marketed at Chalissery. Besides, farmers were cultivating, ginger, turmeric, yam etc. not for sale but for their own use. Now the land use pattern had changed very much. Some of the paddy fields have converted for Banana cultivation and the higher lands were cultivated by rubber.

4. Thrithala

Situated along the banks of Bharathapuzha River, Thrithala is famous for its Shiva temple. Kattilmadom temple on the Pattambi-Guruvayoor road has archaeological importance. The small granite structure, a testimony of Buddhist influence, built probably during the 9th or 10th century. The ruins of a large fort with a deep moat hewn from laterite and the Kattil Madom temple, a domed structure of granite slabs on the Pattambi - Guruvayoor Road are the prime attractions. It is also the headquarters of Thrithala Block Panchayat. More details are given under the head – Thrithala Block Panchayat.

14. METHODOLOGY ADOPTED

14.1. Base line Survey

Baseline information and data on natural resources, human resources, agro-socio-economic details, infrastructure etc are collected at Village levels through secondary sources of information. Primary information and data are also collected from households. All the households in the villages are covered under the baseline census survey. The information and data are found to be comprehensive and encompassing all the relevant socio-economic aspects pertaining to the people of the village. The data collected from primary sources are by adopting interview method with the help of specific format prepared specifically for the purpose. The information are collected by the well trained volunteers under the supervision and guidance of TSO. The data thus collected are compiled and analyzed under the strict supervision of the Director of TSO and the findings are made use for formulating the project proposal. Besides the consolidated data sheets are kept as a bench mark for further monitoring and evaluation.

14.2. Focus Group Interviews (FG):

The Focus Groups for each community are identified and formed based on the information obtained. In the watersheds the focus group discussions helped the project planners to identify the crucial problems the community face in terms of agriculture, land degradation, low production, less prize, irrigation facilities, climate change and its effect etc in the livelihood of the watershed community. The sharing were all recorded and documented. To a certain extent, the feedback from the FG discussion helped the project team to plan appropriate activity in the individual watershed.

14.3. Participatory Rural Appraisal (PRA)

The PIA & WMT members along with the technical experts have visited the watershed villages and made much informal discussion with the people before starting the PRA exercise. During PRA the WMT have adopted many key points of the PRA with the villagers. The different tools used in PRA exercise help to identify the problems faced by the watershed villagers to analyze the situation which varies from one another. The priorities of problems of an area are different from each other and methods to solve them are also different. Therefore, PRA exercise is made at watershed villages to identify the situation in a scientific manner using available tools as given below to study and analyze the situation to solve them in an indigenous manner

14.3.1. Social Mapping:

The villagers prepared a social map of the village on the ground using different rangoli colour powder to reveal the social and physical structure like house structure, different

caste groups, and village infrastructure etc. to analyze the opportunity which can be derived after discussions with different groups of people.

14.3.2. Seasonality:

Study of seasonal pattern of the rain fall, farming practice availability of opportunity and different types of seasonal problems and benefit discussed and marked in chart to solve the problems in due course of time.

14.3.3. Resource Map:

It has been prepared by the villagers themselves on the ground using rangoli colures, leaves etc indicating different land types like - up, medium, low land, grazing land, forest land, water bodies etc. Resource map is used to prepare treatment plan for soil and water management, forestry etc.

14.3.4. Transect:

Transect is one of the most important tools which was drawn up by transverse the watershed area with a group of people from upper reaches to lower reaches to study present land status, soil type, present land use pattern, Crop yield, present problems and suggestive measures.

14.3.5. Study of literature

The TSO team had undertaken a study on different literature available with the Grama Panchayats, Block Panchayat, land Use Board, Soil Survey department and other government department concerned with land use and agriculture to collect secondary data regarding the situation of each and every watershed. MGNREGS Watershed Master Plan of the Thrithala Block Panchayat, Aanakkara, Thrithala, Nagalassery, Kappur, Pattithara and Chalisserry Grama Panchayats are also studied seriously and relevant data are collected to incorporate in this plan document.

14.4. The SWOT Analysis

In Thrithala IWMP projects, the SWOT analysis helped to identify the serious problems that the watershed communities are facing and to chalk out plans to overcome such situations. Mitigation of adverse conditions that may come across the way during the implementation of the project is very crucial. SWOT had been an eye-opener for most of the watershed community members.

14.5. Formation of Watershed Neighbourhood Clusters

Neighbourhood clusters are formed in every watershed combining 50 families each living as clusters. These 50 families have further divided into clusters of seven from which a person/leader had been selected to represent these seven families in the

watershed committee. The list of the families had been prepared by visiting individual watershed by the TSO members along with the people's representatives, (in most cases they were the ward members). Grouping had been made with the assistance of the ward members and their suggestions were also taken as a directive guideline for the selection of group leaders.

14.6. Formation of Watershed Committees

Watershed committees are formed in all the watersheds taken for treatment under IWMP. The watershed Committee comprises the representatives of watershed communities and nominated representatives from the elected members of the Grama Panchayat in which the watershed is included. The General Structure of the Watershed Committee is as follows:

Sl. No.	Name	Designation	Position	Phone No.
1.		GP President	Chairperson	
2.		Ward Member/s	Vice Chairperson	
3.		Village Extension Officer	Convener	
4.			Jt. Convener	
5.		WDT Member	Secretary	
6.			Jt. Secretary	
7.			Treasurer	
Ex Officio- Members				
1.		President – Co-Op. bank/s	Member	
2.		Block Panchayat Member/s	Member	
3.		Nominated Officer (GP)	Member	
4.		ADS Chairperson/s	Member	
5.		Nominated WDT member/s	Member	
6.		Representative of TSO	Member	

The joint convenor and treasurer are exclusively from the representatives of individual watershed user groups and the post of the treasurer is reserved for women.

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed are also fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. New SHGs can also be formed, especially for men in the watershed, if found necessary. The existing farmers groups can also be considered as Self Help groups.

14.7. NRM - steps followed for planning:

Various steps are followed for NRM planning and resource mapping during boundary line delineation and geographical transect in watershed area. The summarized steps are given below:

The boundary line of the watershed is delineated as the very first step with the help of village cadastral map and Toposheet. Then geographical transect is being done through survey by moving from plot to plot in upper reaches, middle reaches and lower reaches. During the transect the major nalas, gullies and drainage lines are identified. Lands are surveyed on the basis of land type, soil type, erosion class and slope. Various resources like different water bodies, wells and farm ponds are identified. The present land use is also studied during transect. In the individual patch identified, the various treatments required are also finalized in consensus with the villagers.

Finally the strategic action plan on Natural Resources Management perspective for the whole watershed during the entire project period is formulated. Major activities of the Watershed project:

- Soil & moisture conservation measures like terracing, bunding, trenching, vegetative barriers etc.
- Rain water harvesting activities like farm ponds, percolation tanks, check-dams etc.
- Planting & sowing of multi-purpose trees, shrubs, grasses, legumes and pasture land development
- Encouraging natural regeneration
- Promotion of agro-forestry and horticulture
- Training, extension and creation of a greater degree of awareness among the participants
- Encouraging peoples' participation
- Livelihood activities for assetless people
- Production system and micro-enterprise

14.8. CONVERGENCE WITH MGNREGS

Integrated Watershed Management Programme (IWMP) of the Department of Land Resources (DoLR) has been identified as an important scheme for convergence with NREGS. As more than 50% of the NREGS works relate t soil and water conservation. Based on several discussions, the modalities of convergence were identified.

The objectives of this convergence will be to switch-over to sustainable agriculture specifically organic agriculture in all IWMP villages before end of the project period; and to double the income of the farmers by decreasing cost of cultivation and reaping premier prices due to the pesticide-free products.

Under NREGS almost all the activities required for watershed development are permitted. Convergence between NREGS and Watershed Programmes of DoLR will be mutually beneficial for rainfed areas. Parameters also had been set for convergence with NREGS and IWMP. The parameters are:

a) The cost of material component of projects including the wages of the skilled and semi skilled workers taken up under the scheme shall not exceed 40% of the total project cost.
b) As far as practicable, a task funded under the scheme shall be performed by using manual labour and not machines

c) No contractors shall be engaged in the execution of the works.

d) Where convergence between NREGS and watershed programmes funded by DoLR is envisaged, the tasks/structures/activities to be undertaken by NREGS will be identified by the Programme Implementation Agency (PIA) preparing the DPR for the watershed Programme.

In IWMP, if convergence is to be effected, the works should be carried out by landless people and self help group members. Under MNREGA all activities required for watershed development are permitted.

Accordingly, the following categories of works are proposed for convergence under IWMP of Thrithala Block Panchayat:

- Construction of check dams
- Deepening and de-silting of ponds
- Extension and renovation of existing irrigation projects
- Flood protection works
- Lift irrigation works
- Construction of new drains and renovation of existing drains
- Removal of vegetation growth.

14.9. CAPACITY BUILDING

Under IWMP Capacity Building is proposed at different levels as follows:

Individual level- Capacity-building on an individual level requires the development of conditions that allow individual participants to build and enhance existing knowledge and skills. It also calls for the establishment of conditions that will allow individuals to engage in the "process of learning and adapting to change."

Institutional level- Capacity building on an institutional level should involve aiding pre-existing institutions in the watershed. It involves creating institutions and modernizing existing institutions and supporting them in forming sound policies, organizational structures, and effective methods of management and revenue control.

Societal level- Capacity building at the societal level should support the establishment of a more "interactive public administration that learns equally from its actions and from feedback it receives from the population at large." Capacity building must be used to develop public administrators that are responsive and accountable. The Plan is furnished below:

Part- I

Sl. No.	Title of the Programme	Duration/ Month	Target Groups	Training Objectives	Implementing Authority
1.	Orientation Program on Participatory Watershed Development (Residential)	2 days	Members of District Level Coordination Committee	To orient the participants on different dimensions of participatory watershed management	SLNA
2.	Orientation & Capacity Building on Conceptual , Technical and managerial aspects (Residential)	4 days	Members of WCDC	To familiarize the participants about various dimensions of participatory watershed development	SLNA
3.	Orientation & Capacity Building on Conceptual and managerial aspects (Residential)	2 days	BDO/J.BDO, HSC,UDC	To familiarize the participants about various dimensions of participatory watershed development	SLNA
4.	Orientation & Capacity Building on Conceptual ,Technical and non Technical, managerial aspects (Residential)	3 days	WDT Members	To Empower the technical knowledge regarding Watershed development	SLNA
5.	Orientation & Capacity Building on Conceptual ,Technical and managerial aspects	1 day	BLCC & BLTAG	To familiarize the participants about various dimensions of participatory watershed development	PAU

Sl.No.	Title of the Programme	Duration/ Month	Target Groups	Training Objectives	Implementing Authority
6.	Orientation & Capacity Building on Community Level Watershed Management	1day	Block President ,GP President ,Block Members	To orient the participants on different dimensions of participatory watershed management	PAU
7.	Orientation & Capacity Building on IWMP	1day	District and Block Level Various Department Officials	To orient the participants on different dimensions of participatory watershed management	PAU
8.	Orientation & Capacity Building on Technical , non Technical and Managerial aspects (Residential)	5days	WDT& Watershed Convener	To orient the participants on different dimensions of participatory watershed management	PAU
9.	Awareness Training Programme	1day	NHGS	To orient the participants on different dimensions of participatory watershed management	PIA
10.	Capacity Building on Project Implementation	2days	Watershed Committee General body	To orient the participants on different dimensions of participatory watershed management	PIA
11.	Exposure visit	3days	Watershed Committee	To visit other state to understand different methodology used in watershed management	PIA

PART – II: Skill Development Training Programme

Title of the Programme	Client Groups	Training Objectives	No. of expected participants	coverage/topics	Training methodology
1.Agricultural 2.Horticulture 3.Animal Husbandry 4.pisci Culture 5.Remote Senses 6.Water conservation 7.Livelihood 8.Entreprenership development	Selected Beneficiaries	▸ To provide skills and techniques of various activities	22500 (325trainings X 50 person in each Batch)-	▸ Cow rearing ▸ Hybrid varieties of cows ▸ High yielding varieties ▸ Fodder cultivation ▸ Nutrient requirements of cows ▸ Health & Hygiene in Cow sheds ▸ Prevention and treatment of diseases ▸ Trading of products ▸ EDP ▸ Problems faced by the fish farmers	▸ Lecture-cum-discussions ▸ Demonstration ▸ Video film show

Part- III: General Awareness Generation Programme: IEC Materials

Title of IEC Material	No. of Copies	Type of IEC Material	Mode of Implementation by Quotation	Methodology Adopted for use
Systematic and scientific practices in watershed management	30000	Leaflets	PAU	Circulation among the watershed communities through watershed clusters
Livelihood promotion and food security	30000	Leaflets	PAU	Circulation among the watershed communities through watershed clusters
An overview on IWMP	75000	Brochure	SLNA	Circulation among the watershed communities through watershed clusters
Publicity material IWMP	5000	Wall poster	SLNA	Circulation among the watershed communities through watershed clusters
Project details for community awareness	75000	Hand Book	PIA	Empowering the Watershed Community

15.PROJECT COMPONENTS:

The Integrated Watershed Management Project cover the following components which are aimed at land based activities and are relevant to the ecology of hill areas:

Vegetation - The basic objective of this component is to stop cutting trees, provide vegetative cover on degraded land and supplement fodder and fuel-wood resources available to the rural communities. These activities are labour intensive and generate considerable employment opportunities for the local people. The main elements of this component are establishing plantation with contour hedges, protection / improvement of existing vegetal cover as well as rehabilitation of degraded areas.

As planting trees is non-technical physical work, this can be taken up as a campaign by the labour force under MGNREGS, thus establishing a convergence with the employment guarantee scheme. This will come in line with the guidelines of convergence of IWMP

Agriculture - Support Irrigation & Soil Conservation - The component aims to increase agricultural productivity in a sustained manner and to diversify crop production. This is being achieved through organizing farmers' training camps and exposure visits. The field activities include - field trials of HYV and distribution of improved seed mini kits, improved implements; construction of check dams, water harvesting tanks, water storage tanks and channels, repair of old bunds and check-dams, implementing measures to check soil erosion and conserve moisture.

Horticulture - The activities under this component aims to raise fruit production, diversify production and to conserve soil and moisture through establishing perennial tree crops with suitable ground cover on steep land which is unsuitable for arable production. The main activities are: establishment of private orchards, top working on wild trees, and rejuvenation of existing orchards and distribution of horticulture plant for homestead planting.

Animal Husbandry- The objective of the component is to improve the productivity of ivestock through breed improvement programme, reduction in the number of scrub/unproductive cattle and to ensure maximum utilization of fodder resources. Key activities involve: promotion of indigenous and hybrid varities of cattle, distribution of fodder seed mini kits, pasture improvement, castration of scrub bulls, animal health care and fodder utilization.

Energy Conservation - The main objective is to reduce pressure on forests for fuel-wood by introducing, energy efficient cooking equipments (pressure cooker, wood stoves) and encourage use of alternative energy sources (biogas, solar cooker).

Community Participation- Community participation is the key to ensuring success of convergent planning and joint project implementations with the village communities. The project interventions are accompanied by reciprocal obligations by the beneficiaries, under which they agree to contribute in cash, kind or labour or to implement associated activities. The strategy of the projects is to involve local people, NGOs women's organizations (Kudumbasree), Youth Organizations and other voluntary organizations in planning, implementation and subsequent maintenance of the developed assets by the project and by the beneficiary communities with a view to gradually make it a people's programme in place of Govt. sponsored programmes. Integrated Watershed Management Projects aims at community resource management through an integrated approach. A clear overall strategy is based on a holistic, integrated approach, that recognizes local needs as well as wider project policies, and that is designed to bring the various components together in a truly integrated manner.

Training and Awareness Programme is an essential ingredient for achieving the projects' objectives which included local villagers training, motivators' training, and training on organization building techniques, training of users' groups in the field of management of natural resource, exposure visits etc. Academic and research institutions, Voluntary organizations, Individuals are all involved for the benefit of the projects, so that full advantage may be taken of existing information and expertise from the institutions.

PROJECT ACTIVITIES PROPOSED

The statistics available regarding the agriculture and allied sectors calls for a well planned intervention to make the people aware and take part in the rejuvenation of the farm land by conserving soil, water and biomass which is urgently required for the sustenance of human beings on this planet earth. Different types of programmes are planned under IWMP in Thrithala Block which listed below:

Entry Point Activities (EPA)

In IWMP programme the Entry Point Activities (EPAs) have a major role to play in building and sustaining rapport with the people and improving their knowledge base in watershed management. In all the watersheds selected for IWMP in Thrithala Block Panchayat One EPA each is identified with people's participation. The identification process is facilitiated by the concerned Grama Panchayat Presidents and Standing Committee Chair persons. In the Discussion meetings the user groups' and community's leaders participated and involved effectively to select the most appropriate EPA which will draw the attention of the people and will develop a knowledge base in the community.

Sl. No	Name of Grama Panchayat	Name of Watershed	Ward No.	Problems to be solved	Name of EPA	Location	Objective
1.	Chalissery	Pattissery – I	12 & 13	Contamination of water and over flow of water from the Stream affecting the paddy cultivation	Side wall construction of the existing stream running along the paddy field.	Aasarithazham	To ensure Conservation of Aswathi Padashekharam
2.	Chalissery	Pattissery- II	5	Sedimentation of the existing pond and Drinking Water Scarcity	Desiltation of the pond of Palakkal Colony Drinking Water Project	Palakkal Colony, Perumannur	Drinking water for 60 households in the colony ensured.
3.	Chalissery	Chalissery	9	Paddy fields left uncultivated for the last 7 years for want of protection from water runoff from the stream	Side protection wall construction of Muttippalam Stream	Muttisserypalam	Paddy cultivation retained in the Kakkassery padashekharam and the farmers increase their income
4.	Chalissery	Kavukodu	14	Sedimentation of the irrigation pond and heavy weed growth prevents pumping	De-siltation and de-weeding of Aanayiruthikkulam	Mukkileppeedika	Irrigation for 60 Ha of paddy fields ensured.
5.	Thrithala	Ullannur	5 & 11	Over flowing of the Kannanur Stream destroys paddy cultivation in Kannanur Padashekharam	Retaining wall construction of Kannanur Stream	Kannanur Padashekharam	Two cropping is made possible in the padashekharam there by improving the income of the farmers
6.	Thrithala	Puliyappaatakkayal	17	Overflowing of the stream brings difficulty to the paddy cultivation in Mezhathur Padashekharam	Retaining wall construction of Kayathodu Stream	Mezhathur Padashekharam	Improving paddy cultivation and increasing income of the farmers.
7.	Chaliseery	Kothachira		Overflowing of the stream brings difficulty to the paddy cultivation in the lower portions of the watershed	Stabilization of the banks of Peravazhikkundu thodu (Stream)	Peravazhikkundu	Sustaining the paddy fields and increasing the yield there by enhancing the income of the farmers

Individual Schemes under EPA – IWMP THRITHALA

1. Aasarithazham is a location in Pattissery-I watershed in Chalissery Grama Panchayat where there is a stream which brings trouble to the farmers by overflowing into the paddy fields due to un-stabilized and unprotected banks. The overflowing of water from the stream especially when it was flowing with high velocity during the rainsy season, it takes away the cultivated tender paddy plants along with it bringing high loss to the farmers. It had been a long cherished dream of the farmers in the Aswathi Padashekharam to protect the paddy field from the invasion of the stream. Another serious issue is that besides people depositing wastes the stream brings wastes from several locations along with its course.

   The discussion held in the watershed to identify the EPA has placed on record the importance and urgency of stabilizing the stream bank at the earliest so that the farmers can cultivate the second crop or vegetables in the field. Thus the EPA in the Pattissery – I watershed is **"Side wall construction of the existing stream running along the Aswathi Padashekharam".**

2. Another EPA identified under the IWMP programme in Thrithala Block is in the Pattissery II Watersheds in Chalissery Grama Panchayat. The EPA is **"De-siltation of the pond of Palakkal Colony Drinking Water Project"**. This is a KWA Administered Water Supply Scheme aimed at providing drinking water for about 60 households in the Palakkal Colony in Perumannur. Unfortunately, the scheme was neglected over time and the pond (2m x 2mx 4m) constructed for the scheme began to dry up during off-season. This has created great agitation and chaos among the colony community members.

   The watershed community, in a discussion meeting suggested that the EPA under IWMP scheme shall be the renovation of the drinking water scheme. Sedimentation is the main reason of non-availability of adequate water and hence has to be removed and the water has to be cleaned. The side retaining walls need to be reconstructed.

3. Muttippalam stream is one of the farmer friendly streams which contributed for flourishing the paddy cultivation in Kakkassery Padashekharam in Chalissery watershed in Chalissery Grama Panchayat. However, the erosion of the sides of the stream enhanced water overflowing into the paddy field threatening the paddy cultivation and hence the padashekharam was left uncultivated and barren for the last 7 years. The padashekharam was suitable for two crops in a year.

   The watershed community has decided to reconstruct the side wall for stabilization of the stream bank which will check the overflowing of water in to the paddy field. The total length to be reconstructed is 300 meters. The project aims at enabling the

farmers to reuse Kakkassery Padashekharam for paddy cultivation in the coming years and help them to increase their income. This will also contribute to the food security of some of the farmers in the watershed.

4. In Kavukkode Watershed in Chalissery Grama Panchayat at a place known as Mukkilepeedika, a big pond named Aanayiruthikkulam has been heavily sedimented and encroached by weeds which make it difficult for pumping. This pond was very helpful for the farmers who had been cultivating paddy as the second crop. Occasionally they were cultivating vegetables also. But now irrigation became difficult due to sedimentation and weed encroachment and paddy/vegetable cultivation in 60 Ha of land has to be abandoned by the farmers.

   On discussing about the EPA, farmers suggested that de-silting and de-weeding of this pond – Aanayiruthikkulam will help farmers to improve the paddy cultivation ensuring water for irrigation during the off season. They also suggested that the produce can be used to ensure food security to a certain extent of the watershed community and the activity shall be undertaken with top priority.

5. **Retaining Wall Construction of Kayathodu Stream** in Puliyapattakkayal Watershed in Thrithala Grama Panchayat is to check overflow of the stream into Mezhathur Padashekharam which is used to cultivate two crops. This stream, especially in the rainy season, when paddy is cultivated, over flow and water entering into the paddy filed washes away the tender plants. This brings heavy economic loss to the farmers and sometimes indebtedness to them. The team visited the stream and observed that the soil bund along the banks of the stream had been destroyed at several locations which need immediate attention.

   It is proposed to construct a retaining wall with a height of 1.30 Meters. The project aims at improving paddy cultivation in the Mezhathur Padashekharam and to bring prosperity to the farming community who cultivates paddy. In future, a shutter checkdam is also can be considered, so that adequate irrigation facility wnhance frequency of paddy cultivation in Mezhathur Padashekharam in Puliyapattakkayal Watershed.

6. Over flowing Kannanur stream in Ullannur watershed during the rainy season totally sabotages the paddy cultivation in Kannanur Padashekharam. This total destruction brings dual difficulty to the farmers – they are mentally disappointed and economically unsatisfied. The watershed community had decided to find a permanent solution for this situation. They suggested constructing a retaining wall for the stream to protect the paddy fields on the banks of the stream allowing safe flow of water without disturbing the Padashekharam.

The activity aims to control the over flowing water from entering into the paddy field and enable the farmers to cultivate two crops of paddy safely and thereby improving the economic gain from agriculture. The watershed communities unanimously consented that the construction work shall be undertaken on a war-footing manner and help the farmers and the Padashekhara Samithies who had been in difficult situation for the last few years. It is estimated that about 60 families will be benefited out of this scheme.

NATURAL RESOURCE MANAGEMENT (NRM) ACTIVITIES:

Special attention had been taken up during the planning of NRM activities in each individual watershed. As already mentioned, the community, the culture and the behavioural pattern of each watershed community is different and their opinion had been given top priority. In a sense the activities proposed are user friendly and user centered. Details of Activities common to all the watershed areas for sustainable Natural Resource Management are given below:

1. Soil Conservation:

Soil develops very slowly over a long period of time but can be lost too quickly. The clearing of land for farming, residential, and commercial use can quickly destroy soil. It speeds up the process of erosion by leaving soil exposed and also prevents development of new soil by removing the plants and animals that help build humus. The soil becomes unfertile by losing its humus which was happened due to application of chemicals – Fertilizers and pesticides. The P^H value of the soil has gone down drastically in almost all the cultivable area resulting in the land become cultivable wastes

The activities proposed for soil conservation to address the soil related issues are:

- Contour Bunding
- Soil Bunding
- Bench terracing
- Stream Bank Stabilization
- Gully Plugging
- Construction of Check Dams
- Promoting soil literacy classes
- Formation and sustenance of Farmers" Associations

2. Water Conservation:

People in the watersheds face serious threats on the adequacy of water availability. Observations had been made that the water table in every watershed gone drastically down. The surface water deterioration is so severe that almost all the springs, streams and the main river, Bharathapuzha, is drying up and yield very little water in the summer season. The water level of even the perennial wells had reduced comparing to the previous years. This entire situation had direct and indirect effect to the prosperity of the watershed community the economy of which had been built upon an agrarian base and the health condition is depending on the availability of pure potable water.

Therefore the following activities are proposed towards water conservation:

- Roof water harvesting and recharging the wells
- Construction of Rainwater Harvesting structures to collect, store and reuse the rainwater for domestic as well as commercial purposes
- Renovation & reconstruction of dilapidated ponds and drinking water wells in the watershed.
- De-siltation of ponds to remove sedimentation
- Construction of Check-dams specifically to store water for irrigation purposes
- Repairing of existing check-dams and VCBs

3. Biomass Conservation

Poverty, lack of sustainable alternative livelihoods and absence of financial /social incentives for resource dependent communities, along with lack of integration of biodiversity and livelihood consideration in development planning around biodiversity-rich areas, have been identified as some of the root causes of threats to biodiversity.

The activities are as follows:

- Promoting Environmental Education among the stakeholders and younger generations
- Promotion of horticulture in each watershed
- Promotion of medicinal herbs and shrubs
- Application of organic fertilizers in the farm to retain micro organisms
- Promotion of rearing of indigenous varieties of cows, goats and fouls along with hybrid varieties
- Promotion of re-cultivation of plants that are disappeared from the watershed
- Prevention of cutting of trees from the watershed
- Promotion of live fencing as a means of promotion of green diversity.

ACTIVITIES FOR LIVELIHOOD PROMOTION (LHS ACTIVITIES)

Some meaningful interventions are required to bring about change in the present situation of the watershed community with planned result oriented activities to enhance the capacity of the people and to bring economic well being to them through promoting sustainable livelihood. Every possible livelihood opportunities are planned and promoted irrespective of the sectors – primary, secondary and tertiary. For this skill development training is needed coupled with promotional grants.

Therefore, the overall objective (GOAL) of the proposal is:

"Poorest families with alternate and sustainable livelihood and food security at local level; empowered in an organized way to realize their right and entitlements to livelihood progressively with dignity, without any gender discrimination and socio- economic disparity."

The specific objectives are:

1) To promote food and income security in SHG members by developing micro-enterprises among them.

2) To build capacity of entrepreneurs by giving required technical inputs.

3) To mobilize and make available micro-credit facilities to SHG members for creating alternate and sustainable means of livelihood.

4) To restore people's dignity and ensure adequate living conditions, and to promote an environment conducive to respect for the rights of individuals in accordance with the relevant laws.

Key strategies /activities

The strategy for capacity building is formation of women Self-Help Groups-SHGs and their Gram Panchayat level SHG-based federations, and providing capacity building & technical support (viz. entrepreneurship development, trade-specific micro-enterprise development, micro-business plan preparation and supportive supervision) to SHG members for starting individual and mostly agriculture-based micro-businesses and collective marketing of their products. Mobilization of financial resources for SHGs through bank linkage, govt. livelihood generation schemes, project based revolving fund and other financial institutions.

The Aims and objectives of the proposal clears that this proposal has two distinct parts:

1. 1. The capacity Building Programmes.

2. Promotion of livelihood skills and schemes among the watershed community for inclusion

CAPACITY BUILDING FOR LIVELIHOOD PROMOTION

In the IWMP guidelines for livelihood promotion some specific capacity building programmes are made mandatory and these programmes are as such adapted to be included in the Capacity Building Schedule. Certain programmes and its objectives proposed under this section is listed below:

Sl. No.	Name of Training	No. of Trainings proposed	Objectives of the programme
1	**Training on Basics of Microfinance**	13	• To build capacity of NHGs in Microfinance programming and operation The course content include specific sessions on Group Sustainability, basics of saving and credit, book keeping, accounting, insurance, portfolio management, bank linage procedures and micro enterprise and livelihood fiancé.
2	**Training on Accounts Management**	13	• To enhance accounts management capacities of the Neerthada Ayalkoottams (Watershed Neighbourhood groups)
10	**Entrepreneurial skill development Training Programme**		• To train the prospective entrepreneurs.

Intended benefits to the beneficiaries

The capacity building training programme are planned to bring about change in the mentality of the women and the whole community. The trained women will act as catalysts to realize the objectives by involving physically and intellectually in the family and in the society to establish human dignity to the women folk. The following are the immediate and long term benefits to the beneficiaries of the capacity building training programme:

- Building capacity in skills such as entrepreneurial/business management skills, leadership skills.
- Empowering beneficiaries economically towards self-sufficiency to enable beneficiaries generate enough income for their households.

- Social emancipation of rural women (they will learn leadership skills and group organization and management) to enable them participates fully in the social and economic life of this country.
- Acquisition of literacy and functional skills, credit with education will equip functional skills and literacy skills to needy women since this will be incorporated as a training component. They will be able now to identify, buy or grow and provide nutritious foods for their children to combat malnutrition and marasmus and feed a balanced diet to their households.

- They will mobilize savings, build and internalize a culture of savings and develop financial discipline through systematic and spontaneous savings under the credit programme.

- Young women with no capital or incomes who would otherwise resort to a life of crime e.g. prostitution would now become economically productive and escape temptations of promiscuity and risking HIV/AIDS

We believe that, when community capacity building is directed at communities which are socially and economically disadvantaged (or, in some cases, communities which are simply socially disadvantaged) indirect benefit to the public arises in terms of:

- The increase in skills, competencies and self confidence on the part of members of such communities;

- The more effective, efficient and sustainable delivery of services to such communities; and

- The promotion of social cohesion.

Therefore the ingredients of capacity building for livelihood promotion can be a kind of life coping skills which are as follows:

LIVELIHOOD PROMOTION

All the livelihood promotion programmes planned under this project are aiming at developing the existing assets to be more beneficially make use of the improvement of life and means of livelihood of the watershed communities. The capacity building programmes stated and explained above will address the human asset development and personal assets development, enhancing the skills and knowledge base of the watershed communities. The SHG approach adopted to organize and facilitate the watershed community encourages the poor self potential through promoting saving and creating access for internal loan among them. The groups also mobilized external resources to meet their members' interest.

Programmes planned under Livelihood promotion are mainly to address the other asset base of the watershed communities. Livelihood promotion programmes are planned to be implemented with the general objective of enhancing the social and economic empowerment of the rural poor in the watersheds included in the IWMP project being implemented by Thrithala Block.
In short, **the objective** of the livelihood initiative is to enhance sectoral size and productivity growth in key livelihood sectors for employment generation of the poor. This will be achieved by making investments in technical assistance, service provision and setting up of market support mechanisms.

The following are the promotional livelihood programmes/schemes proposed for the watershed communities in different watersheds under IWMP programme of Thrithala Block Panchayat. Each and every programme has its own specific objectives, besides the common objectives stated above.

LIVELIHOOD PROGRAMMES PROPOSED

1. Livestock Promotion

Animal Husbandry sector plays an important role in the strengthening of the economy of the state, especially rural economy. Besides, AH sector is providing employment opportunities to unemployed and underemployed rural poor.

Livestock animals play an important role in rural economic development. Some of these animals include cattle or dairy cows, chickens, goats and rabbits. Livestock gives us meat, eggs and milk. The principal goal of this project is to improve the nutrition in both children and adults in households in the selected watershed area, through the introduction of dairy cattle keeping.

General objective is to guarantee food self-sufficiency of poor households and **the specific objectives are:**

- To improve the trading skill of poor households
- To raise the income of poor households
- To reduce food insecurity of households

The people in the operational watershed communities are peasants who have been involved in all their lives in livestock (cows, goats, poultry, duckery, etc.). The technology is not new; it is part of the way of life of the people. The people are familiar with raising of cows, goats, fouls and ducks, and the breeds that would be selected and bought are suited to the areas. Also cows, goats, fouls and ducks are easy to raise involving little or no cost and use of locally available materials for food and housing which ensures continuity needs external support.

a) Backyard Poultry

Backyard poultry is selected as a feasible activity for "poorest of the poor" like landless, handicapped, widows, and old people and non-SHG members. The livelihoods of marginalized women should be supported with a viable, economic enterprise on a small scale and provide a subsidiary income, improving the household economics.

Additionally, the skills and knowledge of the women should be increased. Chicken rearing is traditionally a women-managed activity and requires only low investment. Traditional practices can be re-activated. Interestingly the villagers themselves (or at least some leaders) suggested backyard poultry as the desired livelihood activity. Each such family selected can be provided with 20 birds (3 cocks and 17 hens) along with a rearing cage. Feed for a period of one month shall also be needed. It is proposed that 100 beneficiaries each from a watershed shall be considered.

Joint venture shall be in large scale with both revolving fund and bank linkage. In such cases, the local veterinary department shall be consulted to identify a proper location, for purchase of birds in large scale, for technical support and health care aspects. The vaccinations and later the sale of eggs and meat would be organized jointly both for individual ventures as well as group ventures, generating an income that could not be possible by individuals alone. One group each in a watershed shall be selected based on an aptitude test to avail financial support in the form of revolving fund from the project provision. If more amounts are required alternate means shall be the resort.

b) Small holder dairy farming

Cattle are raised as livestock for meat (beef and veal), as dairy animals for milk and other dairy products. Cattle rearing involves the breeding, birthing, and general care of cattle, be it beef cattle or dairy cattle. It has been observed during the PRA many farmers in the watershed were having adequate livestock and they were traditionally carrying out cattle rearing. As the pastures and common grazing lands were converted for other land use, there was no alternative than giving up the practices. Moreover, unavailability of adequate green and dry fodders due to change in agriculture added farmers giving up animal husbandry.

The plan is to select 20 small holder farmers from each watershed within a period of three years and avail financial support to purchase either a heifer or a milch animal with adequate knowledge input. The total number of farmers who will then be supported within the project provision will be 260.

c) Stall-fed Goat Rearing

Stall-Fed Goats can ideally fit into the intensive integrated farming system. The small animals are the most efficient converters of farm and crop residues into excellent organic manure. Several farmers have successfully run stall-fed goat farms, and they have found that such an integrated farming venture was more productive and profitable as well.

Goat farming needs less capital when compared with dairying, and the animals can be raised in small farms. The floor space requirement per adult animal is about one square metre. Stall-fed goat farming is an ideal occupation for the small, marginal and landless agricultural labourers. A properly fed and managed milch goat will yield at least as much milk (on average two liters per day) as low yielding desi cows. The she-goat will deliver 2-4 kids per parturition after a short gestation period of 150 days.

The watershed community expressed their willingness to take up goat rearing as a source of supplementary income and a source that supplement and boost the agriculture in the watershed. Moreover, goat rearing would ensure food security of marginalized families in the watershed. The proposal is to avail funds for 35 small farmers and landless families each in a watershed in a year. The total number of families that will be benefited by this proposal is then 455.

d) Soap Making Unit/Detergent Making

SOAPS AND DETERGENT INDUSTRY includes the Laundry soaps, synthetics detergents and toilet soap included the bathing bars. Since these are consumer items, technology, quality, marketing and distribution determine the success of units in this sector. The industry has developed both in the small scale and organized sector Laundry soap is reserved for the manufacturing in the small scale and 90% of the production of laundry soap is in the small-scale sector. Toilet soap is however dominated by the multinational units

The proposed livelihood activity for the watershed community is for the manufacturing of LAUNDRY SOAP. The soap is the major consumable product after the vanaspati Ghee. In the watershed and in the surroundings the major population is the middles class. So the Laundry soap is the best product for the washing of cloths. This is the most popular product in the middle class for the washing of cloths. The most important factor for its popularity is its cost because it is the cheap in rates as compared to the other washing products. Now a day it is also used commercial and industrial use. The wastage is used in the manufacturing for cheep class of lubricants. So as the commercial, point of view it is highly profitable business because the demand is always more than the supply.

e) Japanese quail rearing

Quail farming can be a profitable income generation activity suitable for the countryside. While bringing a considerable profit as a livelihood the scheme enriches the farm land with its residues from the farm, thus helps improving the agriculture.

f) Distribution of tailoring machine

The main objective of this component is to provide women with basic equipment to start a job and support them to become organised in community-based working units to effectively manage and run their businesses. The need for poverty alleviation from the rural areas had been a hot matter of discussion. One of the ways proposed to achieve this aim is to involve as many people as possible in income generating activities, which will augment family income. Many men and women also have expressed the need for augmenting family income at the time of planning the implementation programmes.
The study conducted in and feedback obtained from the watershed community explicitly showed that there are many women below the age group of 30 who have completed tailoring course and are finding difficulty to find out source for purchasing a tailoring machine. The watershed committee proposed to distribute Tailoring machine to such women so that they can earn a livelihood.

g) Tailoring unit

This comes under the category of rural non-farm sector and emerges as a very important source of income and employment. Trained women can join together to establish tailoring units and this trade is observed to be very beneficial and profitable for the women entrepreneurs.

h) Mushroom

The programme on mushroom cultivation and production technology as an off-season occupation and income generator shall be organized to capitalize on the increasing consumer market for mushrooms and as a means of income generation for rural women. The demand for the product has been increasing by the day providing new vistas for income generation for individuals, SHGs, and rural households. According to KVK sources, the market for mushrooms is dispersed covering both urban and rural markets.

The proposal to promote mushroom cultivation is also aiming to supply nutritious food to the rural people and income generation through mushroom cultivation, the main activities of this section are standardization of feasible production method, training of rural people on mushroom production, organization of production by supplying quality spawn and organizing market. The watershed communities will definitely find Mushroom Cultivation as a very easy way of augmenting their income.

PRODUCTION SYSTEM MANAGEMENT

Production System Management (PSM) is made an integral part of the watershed management programme to address the challenges of increasing food production and improving rural livelihoods while safeguarding other critical ecological functions. The goal is the development of sustainable production systems of the whole watershed, which allows intensification and diversification of the lowland production system and stabilizing improved production systems on the upland as it is necessary to enhance the food production base for food security in the selected watershed area, due to future population increase. It is therefore important to explore the lowlands of the inland valleys from its use status.

1. Organic Farming

The organic farming will supplement the growth and improvement of the farm bringing substantial income both for those who involved in Farm Nursery and Organic Farming.
The objectives of Organic Farming shall be:

- Facilitate farming communities to return back to traditional organic farming
- Promote sustainable and traditional means of livelihood

Any crop can be cultivated organically. But here, the stress is for food crops like, paddy, tubers, vegetables, fruits, etc. If it is vegetable the scheme will be individual and exclusively target women, for they are the most appropriate stakeholders for the purpose. 150 families each could be selected from each watershed in a period of three years (50 each in a year) for maximum output with minimum input. If it is a group venture, three neighbourhood clusters each will be selected from a watershed (One each in a year) and financial support can be extended to them on a revolving basis.

2. Vermin compost units

Vermi compost is the product or process of composting utilizing various species of worms, usually red wigglers, white worms, and earthworms to create a heterogeneous mixture of decomposing vegetable or food waste, bedding materials, and vermicast. Vermicast, similarly known as worm castings, worm humus or worm manure, is the end-product of the breakdown of organic matter by a pecies of earthworm. Containing water-soluble nutrients, vermin compost is an excellent, nutrient-rich organic fertilizer and soil conditioner. The process of producing vermin compost is called *vermin composting*.

Objectives

a) To provide cultural material of the desired species and train farmers and entrepreneurs.

b) To demonstrate practically the production methodology on the unit that will be set up.

In fact this has to be strictly promoted among the farmers, especially those who are interested in organic farming because this is a supplementing component of organic farming. Families selected for organic vegetable cultivation must strictly have a vermin compost production unit. Groups and individuals may be selected, trained and assisted to start vermin compost production even if it is at subsistence level. The proposal is to construct a compost pit of affordable size and supply of adequate quantity of red wriggler worms. This scheme can be widely spread all over the watershed. 15 small farmers can be selected every year from each watershed and assisted with financial aid to start the scheme. This is also a method for disposing the solid kitchen and farm waste produced in the households.

3. Homestead Vegetable garden

Since the input requirement is very low and easy to afford for even families below poverty line and each every family expressed their interest to have such nutrition gardens in their household premises, it is important that as much as units needed to be promoted in the watershed. But the limited finance in the provision compels us to limit the number of units in a watershed 100 within a period of three years. Thus the total number of units in the whole watershed will be 1300.

4. Biogas Plants

Sustainable waste management and energy conservation are the objectives, of promoting installation of biogas plants in every house, which has a landholding of more than seven cents in the watershed area. Besides Sustainable energy, removal of indoor air pollution, conservation of forests, waste management, sanitation, health, additional income, child health and education, soil fertility, sustainable agriculture, environment protection, employment generation, prevention of migration to urban areas and women empowerment are other important aspect.

The households in which a bio-gas plant is installed, the byproducts like slurry which is a high organic nutrient concentrate from the plant can also be utilized for organic cultivation. Now a household bio-gas plants had made mandatory by the state government as per order GO (MS) No. 73/2011/LSGD, issues on 01.03.2011. Therefore, promotional work on biogas plants in the watershed area under the IWMP projects shall also be a promotional work of the State Government.

Though the watershed Development Committees propose a biogas plant in each and every household in the watershed with project provision, we know that it is ambitious and could reach. Therefore, each watershed will have 10 biogas plants each, thus reaching a total of 130 biogas plants in the whole IWMP area.

5. Supply of Organic Manure and Lime

In order to bring back the PH and fertility of the soil in the watershed area it is proposed to make best available organic nutrient to the farmers even if it is at a small scale. The application of organic fertilizer will stabilize the production system and improve the economic status of the family through improved yield.

6. Fodder Cultivation

The availability of fodder is one of the limiting factors in animal husbandry. Animal husbandry should be mainly based on the fodder produced on the farm itself. As is the case with humans, there is a direct link between the food and the health of the animals. If farm animals are to be productive (milk, eggs, meat etc.), it is important that they get suitable food in sufficient quantities. If the fodder production of one's farm is limited (which usually is the case), it might be economically valid to keep less animals but supply them with sufficient food.

DETAILS OF WATERSHEDS COMING UNDER THE PROJECT AREA

Sl. No.	Name of watershed	Watershed Code	Geographic Coordinates		Total Area	Treatable Area	Project Cost
			Latitude	Longitude			
1.	Kavukode	19K 7b	10°43'30" N & 10°46'30" N	76°4'30" E & 76°6'0" E	446	446	6690000
2.	Pattissery - III	19K 7c	10°43'30" N & 10°45'0" N	76°4'30" E & 76°6'0" E	927	927	13905000
3.	Pattissery - II	19K 7d	10°45'0" N & 10°48'0" N	76°4'30" E & 76°6'0" E	239	239	3585000
4.	Chalissery	19K 8a	10°43'30" N & 10°46'30" N	76°4'30" E & 76°7'30" E	1035	1035	15525000
5.	Kothachira	19K 10a	10°43'30" N & 10°44'0" N	76°5'30" E & 76°6'30" E	89	89	1335000
6.	Ullannur	20B 20a	10°46'30" N & 10°48'0" N	76°7'30" E & 76°9'0" E	955	955	14325000
7.	Puliyappattakkayal - II	20B 46a	10°45'0" N & 10°49'30" N	76°6'0" E & 76°9'0" E	2220	2220	33300000
	Total				5911	5911	88665000

PANCHAYAT-WISE DETAILS OF WATERSHEDS

Sl. No.	Watershed Code#	Name of watershed	Name of PIA	Watershed Areas covered in more than one Panchayat Specify the number of wards	Geographic Area (Ha)
1.	19K 7b	Kavukode	Thrithala Block Panchayat	Chalissery GP (Ward Nos. 1, 12, 13, 14 and 15)	446
2.	19K 7c	Pattissery - III		Chalissery GP (Ward Nos. 9, 11 and 12)	927
3.	19K 7d	Pattissery - II		Chalissery GP (Ward Nos. 2, 3, 4, 5 and 6)	239
				Pattithara GP (Ward No. 13)	
4.	19K 8a	Chalissery		Chalissery GP (Ward Nos. 7, 9, 10 and 13)	1035
				Nagalassery GP (Ward Nos. 15 & 16)	
5.	19K 10a	Kotachira		Chalissery GP (Ward No. 8)	89
6.	20B 20a	Ullannur		Thrithala GP (Ward Nos.2, 3, 4, 5, 6, 10, 11 and 12)	955
7.	20B 46a	Puliyappattakkayal - II		Pattithara GP (Ward Nos. 4, 5, 7, 8, 9, 10 and 11)	2220
				Thrithala GP (Ward Nos. 1, 2, 3, 12, 13, 14, 15, 16 and 17)	
				Nagalassery GP (Ward Nos. 1, 2, 3, 4, 6, 7 and 17)	
		Total			**5911**

DETAILS OF MICRO WATERSHEDS IN IWMP-I/2010-11

As shown in table above, there are a total of 13 watersheds selected for treatment under Integrated Watershed Management Programme (IWMP) 2009-2010. In Thrithala Block Panchayat – seven in Thrithala A1 and six in Thrithala B7. These watersheds are the catchment areas of Bhrathapuzha and Kanhiramukku Puzha. Nine watersheds are the catchment area of Kanhiramukku Puzha and the rest are of Bharathapuzha. These watersheds are spread over six Grama Panchayats in the block. The total area taken for treatment is 11132 ha (5911 ha in Thrithala A1 and 5221 in Thrithala B7). Details of Individual watershed are given below:

1) KAVUKODE WATERSHED(19K 7b)

Kavukode watershed has a total area of 446 Ha and is spread over fully in one ward (Ward 9) and partially in four wards (5, 6, 10 & 11) of Chalissery Grama Panchayat. The height of the watershed from the MSL is between 20 to 40 meters. The watershed formation is based on the main stream Kavukode Thodu.

Kavukode watershed has Irumbumkunnu as its eastern boundary, Mukkoottumukkil Peedika as its western boundary, Police Station & Mission School in its south and Adakkapuram Watershed as its northern boundary.

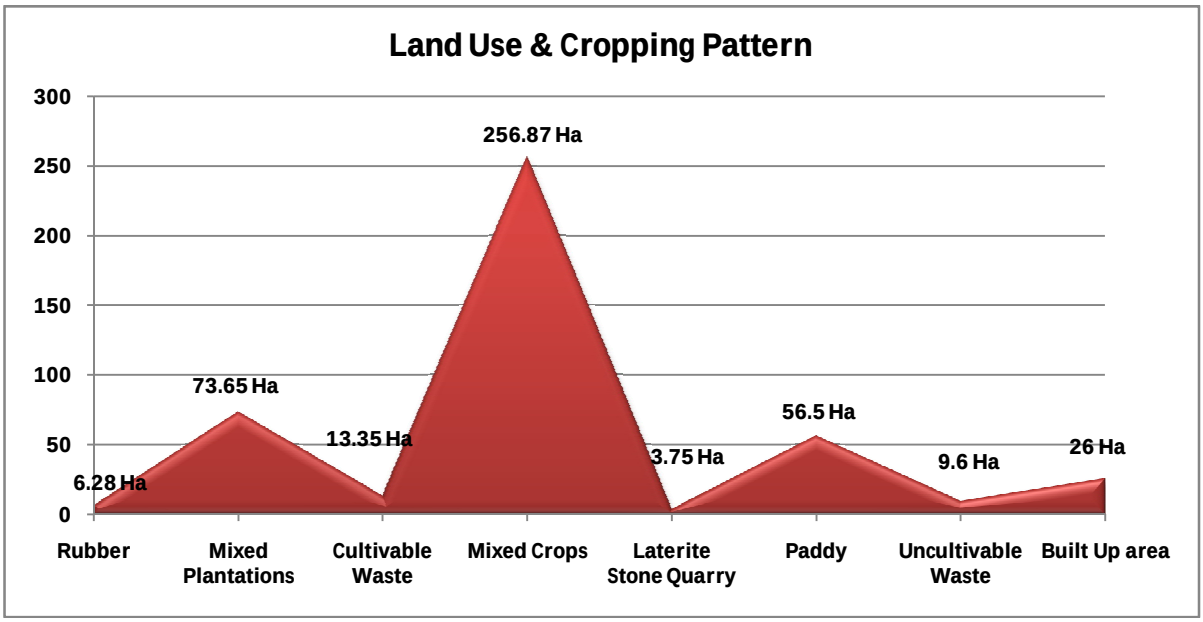
Geographically the watershed is of with undulating nature. The general features are steep slopes, moderate slopes and plains like paddy fields. In the higher reaches of the watershed one can find laterite gravels and laterite stones. In the slopes the type of soil is reddish and in plains and paddy fields alluvium is found. The depth of the soil in general is 30 to 50 CMs. The area belongs to Midland Agro – Climatic Zone.

Land Use

Major part of the land is used for mixed cultivation. According to available data the paddy cultivation in the watershed is restricted to about 56 ha. Around 10 ha of land suitable for cultivation lies wasted. Other major crops are rubber, arecanut, pepper and vegetables cultivated as mixed crops. The land use pattern is given in a tabular format below:

Sl. No.	Land Use	Area in Ha	%
1.	Rubber	6.28	1.41
2.	Mixed Plantations	73.65	16.51
3.	Cultivable Waste	13.35	2.99
4.	Mixed Crops	256.87	57.59
5.	Laterite Stone Quarry	3.75	0.84
6.	Paddy	56.50	12.67
7.	Uncultivable Waste	9.6	2.16
8.	Built Up area	26	5.83
	Total	**446**	**100**

Land Use Pattern



Hydrological situation of the watershed

The main drain of Kavukode watershed is the 2620 meters long Kavukode stream which is originating from Kavukode Shiva Temple. The other two streams are Puthiyedathu Thode (648 Meters) and Kaithode (145 Meters). In all these three streams water is available only for about 10 months in a year.

There are around 14 ponds amongst which 7 are perennial. All the ponds serve the purpose of irrigation. Wells in the watershed are 446 out of which 264 are perennial. The details of the ponds and wells are given in the table below:

Ponds

Sl. No.	Name of Pond	Survey No.	Ownership	Length (M)	Width (M)	Area in Cents	Water Availability (Months)	Use
1.	Pond 1	271	Private	3.50	3.50	3.30	4	Bathing
2.	Kulathani Ambalakulam	282	Temple	14	13	4.49	10	Bathing
3.	Pond 3	263	Private	9	8	1.78	12	Irrigation
4.	Pond 4	253	Private	8	4	0.79	12	
5.	Pond 5	253	Private	4	3.5	0.34	12	
6.	Pond 6	131	Private	11.8	35	10.23	12	
7.	Pond 7	196	Public	11.5	7.50	2.13	10	Bathing
8.	Pond 8	199	Public	18	10	4.48	10	Bathing
9.	Pond 9	214	Private	11	5	1.36	8	Abandoned
10.	Pond 10	223	Private	15	10	3.7	12	Irrigation
11.	Pulikkulam	243	Public	26	13	8.35	10	Bathing
12.	Pond 12	186	Private	4	4	0.4	10	Bathing
13.	Palaprakulam	131	Public	15	12	4.48	12	Irrigation
14.	Puthankulam		Public	15	12	4.48	12	Irrigation

Wells:

Total Wells : 446 Seasonal : 182

Perennial : 264 Community Wells : 2

Socio-Economic Situation

The total population according to PPR issued by DoLR is 4919 out of which 2557 are women and the rest men. 16.5 % (814) belong to Scheduled Caste Community. More than 15% is working in Gulf Countries. Another 10% is in the construction sector.

The main occupation of the people is agriculture and majority depends upon agriculture as the main source of income. Statistics shows that the watershed community's secondary source of income is wage labour especially in the construction sector. The NRI transferred funds are also backing the economy of the watershed community.

The educational level is somewhat medium. The health situation is also satisfactory. Almost all the families are having their own houses and it seems that most of them are living in pucca houses. A great majority of the peo9ple are living in RCC roofed houses which discloses their economic soundness.

Watershed Committees

Watershed Committee is as follows:

Sl. No.	Name	Designation	Position	Phone No.
1.	Savithri.N	GP President	Chairperson	9847018872
2.		Ward Member	Vice Chairperson	
3.		VEO	Convener	
4.		GP Secretary	Member Secretary	
5.	Salim Thurakkal	Watershed NHG Member	Jt. Convener	
6.		WDT Member	Secretary	
7.	Subrahmannian Nayar	Watershed NHG Member	Jt. Secretary	
8.	Chinnu	Watershed NHG Member	Treasurer	9048924422
9.	Basheer Palikkattil	Watershed NHG Member	Member	9645013134
10.	Koyasanhaji .P	Watershed NHG Member	Member	9946878872
11.	K.P.Kunjunni Nambiar	Watershed NHG Member	Member	9745188588
12.	Purushothaman	Watershed NHG Member	Member	9846450895
13.	Santhakumari	Watershed NHG Member	Member	9048661712
14.	Gafoor.Manamkundath	Watershed NHG Member	Member	
Ex Officio- Members				
7.	Krishnakumari Ravi	District Panchayat member	Member	
8.	A.Vijayan	Block Panchayat Member	Member	9946482844
9.	A.V.Sandhya	Block Panchayat Member	Member	9645718665
10.	Vijayamma Teacher	Gramapanchayat Member	Member	9846517514
11.	Sabitha Rajesh	Gramapanchayat Member	Member	9142477475
12.	Thomson	Gramapanchayat Member	Member	9656337878
13.	Sahira	Gramapanchayat Member	Member	9048025309
14.	Vijayalakshmi	Gramapanchayat Member	Member	9526886504
15.	Anitha	ADS Chairperson	Member	8943717738
16.	Lalitha	ADS Chairperson	Member	0466-2005048
17.	Sunitha	ADS Chairperson	Member	9645215529
18.		President – Co-Op. bank	Member	
19.	Sunny Asariparambil	Director Susthira	Member	

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified

The analysis was done taking four different areas separately- soil, water, Agriculture and livestock. Area-wise problems were listed out and prioritized. The Problems in different areas are listed below:

Soil related Problems

- Severe and heavy soil erosion
- Reducing productivity of the soil
- Deterioration of the soil humus
- Change in the chemical structure of the soil and reducing storage capacity of the soil
- Heavy water drain from the soil
- Soil Pollution due to indiscriminate use of Chemicals

Water related Problems

- Severe drought
- Drying up of water sources in the beginning of summer
- High velocity runoff in the monsoon season
- Over consumption of water
- Increasing number of bore-wells threatening the ground water storage
- Lowering water yield in the catchment affecting the groundwater recharge.
- Sedimentation in Ponds, Streams and paddy fields has affected summer flow and some perennial streams have became seasonal
- introduction of plantation crops in highlands replacing the natural vegetation reduced the storage capacity of soil
- Contamination of stream side aquifer due to polluted stream
- Contamination due to direct disposal of waste
- Drinking water contamination increasing waterborne diseases especially during monsoon.

Problems related to Agriculture/Bio-diversity

- Unavailability of seeds with ensured germination
- Reluctance to cultivate food crops
- Unavailability of quality organic fertilizers and bio-repellants
- Poor awareness on the importance and relevance of Organic Farming
- Alienated/extinct medicinal plants
- Destruction/deterioration of holy grooves (Kavus)
- Shift from multi crops to mono crops
- Deterioration of natural grazing land/pastures
- Reducing Paddy fields
- Poor vegetable cultivation

Problems related to Livestock/Animal Husbandry

- Reduction in cow rearing
- Reduction in poultry
- Poor performance of the veterinary hospitals
- Absence of sub-centers which results in lack of insemination services
- Unavailability of green fodder/dry fodder
- Inadequate returns
- Lack of Interest in Animal Husbandry
- New generation reluctant to enter into the field of animal husbandry.

A serious discussion among the group members helped to distinguish the core problem and the causes and effects of such problems. They were asked to prioritize the problems and identify one core issue for analysis in each sector.

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	De-siltation and de-weeding of Aanayiruthikkulam
Natural Resource Management (NRM) Common Activities	Construction of VCB – Kavukode Stream
	Anganwadi Pond Protection
	Renovation of Panchayat owned community well
	Protection of Palapram Pond
	Protection of Kunnumkuzhi Pond
	Deepening of Mukkotta Ambalappadi Community Well
	Construction of RWH Tank at Padinhare Pattissery Anganwadi
	Construction of RWH Tank at A.M.L.P School
	Construction of RWH Tank at Mukkothu Anganwadi
	Construction of RWH Tank at Padathukunnu Anganwadi
Natural Resource Management (NRM) Individual Activities	Well Recharging (Kizhakke Pattissery Colony) Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

2. PATTISSERY – II (19K 7d)

Geography

The watershed spreads over 2nd, 3rd, 4th, 5th and 6th wards of Chalissery Grama Panchayat and 13th ward of Pattithara Grama Panchayat. The watershed is formed around the main stream Palakkal Thodu. The total geographic area of this watershed is 927 ha. The height of the watershed from the mean sea level is between 20 meters and 78 meters.

The watershed is bounded in its north by Pattithara area, in south by Poucherykkunnu, in east by Bangalow Hills and in the west by Thanneerkode Road. Major part of the watershed is medium slopes. There are paddy fields and other plain lands in the watershed. Heavy slope of S3 type are seen in a very small area of the watershed.

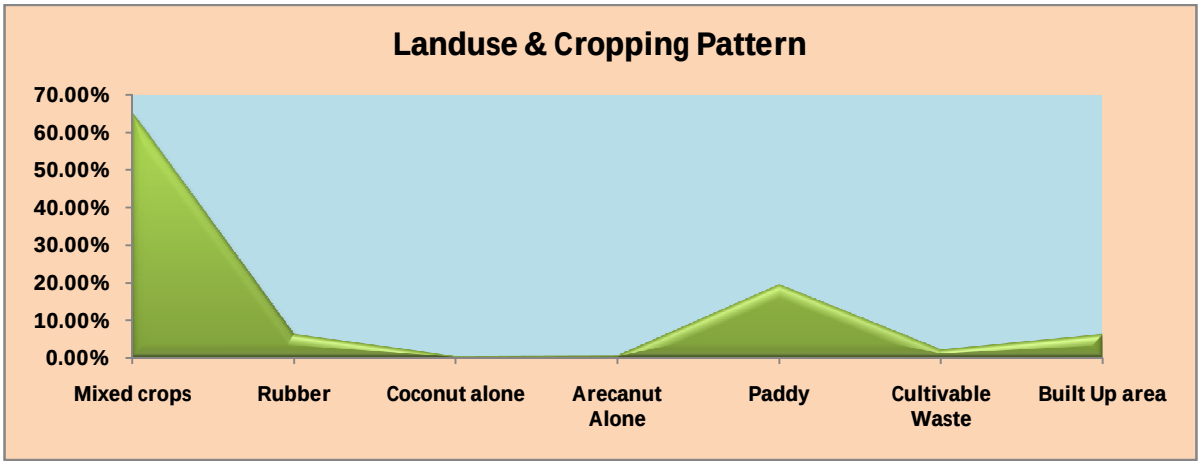
Soil Type

On the hills the usually found soil is laterite mixed with gravels. Besides, laterite stones and granite are also seen. On the slopes red soil and red soil mixed with gravel is observed. In the valleys black soil is found. In some area one can find red soil mixed with sand.

Land Use Pattern

Major single cultivation is paddy. Major part of the watershed is covered with mixed cultivation. More than 19 ha land is found to be cultivable waste. Besides, there are rubber plantations and areca nut plantations. Mixed plantations can also be seen in many parts of the watershed. Details of land use are given in a tabular forum below:

Sl. No.	Land Use	Area in Ha	%
1.	Mixed crops	605.86	65.36
2.	Rubber	57.56	6.22
3.	Coconut alone	2.91	0.31
4.	Arecanut Alone	4.31	0.46
5.	Paddy	179.76	19.39
6.	Cultivable Waste	19.04	2.05
7.	Built Up area	57.56	6.21
	Total	**927**	**100**



Hydrology

As mentioned in the beginning of the description of this watershed the main stream is the 2888 meters long Palakkal Thodu which provides water for about 7 months in a year. The other two important streams are Puthiyedathu Thodu and Varathodu. There about 27 ponds in the watershed some of which are suitable for pisci-culture. There are about 874 wells amongst which 574 are perennial. Details of the water bodies are given below:

Streams

Sl. No.	Name of the Streams	Length (M)	Water Availability in Months
1	Palakkalthodu	2888	7
2	Puthiyedathu Thodu	2388	7
3	Varathodu	1660	7

Ponds

Sl. No	Name of Pond	Survey No.	Owner-ship	Length (M)	Width (M)	Area in Cents	Water Availability (Months)	Use
1.	Vishnukhethrakulam	79	Private	16	10	3.95	12	Irrigation
2.	Chirakulam	81	Private	10	10	2.47	10	Irrigation
3.	Ottakkulam	81	Private	12	3	0.88	10	Irrigation
4.	Parakkulam	105	Private	26	10.50	6.74	12	Irrigation
5.	Nayarkulam	109	Public	42	22	22.83	12	Irrigation
6.	Valiyakulam	116	Public	26	26	16.70	12	Irrigation
7.	Cheukulam	120	Private	15	4	1.48	10	Irrigation
8.	Edalakulam	10	Private	6	6	0.88	10	Irrigation
9.	Nellikulam	7	Public	25	17	10.50	11	Irrigation
10.	Pond	77	Private	15	12	4.44	11	Irrigation
11.	Ambalakulam	65	Private	11.5	9	2.55	8	Irrigation
12.	Pond	36	Private	35	35	30.26	10	Irrigation

13.	Uppilakulam	34	Public	44	18	19.57	10	Irrigation
14.	Pond	56	Private	10	4	0.98	9	Irrigation
15.	Valiyakulam	52	Private	50	50	61.77	10	Irrigation
16.	Pond	52	Private	7.5	7.1	1.31	12	Irrigation
17.	Pond	52	Private	8.5	3	0.63	10	Irrigation
18.	Puthenkulam	52	Private	6.5	4	0.54	12	Irrigation
19.	Kattikkulam	47	Public	19	10	4.69	10	Irrigation
20.	Pond	151	Private	13	10	3.21	8	Irrigation
21.	Pond	50	Private	12	14	4.15	11	Irrigation
22.	Pond	50	Private	20	15	7.41	11	Irrigation
23.	Koymakundukulam	89	Public	5	5	0.61	10	Irrigation
24.	Cheenikulam	143	Private	10	16	3.95	12	Irrigation
25.	Pond	152	Private	13	5	1.60	12	Irrigation
26.	Pond	151	Private	13.50	7.50	2.50	12	Irrigation
27.	Pond	151	Private	5	3	0.37	7	Irrigation

Wells

Total Wells : 874 Perennial : 574
Seasonal : 300 Public Wells : 9

Socio-economic situation

Nearly 3900 families are living in the watershed with an approximate population of 17550amongst which 89505 are female and 85995are male. Majority of the people in the watershed are either small scale farmers or agricultural labourers.

The general socio-economic situation of the watershed community is of a middle class. Most of the people have some sort of agriculture as their main source of income. But, people say that as agriculture became non – cost effective, they forced to shift from agriculture to wage labour. Especially in the case of food crops, non-availability of workers, lower price in the market etc, have played an important role in withdrawing farmers from agriculture.

A very few percentage of people are working in the gulf countries and they support the economy of the watershed to a certain extent. Educationally they keep a satisfactory level. At the same time majority did not opt for higher education. Some people earn their income from construction sector.

One can observe good RCC roofed houses in the watershed. But this does not mean that they are economically sound. We were told that most of them have constructed their house with bank loans. Each house is attached with adequate sanitation facilities. There are very few houses, that too in the remote villages, without electricity.

Watershed Committee is as follows:

Sl. No.	Name	Designation	Position	Phone No.
1.	Savithri.N	GP President	Chairperson	9847018872
2.	Noushad	Ward Member	Vice Chairperson	9048185210
3.		Agriculture Officer	Convener	
4.	Abdhu	Watershed NHG Member	Jt. Convener	
5.		WDT Member	Secretary	
6.	Tom	Watershed NHG Member	Jt. Secretary	9447435881
7.	Pathmavathi	Watershed NHG Member	Treasurer	9846019413
8.	Rafeeqh	Watershed NHG Member	Member	9633666108
9.	Kamala	Watershed NHG Member	Member	
10.	Haneefa	Watershed NHG Member	Member	9048775416
11.	Noufal	Watershed NHG Member	Member	9846459224
12.	Thasmi	Watershed NHG Member	Member	2656709
13.	Sankaran	Watershed NHG Member	Member	9633323903
Ex Officio- Members				
20.	Krishnakumari Ravi	District Panchayat member	Member	
21.	A.Vijayan	Block Panchayat Member	Member	9946482844
22.	A.V.Sandhya	Block Panchayat Member	Member	9645718665
23.	Sheela Manikandan	Gramapanchayat Member	Member	9497661734
24.	Sabitha Rajesh	Gramapanchayat Member	Member	9142477475
25.	Noushad	Gramapanchayat Member	Member	9048185210
26.	Raheema	ADS Chairperson	Member	
27.	Anitha	ADS Chairperson	Member	8943717738
28.	Kallyani	ADS Chairperson	Member	
29.		President – Co-Op. bank	Member	
30.	Sunny Asariparambil	Director Susthira	Member	

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified

The analysis was done taking four different areas separately- soil, water, Agriculture and livestock. Area-wise problems were listed out and prioritized. The Problems in different areas are listed below:

Soil related Problems

- Severe and heavy soil erosion
- Reducing productivity of the soil
- Deterioration of the soil humus
- Change in the chemical structure of the soil and reducing storage capacity of the soil
- Heavy water drain from the soil
- Soil Pollution due to indiscriminate use of Chemicals

Water related Problems

- Severe drought
- Drying up of water sources in the beginning of summer
- High velocity runoff in the monsoon season
- Over consumption of water
- Increasing number of bore-wells threatening the ground water storage
- Lowering water yield in the catchment affecting the groundwater recharge.
- Sedimentation in Ponds, Streams and paddy fields has affected summer flow and some perennial streams have became seasonal
- introduction of plantation crops in highlands replacing the natural vegetation reduced the storage capacity of soil
- Contamination of stream side aquifer due to polluted stream
- Contamination due to direct disposal of waste
- Drinking water contamination increasing waterborne diseases especially during monsoon.

Problems related to Agriculture/Bio-diversity

- Unavailability of seeds with ensured germination
- Reluctance to cultivate food crops
- Unavailability of quality organic fertilizers and bio-repellants
- Poor awareness on the importance and relevance of Organic Farming
- Alienated/extinct medicinal plants
- Destruction/deterioration of holy grooves (Kavus)
- Shift from multi crops to mono crops
- Deterioration of natural grazing land/pastures
- Reducing Paddy fields
- Poor vegetable cultivation
- Reducing freshwater fishes

Problems related to Livestock/Animal Husbandry

- Reduction in cow rearing
- Reduction in poultry
- Poor performance of the veterinary hospitals
- Absence of sub-centers which results in lack of insemination services
- Unavailability of green fodder/dry fodder
- Inadequate returns
- Lack of Interest in Animal Husbandry
- New generation reluctant to enter into the field of animal husbandry.

A serious discussion among the group members helped to distinguish the core problem and the causes and effects of such problems. They were asked to prioritize the problems and identify one core issue for analysis in each sector.

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	De-siltation of the pond of Palakkal Colony Drinking Water Project
Natural Resource Management (NRM) Common Activities	Construction of VCB – Aswathi Padashekaharam
	Construction of VCB – Aasarithazham Padashekaharam
	Laying of pipe near Chungathukulam Bridge
	Stream Bank Stabilization of Aasarithazham Stream near Kuvukode Shiva Temple
	Construction of Pond – Thekke Pattu Valappil Shankaran
Natural Resource Management (NRM) Activities for individual beneficiaries	Well Recharging (Kizhakke Pattissery Colony) Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

3. PATTISSERY – III (19K 7c)

Geography

The watershed spreads over 9th, 11th, and 12th wards of Chalissery Grama Panchayat. The watershed is formed around the main stream Adakkapuramthodu. The total geographic area of this watershed is 239 ha. The height of the watershed from the mean sea level is between 20 meters and 80 meters.

The watershed is bounded in its east by Thanneerkode Road, in west by Kappur Grama Panchayat, in south Irumbamkunnu and in the north by Koonamoochi. Around 50 of the total geographic area of the watershed is with medium (S2) slopes, 40% with moderate slopes (S3) and the rest is S1 type slopes. There are paddy fields and other plain lands in the watershed. Heavy slope of S3 type are seen in a very small area of the watershed.

Soil Type

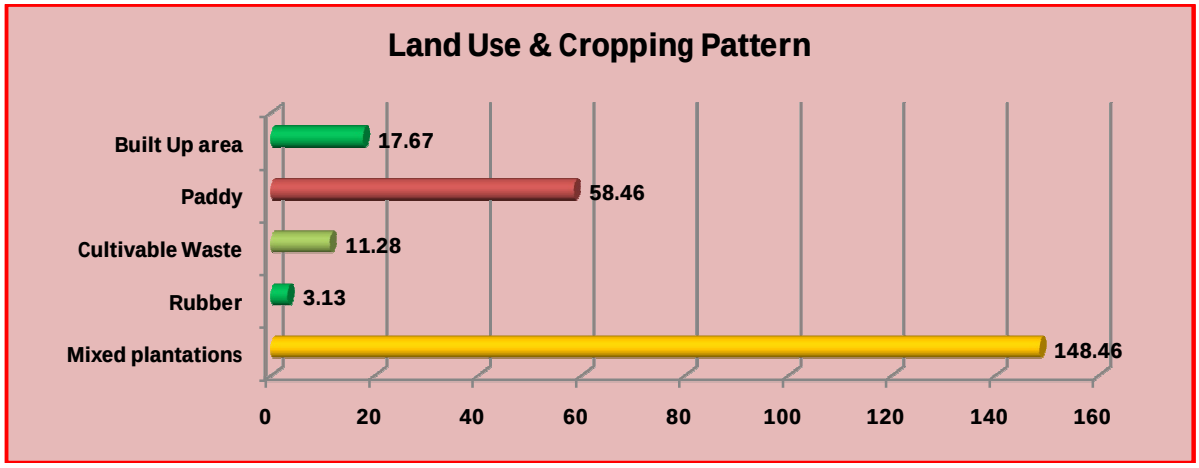
On the hills the usually found soil is laterite mixed with gravels. Besides, laterite stones and granite are also seen. On the slopes red soil and red soil mixed with gravel is observed. In the valleys black soil is found. In some area one can find red soil mixed with sand.

Land Use Pattern

Major single cultivation is paddy. Around 60 ha of available land are paddy fields. On the slopes mixed plantations can be observed. A very few percentage of the land is found to be left uncultivated, though this is cultivable. Other major crops are rubber, coconut, plantain and areca nut. Details of land use are given in a tabular forum below:

Sl. No.	Land Use	Area in Ha	%
1.	Mixed plantations	148.46	62.12
2.	Rubber	3.13	1.31
3.	Cultivable Waste	11.28	4.72
4.	Paddy	58.46	24.46
5.	Built Up area	17.67	7.39
	Total	**239**	**100**

Land Use Pattern



Hydrology

Adakkapuram stream is the main stream in this watershed. This stream has a total length of 3746 meters. Another small stream, which has around 788 length, is the one that flowing along Vishnu Temple. There are about 17 ponds including the 6 public ponds in the watershed. The watershed is rich with about 289 wells amongst which 187 are perennial. Details of the water bodies are given below:

Streams

Sl. No.	Name of the Streams	Length (M)	Water Availability in Months
1	Adakkapuram Thodu	3764	7
2	Kaithodu	788	7

Ponds

Sl. No.	Name of Pond	Survey No.	Ownership	Length (M)	Width (M)	Area in Cents	Water Availability (Months)	Use
1.	Pond 1	154	Private	6	3	0.44	Seasonal	Irrigation
2.	Adakapuram Pond	100	Public	12	10	2.97	Seasonal	Irrigation
3.	Ambalakulam	13	Public	10	10	2.47	Perennial	Irrigation
4.	Pond	17	Private	4	12.54	1.24	Seasonal	Abandoned
5.	Shiva Temple Pond	23	Public	25	16	9.88	Seasonal	Abandoned
6.	Pond	64	Private	20	16	7.90	Perennial	Irrigation
7.	Pond	62	Private	9	7	1.55	Perennial	Irrigation
8.	Pond	37	Private	32	11	8.69	Seasonal	Irrigation
9.	Shiva	32	Public	20	17	8.40	Seasonal	Irrigation

	\temple Pond							
10.	Pond	34	Private	9.5	6.5	1.52	Seasonal	Irrigation
11.	Prani Ambalakulam	162	Public	8	7	1.38	Perennial	Irrigation
12.	Pond	148	Private	20	10	4.94	Seasonal	Irrigation
13.	Ambalakulam	143	Public	22	10	5.43	Seasonal	Irrigation
14.	Pond	116	Private	7.00	0	3.80	Seasonal	Irrigation
15.	Pond	121	Private	8	3	0.59	Seasonal	Irrigation
16.	Pond	118	Private	6	5	0.74	Seasonal	Irrigation
17.	Pond	118	Private	5	3	0.37	Seasonal	Irrigation

Wells

Total Wells	**: 289**	Seasonal	: 102
Perennial	: 187	Public Wells	: 3

Socio-economic situation

The community in the watershed is a mixed one with people of all categories is living in harmony. Among them are the farmers and agricultural labourers. Among them are the workers who earn their livelihood from construction sector. A good percentage (nearly 16.6%) of the total population in the watershed belongs to SC category. There are a total of 2637 people living in the watershed. Among the total population 1397 are female and 1240 are male.

The general socio-economic situation of the watershed community is of a middle class. Most of the people have some sort of agriculture as their main source of income. But, people say that as agriculture became non – cost effective, they forced to shift from agriculture to wage labour. Especially in the case of food crops, non-availability of workers, lower price in the market etc, have played an important role in withdrawing farmers from agriculture.

A very few percentage of people are working in the gulf countries and they support eh economy of the watershed to a certain extent. Educationally they keep a satisfactory level. At the same time majority did not opt for higher education. Some people earn their income from construction sector.

One can observe good RCC roofed houses in the watershed. But this does not mean that they are economically sound. We were told that most of them have constructed their house with bank loans. Each house is attached with adequate sanitation facilities. There is a very few houses, that too in the remote villages, without electricity.

Watershed Committee is as follows:

Sl. No.	Name	Designation	Position	Phone No.
1.	Savithri.N	ChalisseryGP President	Chairperson	9847018872
2.	C.P.Rasakh	Pattithara GP President	Vice Chairperson	9447654026
3.		VEO	Convener	
4.	Rishabhadevan.V.R	Watershed NHG Member	Jt. Convener	9544130967
5.		GP Secretary	Member Secretary	
6.	Arya	WDT Member	Member	
7.	P.Rajan	Watershed NHG Member	Jt. Secretary	9447380226
8.	Karthyayani.V	Watershed NHG Member	Treasurer	9846427423
9.	Moideenkutty	Watershed NHG Member	Member	9946156528
10.	P.A.Koyaunni	Watershed NHG Member	Member	
11.	Rathnakumari	Watershed NHG Member	Member	9846833704
12.	Leelamani	Watershed NHG Member	Member	0466-2255072
13.	Koyakutty M	Watershed NHG Member	Member	9946288590
14.	K.P.Moideenkutty	Watershed NHG Member	Member	9846423210

Ex Officio- Members				
15.	Krishnakumari Ravi	District Panchayat member	Member	
16.	A.Vijayan	Block Panchayat Member	Member	9946482844
17.	A.V.Sandhya	Block Panchayat Member	Member	9645718665
18.	Suma	Gramapanchayat Member	Member	9745384652
19.	Mani	Gramapanchayat Member	Member	9048038584
20.	Shamsudeen	Gramapanchayat Member	Member	9847859168
21.	Sheeba Ajayan	Gramapanchayat Member	Member	9048533851
22.	Rajani	ADS Chairperson	Member	
23.	Sefiya	ADS Chairperson	Member	9747734558
24.	Ammini	ADS Chairperson	Member	9846514918
25.	Prema	ADS Chairperson	Member	8606606956
26.	Pathmavathi	ADS Chairperson	Member	9539190336
27.	Sunny Asariparambil	Director Susthira	Member	9744888122

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified

A focus group discussion involving some of the participants who can contribute to issues identification was held during the PRA in Kumaranellur Watershed. The group has discussed serious problems the farmers face and the major problems are consolidated as follows:

Soil Related Problems in the watershed

- Erosion of top soil
- Soil Degradation
- Lower Crop Production
- Increased cost of Production
- Poor Biological Fertility of the soil
- Drying & Shrinking of clay
- Very low soil PH
- Poor water infiltration

Water Related Issues

- Lowering water yield in the catchments
- Poor Ground water Recharging
- Deforestation
- Poor vegetative cover on the soil surface
- Bank erosion
- Sedimentation of Water Sources
- Ground water scarcity
- Water depletion
- Water Pollution

Agricultural Related Issues

- Declining Food crop Cultivation
- Increasing mono crop (rubber)
- Shift to non-agricultural work
- Non-agricultural land use
- High Wages & High cost of living
- Changing food habits
- Fragile land mass
- Inadequate marketing facilities
- Low price

Animal Husbandry Related issues

- Degradation of common property resources
- Poor biomass availability
- Unavailability of indigenous varieties
- Disappearing ethno veterinary techniques
- Poor performance of Veterinary department/hospitals

- Poor service of Agricultural Department/Krishibhavans
- Poor dairy Education
- Poor interest of the farmers

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	De-siltation of the pond of Palakkal Colony Drinking Water Project
Natural Resource Management (NRM) Common Activities	Construction of pond retaining wall of Puthiyavalathu Temple Pond
	Construction of Pond – Payyada Chandran & Cheeranparambil Sulaiman
	Construction of VCB & Tiller Bridge, Parikkappara
	Construction of 3 meter check dam (Pokkar Kinarumakkal)
	Construction of Pond – Perumannur Padashekharam
	Construction of RWH tank and Well Recharging system (Kizhakkeppattuissery Colony Anganwadi)
	Extension work of Drinking water project at Kizhakke Pattissery Colony
Natural Resource Management (NRM) Activities for individual beneficiaries	Well Recharging (Kizhakke Pattissery Colony) Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry and enterprises in secondary sector

4. CHALISSERY (19K 8a)

Chalissery watershed covers 7th, 8th, 9th, 10th, 11th and 13th wards of Chalissery Grama Panchayat in full and 16th and part of 17th wards of Nagalssery Grama Panchayat.The watershed is the catchment area of two important streams – Aalikkara Stream and Aamakkavu Stream. The total geographic area of the watershed is 1035 Ha.

The watershed is bounded in its east by Koonangadu, in west by Myladikkunnu and Bungalow Kunnu, in south Aalikkara and Veranpilavuthodu and in the north by Nanddiyamkodukunnu. The watershed is with medium (S2) slopes and slopes (S3). There are valleys and plains also in the watershed.

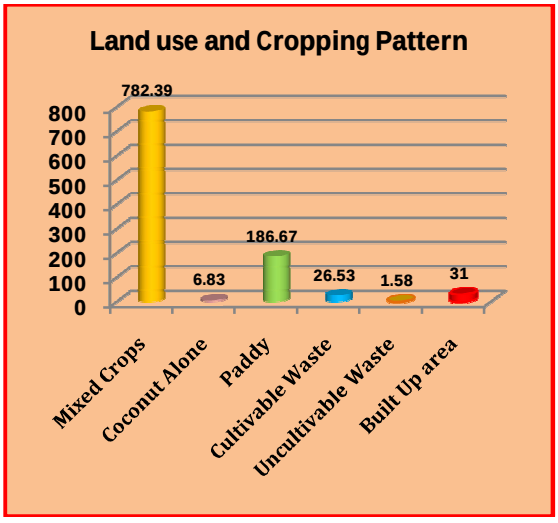
Soil Type

On the upper reaches one can see laterite and granite rocks. In the slopes laterite soil and in Paddy fields (plains) balck soil mixed with red lateite soil can be seen. On the slopes red soil and red soil mixed with gravel is observed. In the valleys black soil is found. In some area one can find red soil mixed with sand.

Land Use

In certain area in the upper reach of the land rubber plantations have began to invade. It is slowly spreading over the watershed area. In most of the moderately sloppy areas coconut and pepper along with arecanut are found to be cultivated. Around 18%of the total area in the watershed is under paddy cultivation. However major part of the available land is under mixed crops including mixed plantations. This will come to about 58.83%. a very small quantum of land is left uncultivated, which can be make use of cultivation. Details of land use are given below:

Sl. No.	Land Use	Area in Ha	%
1.	Mixed Crops	782.39	75.59
2.	Coconut Alone	6.83	0.66
3.	Paddy	186.67	18.04
4.	Cultivable Waste	26.53	2.56
5.	Uncultivable Waste	1.58	0.15
6.	Built Up area	31	3.00
7.	**Total**	**1035**	**100**



Hydrology

The watershed is rich with several water bodies like streams, ponds and wells. The undulating terrain of the watershed helps the formation of several streams in the watershed. There are seven such streams of which the water availability ranges from 5 to 11 months. In the summer, almost all the streams will dry up. Details are given below:

Streams

Sl. No.	Name of the Streams	Length (M)	Water Availability in Months
1.	Aalikkarathodu	1576	11
2.	Kalladathu Thodu	1608	9
3.	Aamakkavu Thodu	2224	9
4.	Thodu	2112	9
5.	Kollachery Thodu	596	11
6.	Kaithodu	728	5
7.	Kaothodu	464	5

Ponds

Sl. No.	Name of Pond	Survey No.	Ownership	Length (M)	Width (M)	Area in Cents	Water Availability (Months)	Use
1.	Pond 1	199	Private	8.8	-	6	7	Irrigation
2.	Nagalassery Kulam	21	Private	4.8	4.8	0.57	7	Irrigation
3.	Pond 3	197	Private	28	17.20	11.90	11	Irrigation
4.	Kodikkulam	188	Public	36	20	17.79	11	Irrigation
5.	Pond 5	105	Private	12	-	11.17	10	Irrigation
6.	Kundarakkulam	102	Public	23.25	21	12.06	10	Irrigation
7.	Pond	139	Private	20	20	9.88	10	Irrigation
8.	Pond	112	Public	18.50	6	2.74	11	Irrigation
9.	Kozhikkulam	73	Public	32	12.28	10.12	11	Irrigation
10.	Pond	111	Public	21	13.8	7.16	12	Irrigation
11.	Pond	111	Private	9.2	7.2	1.63	12	Irrigation
12.	Pond	111	Private	2	-	0.31	12	Irrigation
13.	Pond	8	Private	9.6	6	1.42	7	Irrigation
14.	Pond	8	Private	16.8	16.8	6.97	12	Irrigation
15.	Pond	93	Public	36	10.80	9.6	10	Irrigation
16.	Pond	57	Public	8.36	8.8	1.82	6	Irrigation
17.	Pond	143	Private	8.2	4.2	0.85	12	Irrigation
18.	Paakkulam	102	Public	26	20	12.84	12	Irrigation
19.	Pond	90	Public	28	22	15.22	12	Irrigation
20.	Puthenkulam	30	Private	10	6	1.48	6	Irrigation
21.	Tharamael Kulam	22	Public	10	25	6.18	12	Irrigation
22.	Thazhathekulam	22	Private	25	10	6.18	12	Irrigation
23.	Thozhukkad puthen	135	Private	4	2	0.19	12	Irrigation
24.	Poomullikkulam	102	Private	60	30	44.48	12	Irrigation
25.	Pond	102	Private	10	7	1.73	12	Irrigation
26.	Malayamkuzhikulam	126	Private	40	10	9.88	12	Irrigation
27.	Pond	92	Private	15	8	3	10	Irrigation

28.	Pond	72	Private	20	10	4	10	Irrigation
29.	Pond	99	Private	18	10	3.5	10	Irrigation
30.	Pond	97	Private	13	8	2.5	10	Irrigation
31.	Pond	92	Private	15	8	3	10	Irrigation
32.	Pond	87	Private	15	8	3	10	Irrigation
33.	Quarry	60	Private	25	30	18.53	12	Irrigation
34.	Quarry	58	Private	10	15	3.70	12	Irrigation
35.	Quarry	60	Private	10	15	3.7	12	Irrigation
36.	Pond	375	Private	8	7	1.38	10	Irrigation
37.	Pond	362	Private	9	8	1.78	12	Irrigation
38.	Pond	362	Private	7	5	0.86	10	Irrigation
39.	Pond	327	Private	6	18.8	2.79	9	Irrigation
40.	Pond	352	Private	15	15	5.56	7	Irrigation
41.	Pond	325	Private	12	12	3.56	12	Irrigation
42.	Pond	313	Public	7	21.96	3.80	12	Irrigation
43.	Pond	263	Private	22.5	8.5	4.73	12	Irrigation
44.	Pond	393	Private	10	6.3	1.56	9	Irrigation
45.	Pond	234	Private	24.50	19	11.50	9	Irrigation
46.	Pond	369	Public	42.70	26.50	27.96	12	Irrigation
47.	Pond	99	Public	4	3	0.29	7	Irrigation

Wells

Total Wells	: 1322	Seasonal	: 737
Perennial	: 585	Community Wells	: 14

General Socio-Economic Situation

The total population in the watershed is 10656 amongst which 1977 belong to SC/ST category and the rest in general category. The community in the watershed is mainly composed of small marginal farmers and farm labourers. Approximately half of the community is working in agriculture sector. A report shows that about 40% of the total households in the watershed are BPL. Among them are the farmers and agricultural labourers. There are SC families living either in colonies or among the mainstream community in the watershed area.

People in the watershed are generally farmers and most of them are depending on agriculture for their livelihood. A very few are employed in the construction sector. Yet another group is involved in wage labour as a secondary source of income. Animal husbandry is found to be a secondary source of income of the farming community.

Educationally all are in the middle level that is there neither highly educated people nor under-educated people. A very few are reported to be working in gulf countries. Almost all the families have their own houses and the houses are pucca with adequate sanitation facilities. The health conditions are also observed to be fine.

Animal Husbandry

As mentioned above people in the watershed are generally farmers, but many of them either have abandoned cattle rearing or have become reluctant in animal husbandry. Animal husbandry should have been a farm supplementing activity or a supplementary source of income. But the watershed area has drastically down in animal husbandry in the last few years. The data available on Animal Husbandry is given below:

Type of Animal Livestock	No. of animals in the watershed	Type of Animal Livestock	No. of animals in the watershed
Hybrid variety cattle (Male)	118	Buffalo (Female)	8
Hybrid variety cattle (Female)	551	He-Goat	703
Cattle (Breed Not Known (Male)	104	She-Goat	1446
Cattle (Breed Not Known (Female)	1386	Foul (Indigenous Variety)	2790
Buffalo (Male)	69	Foul (Hybrid Variety)	40

Watershed Committee is as follows:

Sl. No.	Name	Designation	Position	Phone No.
1.	Savithri.N	GP President	Chairperson	9847018872
2.		Ward Member	Vice Chairperson	
3.		Agriculture Officer	Convener	
4.	Mathukutty .M	Watershed NHG Member	Jt. Convener	9446637064
5.		WDT Member	Secretary	
6.	Samuval Cheeran	Watershed NHG Member	Jt. Secretary	9539750717
7.	Rathnam	Watershed NHG Member	Treasurer	9846138936
8.	Muraleedaran	Watershed NHG Member	Member	9846905524
9.	Muhammad	Watershed NHG Member	Member	9048469093
10.	Rasaqh	Watershed NHG Member	Member	9846739947
11.	Kunjumol Saji	Watershed NHG Member	Member	8943837388
12.	Radha P. K	Watershed NHG Member	Member	
13.	Sulaiman Mathoor	Watershed NHG Member	Member	9846421327
Ex Officio- Members				
14.	Krishnakumari Ravi	District Panchayat member	Member	
15.	A.Vijayan	Block Panchayat Member	Member	9946482844
16.	A.V.Sandhya	Block Panchayat Member	Member	9645718665
17.	Bavaenna	Gramapanchayat Member	Member	9846089139
18.	Sedumadavan	Gramapanchayat Member	Member	8943585519
19.	Sheela Manikandan	Gramapanchayat Member	Member	9497661734
20.	Ummar Moulavi	Gramapanchayat Member	Member	9846460321
21.	Thomson	Gramapanchayat Member	Member	9656337878
22.	Presanna	ADS Chairperson	Member	9745557967
23.	Girija	ADS Chairperson	Member	
24.	Sudha	ADS Chairperson	Member	9846127074
25.	Aani Vinu	ADS Chairperson	Member	
26.		ADS Chairperson	Member	
27.		President – Co-Op. bank	Member	
28.	Sunny Asariparambil	Director Susthira	Member	

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified

A focus group discussion involving some of the participants who can contribute to issues identification was held during the baseline study conducted in Chalissery Watershed. The group has discussed serious problems the farmers face and the major problems are consolidated as follows:

Soil Related Problems in the watershed

- Erosion of top soil
- Soil Degradation
- Lower Crop Production
- Increased cost of Production
- Poor Biological Fertility of the soil
- Drying & Shrinking of clay
- Very low soil PH
- Poor water infiltration

Water Related Issues

- Lowering water yield in the catchments
- Poor Ground water Recharging
- Deforestation
- Poor vegetative cover on the soil surface
- Bank erosion
- Sedimentation of Water Sources
- Ground water scarcity
- Water depletion
- Water Pollution

Agricultural Related Issues

- Declining Food crop Cultivation
- Increasing mono crop (rubber)
- Shift to non-agricultural work
- Non-agricultural land use
- High Wages & High cost of living
- Changing food habits
- Fragile land mass
- Inadequate marketing facilities
- Low price

Animal Husbandry Related issues

- Degradation of common property resources
- Poor biomass availability
- Unavailability of indigenous varieties

- Disappearing ethno veterinary techniques
- Poor performance of Veterinary department/hospitals
- Poor service of Agricultural Department/Krishibhavans
- Poor dairy Education

The group tried to classify these problems on the priority basis and a list of priority problems was produced. After that one most prior problem from each sector – Soil, Water, Agro-Biodiversity and Animal Husbandry was taken for problem tree analysis.

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	Side protection wall construction of Muttippalam Stream
Natural Resource Management (NRM) Common Activities	Side Wall construction for Meppadam Stream
	Pond Renovation and protection – Kodikkulam & kundooparamba Kulam
	Construction of RWH Storage tank (10000 litre capacity) at Bungalow Hill Colony Anganwadi
	Recharging of the community well at Bungalow Hill SC Colony
	Reconstruction of VCB at Kothamangalam padashekharam
	Construction of Vayalil pond, Kakkassery Padashekharam
	Pond Construction (Kaipravan Muhammed Kutty)
	Pond Construction in Kakkassery Padashekhara (600 Meters)
	Side Wall construction of the stream
	Pond Protection – Chunger Kulam
	Repairing of VCB in Aalikkara Stream
Natural Resource Management (NRM) Individual Activities	Well recharging, Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening,
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

5. KOTHACHIRA WATERSHED (19K 10a)

Kothachira watershed in original has a total area of 476.44 ha. This watershed covers full of 10th, 11th, and 12th wards and part of 13th ward of Nagalassery Panchayat. A certain part, about 89 ha, is in Chalissery Panchayat. The height of the watershed from the MSL is between 20 meters and 120 meters. Area taken for treatment under IWMP is only 89 ha which lies in the Chalissery Grama Panchayat and covers the whole of the 9th ward of the GP. Thought the area taken for treatment is only 89 Ha, we provide full details of the total watershed to give clear depiction of the watershed.

The geography of the watershed is undulating with hills and valleys. Almost whole of the lower portions of the watershed is paddy fields. The watershed is bounded in its east by Kothachiramnakkadu (Kothachira Mana Forest) and Peringodu Road, in the west by Palakkunnu, in the south by Kothachirakkunnu and Thrissur District and in the north by Veranpilavu Tjhodu

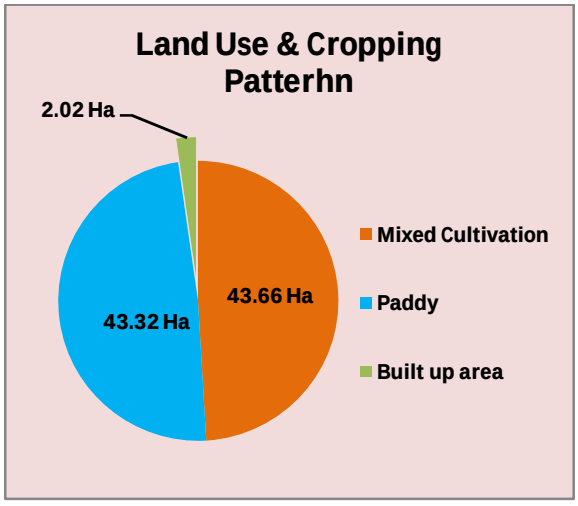
Soil Type

The upper reach of the watershed is rich with granite rocks and in the slopes, red laterite soil is abundantly found. In the paddy fields the soil type is alluvium.

Land use

Considering the total area of Kothachira watershed, the main cultivation is paddy. But the area proposed for treatment under IWMP is seemingly having multiple crops and some of the paddy fields are converted for other cultivation. The land use pattern is as follows:

Sl. No	Land Use	Area in Ha	%
1.	Mixed Cultivation	43.66	49.06
2.	Paddy	43.32	48.67
3.	Built up area	2.02	2.27
	Total	**89**	**100**



Veranpilavu thodu is the main stream of this watershed and has a total length of 2860 meters. Theother two more streams which are known as Aamakkavu thodu and Kaithodu. The total watershed area has 20 ponds and 574 wells. However the ponds in the watershed area under IWMP are only four and the number of wells is only 107. There are four community wells also 3 in Palakkunnu Colony and one in Cherupuram Colony. The details of the water sources are given below:

Sl. No.	Name of the stream	Length (in Meters)	Water availability (in Months)
1.	Veranpilavu Thodu	2860	10
2.	Kaithodu	2468	9
3.	Aamakkavu Thodu	1620	9

There are two bid public ponds in the watershed one is known as Nelliyattukulam which has a total area of 20.78 cents (29 meters each length and width). This pond is used for agricultural purposes and water is available in the pond 8 months. The pond is situated in survey No. 289.

The other pond has a length of 30 meters and a width of 22 meters (total area of 16.30 cents) and provides water for about 8 months. This pond is also used for irrigation purposes and is situated in survey no. 251.

General Socio-economic situation

There are around 1500 families living in the whole water shed area out of which around 281 families in which around 1264 people are living in the area proposed for treatment under IWMP. Majority of the population are either farmers or farm labourers. Some are working in construction sector and a very few are employed in government departments.

People in the watershed are generally farmers and most of them are depending on agriculture for their livelihood. A very few are employed in the construction sector. Yet another group is involved in wage labour as a secondary source of income. Animal husbandry is found to be a secondary source of income of the farming community.

Educationally all are in the middle level that is there neither highly educated people nor under-educated people. A very few are reported to be working in gulf countries. Almost all the families have their own houses and the houses are pucca with adequate sanitation facilities. The health conditions are also observed to be fine.

Formation of Watershed Committees

Sl. No.	Name	Designation	Position	Phone No.
1.	Savithri.N	GP President	Chairperson	9847018872
2.	Sedhumadavan	Ward Member	Vice Chairperson	8943585519
3.		Agriculture Officer	Convener	
4.	K.V.Muhammad	Watershed NHG Member	Jt. Convener	9048469093
5.	Aarya	WDT Member	Member	
6.		GP Secretary	Member Secretary	
7.	Kuttinarayanan.K.M	Watershed NHG Member	Jt. Secretary	04662255917
8.	Kunjima Teacher	Watershed NHG Member	Treasurer	
9.	Unnikrishnan	Watershed NHG Member	Member	9946985505
10.	Gangadaran	Watershed NHG Member	Member	9400856592
11.	Kakkunni	Watershed NHG Member	Member	9846529460
12.	M.H.Moideen	Watershed NHG Member	Member	9539510463
13.	Raju	Watershed NHG Member	Member	
14.	Aboobakkar Haji	Watershed NHG Member	Member	
Ex Officio- Members				
15.	Krishnakumari Ravi	District Panchayat member	Member	
16.	A.Vijayan	Block Panchayat Member	Member	9946482844
17.	A.V.Sandhya	Block Panchayat Member	Member	9645718665
18.		ADS Chairperson	Member	
19.		President – Co-Op. bank	Member	
20.	Sunny Asariparambil	Director Susthira	Member	

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified - Soil related Problems

- Severe and heavy soil erosion
- Reducing productivity of the soil
- Deterioration of the soil humus
- Change in the chemical structure of the soil and reducing storage capacity of the soil
- Heavy water drain from the soil
- Soil Pollution due to indiscriminate use of Chemicals

Water related Problems

- Severe drought

- Drying up of water sources in the beginning of summer
- High velocity runoff in the monsoon season
- Over consumption of water
- Increasing number of bore-wells threatening the ground water storage
- Lowering water yield in the catchment affecting the groundwater recharge.
- Sedimentation in Ponds, Streams and paddy fields has affected summer flow and some perennial streams have became seasonal
- introduction of plantation crops in highlands replacing the natural vegetation reduced the storage capacity of soil
- Contamination of stream side aquifer due to polluted stream
- Contamination due to direct disposal of waste
- Drinking water contamination increasing waterborne diseases especially during monsoon.

Problems related to Agriculture/Bio-diversity

- Unavailability of seeds with ensured germination
- Reluctance to cultivate food crops
- Unavailability of quality organic fertilizers and bio-repellants
- Poor awareness on the importance and relevance of Organic Farming
- Alienated/extinct medicinal plants
- Destruction/deterioration of holy grooves (Kavus)
- Shift from multi crops to mono crops
- Deterioration of natural grazing land/pastures
- Reducing Paddy fields
- Poor vegetable cultivation
- Reducing freshwater fishes

Problems related to Livestock/Animal Husbandry

- Reduction in cow rearing
- Reduction in poultry
- Poor performance of the veterinary hospitals
- Absence of sub-centers which results in lack of insemination services
- Unavailability of green fodder/dry fodder
- Inadequate returns
- Lack of Interest in Animal Husbandry
- New generation reluctant to enter into the field of animal husbandry.

A serious discussion among the group members helped to distinguish the core problem and the causes and effects of such problems. They were asked to prioritize the problems and identify one core issue for analysis in each sector. The core problems identified by the groups in each sector are:

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	Stabilization of the banks of Peravazhikkundu thodu (Stream)
Natural Resource Management (NRM) Common Activities	Construction of 3 meter Check Dam
	Construction of Tiller Bridge, Aalikkara Micro Stream
	Retaining wall construction , Aalikkara Micro Stream
Natural Resource Management (NRM) Individual Activities	Well recharging, Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening,
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

6. ULLANNUR (20B 20a)

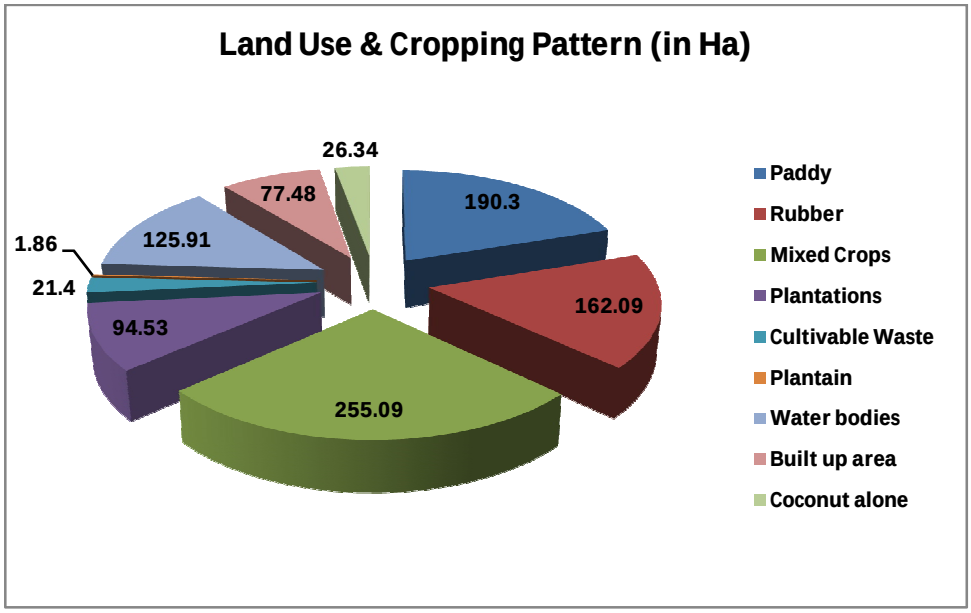
The watershed is spread over 1, 2, 3, 4, 5, 6, 11 and 12 wards of Thrithala Grama Panchayat. The important places in the watershed are Kannanur, Ullannur, Mudavannur, Panampatta, Meenkiri and Chelekkavu. The total area of the watershed is 955 ha. The boundaries of the watershed are marked in its north by Bharathapuzha, in the south by Mudavannurkunnu and kodanadu, in the east by Thannikkunnu & Chemmankunnu and in the west by Kunnathukavu & Eeratingal. The height from the MSL ranges from 20 – 120 meters.

Topography

The whole watershed can be divided into three – hills, plains and paddy fields. The important paddy fields in the watershed area are Kodanadu & Mezhathur. In hilly areas the nature of the soil is granite rocks and laterite with gravels. On the river side sandy laterite soil is observed.

Land Use

Sl.No.	Land use type	Ha	%
1.	Paddy	190.30	19.93
2.	Rubber	162.09	16.97
3.	Mixed Crops	255.09	26.71
4.	Plantations	94.53	9.90
5.	Cultivable Waste	21.40	2.25
6.	Plantain	1.86	0.19
7.	Water bodies	125.91	13.18
8.	Built up area	77.48	8.11
9.	Coconut alone	26.34	2.76
Total		**955**	**100**



Cropping Pattern

The major single crop in the watershed is Paddy. About 19.93% of the area is utilized for paddy cultivation. In the area under paddy cultivation the two crops and in some places only the 3rd crop alone is cultivated. Besides this the major crops are coconut, areca nut, mixed crops, tapioca, plantain, vegetables and rubber. Irrigated cultivation is only 18%, Rubber 16.97%, mixed cultivation 23.01%, plantation 94.53%

Water bodies

The main water bodies in the watershed are Kannanur Thodu (1720 meters), Canal (1440 meters) and Changamkulam Canal (1360 meters). \details regarding the ponds available in the watershed shows that there are 31 ponds including the five public ponds out of which 12 are perennial. There are three quarries also which store water and serves the purpose of a pond. There are 529 wells, among which 335 are perennial. Detailsof ponds are given below in a tabular format:

Sl, No	Name of ponds	Survey No.	Ownership	Length	Width	Area in Cents	Water Availability	Use
1.	Panamkurissikkavukulam	173	Private	15	10.5	3.89	6	Abandoned
2.	Sharathu Kulam	172	Private	10.2	6.4	1.61	6	Bathing & Irrigation
3.	Kannannur Ambalakkulam	172	Private	24	20	11.86	10	Bathing
4.	Kannanurkulam	235	Private	16	10	3.95	10	Bathing
5.	Vettukadukulam	230	Private	16	8	3.16	10	Bathing
6.	Thoppilparangodathu Kulam	227	Private	16	8	3.16	10	Bathing & Irrigation
7.	Panchayat	202	Public	20	12	5.93	10	Bathing &

	Kaithakulam							Irrigation
8.	Kulam 8	194	Private	5	4	0.49	8	Bathing
9.	Kulam 9	202	Private	7	7	1.21	10	Bathing & Irrigation
10.	Chengottukulam	202	Private	9	7	1.56	8	Bathing & Irrigation
11.	Ullannur Ambalakulam	141	Private	16	10	3.95	6	Bathing
12.	Manakkal Kulam	143	Private	20	22	10.87	10	Bathing
13.	Neelamkulam	147	Public	88.90	15	32.77	10	Bathing
14.	Manayar Kulam	143	Private	12	10	2.97	12	Bathing
15.	Chirakulam	139	Private	11,25	4.5	1.25	11	Bathing & Irrigation
16.	Aanapurathukulam	19	Private	25	14	8.65	12	Bathing & Irrigation
17.	Kundilevalappil Kulam	194	Private	10	8	1.98	12	Abandoned
18.	Pavuttakkulam	19	Private	9.24	5.28	1.21	12	Bathing & Irrigation
19.	Payyurkulam	141	Private	15	12.5	4.45	12	Bathing
20.	Vadakechirakulam	138	Private	48	24	28.47	12	Bathing
21.	Kanhithodu ambalakulam	163	Private	20	15	7.41	8	Bathing & Irrigation
22.	Menath kulam	161	Private	17	13.5	5.67	8	Bathing & Irrigation
23.	Pond 23	177	`Private	15	14	5.19	12	Bathing & Irrigation
24.	Parakkulam	182	Public	24	16	9.49	12	Bathing & Irrigation
25.	Chira	182	Private	14	11.25	3.89	8	Bathing & Irrigation
26.	Pond 26	121	Private	10	5	1.24	8	Bathing
27.	Pond 27	129	Private	17.5	10.5	4.54	12	Bathing & Irrigation
28.	Avadhikulam	187	Public	15	12	4.48	8	Bathing
29.	Aryankunnukulam	113	Private	12	10.5	2.97	12	Bathing & Irrigation
30.	Pond 30	21	Private	14	9	3.11	9	Bathing
31.	Mankulam	57	Public	30	25	18.53	12	Bathing & Irrigation
32.	Quarry	192	Private	14.6	12.3	4.43	12	Abandoned
33.	Quarry	155	Private	18	12	5.33	12	Bathing
34.	Quarry	155	Private	16	9.5	3.75	12	Bathing

Total Wells in the watershed – 529

Perennial wells – 335 .Seasonal – 194 .Community Wells – 4. Bore wells – 3

Besides the above mentioned ponds there are certain community wells also, the list of which is given below:

1. Pillakkattukunnil Well
2. Thadathil Colony Well
3. Mudavannur Lakshamveedu Colony Well
4. Ullannur Chelekkavu Well
5. Panampatta Parambil Well
6. Panambatta thacharamkunnu Road Well
7. Ullannur Lakshamveedu Well
8. Ullannurparambil Well

General Socio-Economic Situation

The major source of income of the watershed community is agriculture. Some others are daily wagers. The educational level is comparatively high. A very small percentage is government employees and yet another small percentage is working in gulf countries. SC families are living in clusters in SC colonies. Around 577 families are BPL and the rest are APL. The names of colonies are given below:

Ullampuzha Colony
Meenkiri Colony
Panampatta Colony
Padathuparamba Colony
Lakshamveedu Colony
Thadathil Colony
Lakshamveedu Colony, Ullanur

Formation of Watershed Committees

Sl. No.	Name	Designation	Position	Phone No.
1.	Swarnakumari	GP President	Chairperson	9645618965
2.		Ward Member	Vice Chairperson	
3.	Sindhu	Agriculture Officer	Convener	
4.	T.A.Lakshmanan	Watershed NHG Member	Jt. Convener	9605039250
5.		GP Secretary	Member Secretary	
6.	Arya	WDT Member	Member	
7.	Vijeesh.P.P	Watershed NHG Member	Jt. Secretary	9947768151
8.	Saraswathi.M.P	Watershed NHG Member	Treasurer	9846509396
9.	M. Ayammu(Bava)	Watershed NHG Member	Member	9745379782
10.	Muhammad Ashraf .M	Watershed NHG Member	Member	9446728930
11.	Kalyanikutty	Watershed NHG Member	Member	9544055391
12.	Sindhu	Watershed NHG Member	Member	
13.	Shibi Menath	Watershed NHG Member	Member	9846284686
14.	A.K.Chandrababu	Watershed NHG Member	Member	9947734913
Ex Officio- Members				
15.	Krishnakumari Ravi	District Panchayat member	Member	
16.	Sabera Teacher	District Panchayat member	Member	
17.	Khairunisa Musthafa	Block Panchayat Member	Member	9745698958
18.	Habeeb Kottayil	Block Panchayat Member	Member	9846128326
19.	Manikandan	Gramapanchayat Member	Member	9447623881
20.	Hilar	Gramapanchayat Member	Member	9846850425
21.	Sreenivasan	Gramapanchayat Member	Member	9447837965
22.	Ali	Gramapanchayat Member	Member	9846707413
23.	Anitha	Gramapanchayat Member	Member	9846412750
24.	Jayasree	Gramapanchayat Member	Member	8547313781
25.	Nisha	Gramapanchayat Member	Member	9656338602
26.	Muhammadunni	Gramapanchayat Member	Member	9995011954
27.	Bindhu	ADS Chairperson	Member	
28.	Pathmini	ADS Chairperson	Member	9142290744
29.	Shajini	ADS Chairperson	Member	
30.	Sujitha	ADS Chairperson	Member	
31.	Bindhu Chandran	ADS Chairperson	Member	

32.	Jaya P.K	ADS Chairperson	Member	9048841331
33.	Khadeeja	ADS Chairperson	Member	9747017993
34.	Rajani	ADS Chairperson	Member	
35.	K.V.Marakkar	President – Co-Op. bank	Member	
36.	Sunny Asariparambil	Director Susthira	Member	

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

Problems Identified

A focus group discussion involving some of the participants who can contribute to issues identification was held during the baseline study in Ullanur Watershed. The group has discussed serious problems the farmers face and the major problems are consolidated as follows:

Soil Related Problems in the watershed

- Erosion of top soil
- Soil Degradation
- Lower Crop Production
- Increased cost of Production
- Poor Biological Fertility of the soil
- Drying & Shrinking of clay
- Very low soil PH
- Poor water infiltration

Water Related Issues

- Lowering water yield in the catchments
- Poor Ground water Recharging
- Deforestation
- Poor vegetative cover on the soil surface
- Bank erosion
- Sedimentation of Water Sources
- Ground water scarcity
- Water depletion
- Water Pollution

Agricultural Related Issues

- Declining Food crop Cultivation
- Increasing mono crop (rubber)

- Shift to non-agricultural work
- Non-agricultural land use
- High Wages & High cost of living
- Changing food habits
- Fragile land mass
- Inadequate marketing facilities
- Low price

Animal Husbandry Related issues

- Degradation of common property resources
- Poor biomass availability
- Unavailability of indigenous varieties
- Disappearing ethno veterinary techniques
- Poor performance of Veterinary department/hospitals
- Poor service of Agricultural Department/Krishibhavans
- Poor dairy Education
- Poor interest of the farmers

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	Retaining wall construction of Kannanur Stream
Natural Resource Management (NRM) Common Activities	Stream Bank Stabilization
Natural Resource Management (NRM) (Individual Schemes)	Well Recharging (Kizhakke Pattissery Colony) Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

7. PULIYAPPATTAKKAYAL (20B 46a)

The watershed covers three Grama Panchayats viz Pattithara, Thrithala and Nagalassery. In Pattithara, 7, 8 and 9 wards, In Thrithala 10 and 11 in Nagalassery 1 and 2 wards embedded in this watershed. The height of the watershed from MSL is in between 20 – 105 meters. About 50% of the watershed (i.e., approximately 1081 ha) is in pattisshery Grama Panchayat, 297.28 ha in Nagalassery and the rest is in Thrithala GP.

The boundaries of the watershed are as follows:

North – Koombrakkunnu, Vattathani thuruthu and Kodanadu

South – Nandiyamkodukunnu, Killikkunnu

East – Kothamangalam Kunnu, Odanadukunnu

West – Kakkattirikunnu, Arikkunnu, Kodamalakkunnu

Topography

The whole watershed can be divided into three – hills, plains, waste land and paddy fields. The paddy fields will measure to 350 ha. The major paddy field area that belongs to Thrithala Panchayat is Kodanadu and Mezhathur. Alluvial Clay is found mainly in the paddy fields. In dry land alluvium and in slopes laterite soil is found.

The main category of people belongs to Hindu, Muslim and Christians. Around 30% of the population is Scheduled Castes. The main source of income of the community is agriculture. In addition there are construction workers and traditional workers in the watershed. A very few are government employees.

Land Use Pattern

Sl.No.	Land use type	Ha
1.	Paddy	890.23
2.	Rubber	135.33
3.	Mixed Crops	425.21
4.	Plantations	261.43
5.	Coconut & arecanut	91.51
6.	Cultivable Waste	103.9
7.	Water bodies	39.73
8.	Built up area	116.42
9.	Coconut alone	99.24
Total		**2163.00**

Cropping Pattern

The major crops in the watershed are Paddy. About 27% and more of the area are utilized for paddy cultivation. In the area under paddy cultivation the second crop alone is cultivated. Besides this the major crops are coconut, arecanut, mixed crops, tapioca, plantain, vegetables and rubber. About 72 ha of land are found to be cultivable waste in the watershed.

Water Bodies

The main drainage of the watershed is Puliapaattakkayal thodu which is about 3440 meters length and water is available only for 6 months. The second stream is Parakkulam Thodu which is 1600 meters in length and water is available only for 6 months as in the case of the former. There are about 63 ponds in the watershed amongst which 10 ponds provide water for the whole year. There are 1125 private wells and 11 community wells. 783 wells are perennial. Details of the ponds are given in a tabular form below:

Sl, No	Name of ponds	Survey No.	Ownership	Length	Width	Water availability	Use
1.	Pond No.1	135	Private	30	15	10	irrigation
2.	Pond No.2	160	Private	23	10	10	-do-
3.	Pushpothukulam	180	Private	10	13	12	-do-
4.	Pond No.3	175	Private	10.2	6	12	-do-
5.	Pond No.4	175	Private	9.6	7.5	1.77	-do-
6.	Vaidyamadhom kulam	176	Private	14.4	13.2	12	-do-
7.	Pazhiyodumanakulam	174	Private	17.4	7.2	10	-do-
8.	Pazhiyodumanakulam	206	Private	15	9.6	12	-do-
9.	Thiruthummel Pallikkulam	206	Private	15	9.6	12	-do-
10.	Valiyakulam	199	Private	48	27	12	-do-
11.	Cherkazhiyathukulam	198	Private	30	21	10	-do-
12.	Chithrakkulam	173	Private	10	12	6	-do-

General Socio-Economic Situation

The major source of income of the watershed community is agriculture. A minority are earning their livelihood from small mercantile and petty shops. Some others are daily wagers and those who are working in brick making. The educational level is comparatively high. There are two schools in the watershed area. SC families are living in clusters in SC colonies. Around 2117 families are BPL and the rest are APL. The names of colonies are given below:

Mannamparamba Colony
Cheriyaparambu Colony
Kunnathumparamba Colony
Kanhiravalappil Colony
4 Cent colony
Pullayamparamba Colony
Kalachathanparamba Colony

Formation of Watershed Committees

Watershed committees are formed in all the watersheds taken for treatment under IWMP. The watershed Committee comprises the representatives of watershed communities and nominated representatives from the elected members of the Grama Panchayat in which the watershed is included. The General Structure of the Watershed Committee is as follows:

The joint convenor and treasurer are exclusively from the representatives of individual watershed user groups and the post of the treasurer is reserved for women.

Besides this, the existing Self Help Groups under the Kudumbasree Mission in each watershed shall also be fostered and promoted to take up programmes coming under PSM and LHS. The SHGs are functioning properly and in a most effective manner under the supervision of the Grama Panchayats. If it is found necessary, new SHGs can also be formed, especially for men in the watershed. The existing farmers groups can also be considered as Self Help groups.

NRM steps followed for planning:

The various steps are followed for NRM planning and resource mapping during boundary line delineation and geographical transect in watershed area. The summarized steps are given below:

The boundary line of the watershed is delineated in the very first step with the help of village cadastral map and Toposheet. Then geographical transect is being done through survey by moving from plot to plot in upper reaches, middle reaches and lower reaches.

During the transect the major nalas, gullies and drainage lines are identified and lands surveyed on the basis of land type, soil type, erosion class and slope and accordingly the whole watershed land is divided into various patches.

During the transect various resources like different water bodies, wells and farm ponds are identified. The present land use is also studied during transect and accordingly present land use map is prepared using different notions and symbols. In the individual patch identified, the various treatments required are also finalized in consensus with the villagers.

Finally a proposed land use map and treatment map is also prepared which is treated as the strategic action plan on Natural Resources Management perspective for the whole watershed during the entire project period

Watershed Committee

Sl. No.	Name	Designation	Position	Phone No.
15.	Swarnakumari	GP President	Chairperson	9645618965
16.		Ward Member	Vice Chairperson	
17.	Sindhu	Agriculture Officer	Convener	
18.	T.A.Lakshmanan	Watershed NHG Member	Jt. Convener	9605039250
19.		GP Secretary	Member Secretary	
20.	Arya	WDT Member	Member	
21.	Vijeesh.P.P	Watershed NHG Member	Jt. Secretary	9947768151
22.	Saraswathi.M.P	Watershed NHG Member	Treasurer	9846509396
23.	M. Ayammu(Bava)	Watershed NHG Member	Member	9745379782
24.	Muhammad Ashraf .M	Watershed NHG Member	Member	9446728930
25.	Kalyanikutty	Watershed NHG Member	Member	9544055391
26.	Sindhu	Watershed NHG Member	Member	
27.	Shibi Menath	Watershed NHG Member	Member	9846284686
28.	A.K.Chandrababu	Watershed NHG Member	Member	9947734913
Ex Officio- Members				
37.	Krishnakumari Ravi	District Panchayat member	Member	
38.	Sabera Teacher	District Panchayat member	Member	
39.	Khairunisa Musthafa	Block Panchayat Member	Member	9745698958
40.	Habeeb Kottayil	Block Panchayat Member	Member	9846128326
41.	Manikandan	Gramapanchayat Member	Member	9447623881
42.	Hilar	Gramapanchayat Member	Member	9846850425
43.	Sreenivasan	Gramapanchayat Member	Member	9447837965
44.	Ali	Gramapanchayat Member	Member	9846707413
45.	Anitha	Gramapanchayat Member	Member	9846412750
46.	Jayasree	Gramapanchayat Member	Member	8547313781
47.	Nisha	Gramapanchayat Member	Member	9656338602
48.	Muhammadunni	Gramapanchayat Member	Member	9995011954
49.	Bindhu	ADS Chairperson	Member	
50.	Pathmini	ADS Chairperson	Member	9142290744
51.	Shajini	ADS Chairperson	Member	
52.	Sujitha	ADS Chairperson	Member	
53.	Bindhu Chandran	ADS Chairperson	Member	
54.	Jaya P.K	ADS Chairperson	Member	9048841331
55.	Khadeeja	ADS Chairperson	Member	9747017993
56.	Rajani	ADS Chairperson	Member	
57.	K.V.Marakkar	President – Co-Op. bank	Member	
58.	Sunny Asariparambil	Director Susthira	Member	

Problems Identified

The analysis was done in groups taking four different areas separately- soil, water, Agriculture and livestock. Area-wise problems were listed out by each group and prioritized. The Problems in different areas identified by the groups are listed below:

First Group on Hydrology

- Immediately after the rain almost all the water sources are drying up
- Water table is reducing drastically year after year
- Severe drinking water scarcity experienced for more than 6 months a year.
- Change in land use resulted in the depletion of water sources
- Storage capacity of the soil reduced considerably
- There are no control/conservation measures taken up to protect water.
- Streams rich and fat with water in the rainy season become poor and shrink due to heavy sedimentation
- Poor awareness on soil conservation measures

Second Group on Soil

- Soil fertility drastically reduced
- Heavy soil erosion enhanced the sedimentation of water sources reducing water availability
- Heavy runoff forms gullies by washing off the loose topsoil
- No vegetative cover on the surface of the soil
- Traditional agricultural practices like mulching etc are extinct
- Shifting to mono-crop has changed the soil condition.
- Poor and inadequate soil conservation measures taken up and implemented by the farmers
- Inadequate knowledge on soil conservation measures

Third Group on Agro-biodiversity

- Traditional/medicinal herbs extinct
- Disappearance of many plants which were once in plenty in the watershed.
- Wide spreading mono crops in the place of once flourished multi crops.
- Many birds/ butterflies and amphibians disappeared
- Leveling of paddy fields to convert for mono-crops/multi crops
- Change in eco-system changed the living conditions of many plant and animal varieties.
- Alienation of women from agriculture resulted in ignoring backyard kitchen gardens

Fourth Group on Animal Husbandry

- Poor animal husbandry among the watershed community
- Cow rearing/goat rearing and even poultry had almost given up by the farmers
- Poor returns from animal husbandry
- Inadequate marketing facilities
- Poor motivation from the authorities

- Non-availability of good breed of animals.
- High rearing cost
- Unavailability of both dry and green fodder.

Activities Proposed for the watershed

Sector	Activities
Entry Point Activity (EPA)	Retaining wall construction of Kannanur Stream
Natural Resource Management (NRM) Common Activities	Lift Irrigation Scheme
Natural Resource Management (NRM) (Individual Schemes)	Well Recharging (Kizhakke Pattissery Colony) Contour Bunding, Live fencing, Rain water Harvesting, well retaining wall, Well deepening
PS & Micro-Enterprises (PS & M)	vermin composting, Banana planting, Organic Vegetable Cultivation, biogas plant
Livelihood Support System (LHS)	Cow rearing, Goat Rearing, Poultry, Duckery and enterprises in secondary sector

PRAT – III: EXPECTED OUTCOME

The overall expected outcome of IWMP is the strengthening of **Environmental Governance** and **advancing the Environment and Natural Resources Agenda** in the watershed area. The proposed Project will tackle two key issues facing the sector: (i) the need to build strong, sustainable institutions with capacities to manage the sector and investments therein, and (ii) the need to address the issues of agricultural productivity for food security in a sustainable manner.

The expected outcome of the project also include the overall increase in the standard of living of the people in the watershed by mitigating the various constraints in the development of the natural resources which will increase the productivity of various activities. The end result will be increase in the employment and income of the farm households and as well as landless households. Besides, watershed committee and other functionaries to implement and maintain the watershed after the withdrawal government support. One of the parameter to result in the impact was completion of the activities in the given period. Some of the quantifiable indicators are as follows:

Employment

One of the prominent features of watershed program is to create self sustenance to stakeholder in terms of livelihood and increase in employment opportunities. Watershed creates employment opportunities during the work phase for labour intensive activities like construction of gully plug, earthen dam, field bund, check dam, VCBs and through the assets created under watershed program have a direct impact on

agriculture and natural resource development. Livelihood for self employed, wage lobour and income generating activities where there is an ample scope for employment. As the net employment increases the per-capita income from agriculture, animal husbandry and other allied activities are also sure to increase.

Water table

Due to erratic rainfall and uncovered ground the rain water infiltration to ground is decreasing day by day. It is understood from the villagers that the water table of the dug well in the village before 10 years was about 5.5 mt. during March which is 7.6 mt now. The proposed soil and moisture conservation measures will help in bringing more area under vegetative cover so that velocity of run-ff can be reduced which will increase infiltration and thus ground water table.

Ground water structures

There are several water bodies existing in the villages which are for storing ground water. But some of these water bodies are in damaged condition which is in no use at present. These structures are proposed to be renovated through project funds and convergence with GNREGA which will bring these water bodies for irrigating about a considerable quantum of agricultural land.

Ground Water Table

The ground water table of this cluster of villages is approximately 15mt and further goes down in summer and drought seasons. One of the reasons for groundwater depletion and lowering of the water table is over-pumping and unchecked ground water utilization. Due to growing population the demand for water for daily activities and agriculture has increased. This posses a major pressure on the water table. The water travels slowly through layers of soil and rock before finally reaching the water table. Several water harvesting structure are created like percolation tanks, roof water harvesting structures and dug well recharge for recharge of ground water. Hence a strong effort is taken to maintain a balance between usage and recharging of the ground water.

Quality of drinking water

The report collected from KWA sub-division office shows that the drinking water quality is not safe at present in the village. The Iron content of the water is higher and Floride content is lower than the recommended quantity. Similarly due to damage of the platform and drains the water sources get contaminated by run-off water. Steps are proposed for repair of the well platforms with drains and soak pit for sanitary point of view. Awareness will be created among the villagers about safe drinking water and causes of water contaminated diseases. After project period it is expected that the each household will get safe drinking water.

Change in cropping and land use pattern

Presently cultivable land is under different type of crops and a very good area of land is under paddy cultivation only, which includes up, medium and low land. Most of the up lands are kept fallow as they are poor in fertility status. As these up lands are suitable for Horticultural crop and the farmers can get a good return after 3-4 years it is proposed to take up planting of fruit bearing trees like Mango and jack in these land. They can take up inter crops. Similarly hybrid plant cultivation is proposed in up lands which will increase not only production but also productivity. This will increase the area under crop in each year. Farmers are not used to vegetable cultivation. Pump sets are proposed to be provided for cultivation of vegetable every year.

Fodder

Although there is a large number of cattle population in the village, availability of fodder for them is scarce. The villagers are not aware of quality fodder crops and its benefits for the animals. Fodder crops are to be taken up on community basis for the benefit of the cattle. Back yard fodder cultivation will also be promoted so that fodders will be available adequately.

Agriculture

Agriculture itself is constraint due to lack of irrigation facilities and total dependence of rain has limited the scope for agriculture. However structures created under watershed opens avenue to take up cropping in any season by utilizing the water stored through check dam, VCBs and, farm ponds. Field bunds are also created to check the run-off and to promote percolation of rain water.

Vegetative cover

A considerable quantum of area will be under vegetative cover preventing the rate of evaporation from the surface of the earth. The vegetative cover will also prevent sheath erosion and wind erosion along with water runoff especially from the slopes. The live fencing, cover crops promoted under the project will ensure the above mentioned functions.

Livestock

The project will help improve the livestock in almost all the watershed by way promoting cattle rearing and other animal husbandry interventions. This will enhance the income level of the assetless poor as well indigenous communities. Increase in milk and meat production will help the communities to become self reliant in food security.

Food Security & safety

The implementation of Transfers of Natural Resource Management to the local communities is expected to promote sustainable farming practices and subsequently increase revenues, create jobs and improve living conditions for local communities.

Self Help Group

Although there are several SHGs in the villages, they are poorly involved in any activities for generating income. These groups are identified and proposed to be assisted for taking group activities for their livelihoods. Similarly more groups can be formed as per the interest of the women community and trained for different activities so that more and more women will be involved in income generation.

Increase in nos of Livelihoods

At present collection of Agriculture, wage earning and to little extent animal husbandry are the livelihood options for most of the households. All most all the households are involved in combination of these livelihoods. But the income from these livelihoods is not at all sufficient for fulfilling all their needs. Skill up gradation through value addition and marketing in a profitable way are proposed for getting more income from these livelihoods. The poor and very poor households are identified to assist for different other options of livelihood with adequate training and exposure to them.

Increase in Income:

As estimated from the individual household survey it is estimated that the average annual income of the village is about Rs14000/- per family. It varies from Rs 6000/- to Rs 55000/- Introduction of livelihood options for individuals and SHG members and improving cropping pattern and crop production of households will facilitate for increase in annual income for all the households of the village.

Credit linkage

The present SHGs in the village have already being linked with Banks. It is understood that they have been exploited in getting credit and subsidy due to their ignorance. Steps will be taken for organizing them, building their capacity, up grading their skills and making them understanding the concept of SHG. After that all the existing SHGs and new SHGs are to be linked with banks for their activities.

Resource use agreement

Steps will be taken for developing the status of common property resources like forest, pasture and water bodies. Awareness will be created among the villagers for using the

resources by every family in a systematic manner so that optimum utilization of these resources can be possible.

Watershed Development Fund

During planning process a general consensus has been brought among the households to contribute for the works executed in private land. The concept and use of WDF is understood by the villagers and agreed to contribute 5% to 10% in case of NRM works and 20%to 40 % for

Production system works in own land.

The project will rationalize land use planning and suitability mapping within a multi-stakeholder and consultative framework. Some of the outcomes are as follows:

Expected Outcome – Component –wise

Institution Building	Natural Resource management		Production System & Micro-Enterprises	Livelihood Support System
	Water Conservation	Soil Conservation		
• An enhanced institutional capacity to manage natural resource utilization in a sustainable manner. • SHGs actively involved in implementation especially production system management and micro-enterprises. • Livelihood activities are also implemented. • Post operation and maintenance of structures constructed as part of the project	• Secured water for livestock of the targeted communities • Sustainable water harvesting systems and grazing management for sustainable rangeland/ecosystem restoration implemented by communities • Improved rain water conservation and utilization for different purposes (shrubs plantation, livestock watering, and rangeland rehabilitation). • Promotion of effective WH techniques. • Increased availability of soil moisture and rise in groundwater level by 1.5 meters • Change in the water availability , Quality of water • Recharge of Groundwater level • Drinking water availability	• Valued positive changes in soil quality, vegetation cover, biomass production, and rain-water use efficiency • Reduction in tank siltation. • Increase in the area under different crops – Cropping Intensity • Change in the soil loss	• Change in cropping pattern and introduction of new crops • Increase in area under organic cultivation by growing green manure crops • Overall increase in greenery, attributed mainly to plantation of different fruit bearing and non-fruit bearing trees, • Improvement in the production systems • Increase in feed and fodder availability • Increase in the area under Trees	• No of livelihood opportunities created • Reduction in the out migration • No. of man days of employment generated

RATIONALE OF THE ACTIVITIES PROPOSED IN THE DPR

In the most general term Watershed Management is important for the improvement and maintenance of good water quality, good soil quality that ensures high productivity and the existence of sound biomass that help improve sustainability of the environmental conditions in our watershed. In the recent years the water quality standards have come under stress due to increasing population, depleting water resources, bad management practices. Similarly the soil has undergone severe deterioration due to soil erosion, unsustainable agricultural practices, change in land use pattern etc. Addressing all the issues that concerns the water resources of our watershed, in any way, come under the watershed management strategy.

There are three main activities that are recommended for a good watershed management practice:

- Rehabilitating lands that are source of sediment loss and chemical export
- Protecting the sensitive areas in the watershed so that resources can be conserved that may be spent in rehabilitation of the same, otherwise
- Improving the characteristics of water resources that affect the quality of water and the soil that affect the quantity of agricultural production

Watershed management activities should be a conglomeration of scientific structural interventions coupled with awareness and Livelihood Promotion to bring better living standards of the watershed community. The awareness generation is to make the watershed community to understand the importance and help them to maintain what is achieved through the watershed management activities. . The livelihood promotion is mainly to help those without any asset and deprived of means of livelihood. This is also part of the empowerment processes of the poorest of the poor and the women- the vulnerable group. The whole watershed communities along with the management teams with professionals and officials should work on improving and expediting the process of improvement. There might arise a need for the education of the members on complex issues that may require an interdisciplinary approach of education. In that case the members can collaborate on the exchange of information. Public involvement is the key to a good management practice of the watershed. Public can provide useful information and its cooperation will help make the management plan a success. This component will be met by the Capacity Building Programmes and trainings that are formed in the DPR.

There are various ways that one can get involved in the restoration, maintenance, and preservation of the watershed. The first step towards is through responsible attitude. There are many programs planned at different level that are available for participation. Entry Point Activity (EPA) has been planned to persuade the watershed community and individuals or teams can join. EPA also recognizes the teams that have been involved in a watershed.

Water Quantity & Quality management programmes

Watershed Management should include measures to control and convey runoff flow, and to collect and cleanse runoff on-site. These principles might be summarized as "The Four C's" of watershed management: **control, conveyance, collection and cleansing**. The water conservation measures that proposed in the DPR like check dams, diversion canals, moisture collection pits, etc are all mainly aiming to ensure the four 'Cs' with regard to the water conservation. When adequate water is available in the soil aquifer it is undoubtedly help increase the productivity of the soil and bring better income to the farmers.

Similarly, the soil conservation measures proposed in the DPR like contour bunding, live fencing, centripetal bunding, gully control measures etc. are aiming at improving the quality as well as quantity of the soil, especially in the farm lands of the small holder farmers. When soil conservation measures are successfully implemented, the production is improved bringing adequate income to the farmers that will directly affect the living standards and socio-economic situation of the watershed community.

The production system management has direct impact on the quality of water as well as the quality of the soil. The soil fertility will be kept sustained for long if the production system management activities proposed in the DPR is implemented. This will have direct relation to the livelihood promotion based on natural resources. The livelihood of the watershed community is directly related to natural resources. However, when a development plan is formulated it should ensure the well being of all the community members irrespective of their asset base. Hence the PS&M activities as well as Livelihood promotion are aimed to improve the living condition of the watershed community.

All activities that occur within a watershed will somehow affect that watershed's natural resources, water quality and the life style of the watershed community. New land development, runoff from already-developed areas, agricultural activities, and household activities such as gardening/lawn care, septic system use/maintenance, water diversion and maintenance all can affect the quality of the resources within a watershed. Watershed management planning comprehensively identifies those activities that affect the health of the watershed and makes recommendations to properly address them so that adverse impacts are reduced.

Watershed management activities planned and proposed in this DPR is also important because the planning process results in a partnership among all affected parties in the watershed. That partnership is essential to the successful management of the land and water resources in the watershed since all partners have a stake in the health of the watershed. It is also an efficient way to prioritize the implementation of watershed management plans in times when resources may be limited.

Though, the watershed management program is not the panacea to maintain the sustainable livelihoods, it contributes to the livelihoods outcomes as mentioned in the LFA of this DPR; more income, increased well-being, reduced vulnerability, improved food security and more sustainable use of natural base. The activities proposed contribute to all assets of the sustainable livelihoods of the local people. The level of extent to which it can contribute to the five assets of the Sustainable Livelihood depends on the approaches and objectives of the program. Participatory group approach followed is encouraging.

The multipurpose benefits of the planned interventions in this DPR are as follows:

Upstream		Downstream		Overall
Direct	**Indirect**	**Direct**	**Indirect**	
• Reduced soil erosion • Better water availability • Better quality of water	• Reduced deforestation • Enhanced minor forest produce availability	• Improved water availability • Better crop production • More biomass availability	• Enhanced fuel (biomass) availability • Enhanced cattle milk production • Enhanced other economic activities like vermin composting, sericulture, orchard etc	• Reduced migration • More employment • Improved Health condition • Improved adaptive capacity to climate change • Social development

In addition, Watershed Management activities included in this DPR is an advanced idea of ordinary watershed management which primarily includes:

- Better water management,
- Minor irrigation,
- Drinking water supply,
- Sanitation facilities,
- Forestry

- Micro crediting to use Non Timber Forest products, Aquaculture, orchard maintenance and handicrafts for income generation and livelihood

In short the planned interventions proposed in this DPR shall:

- Consider the total environmental impact of the proposed system.
- Consider water quality as well as water quantity.
- Be consistent with the local Plan of Development and any existing watershed management plan.
- Coordinate with erosion control measures and aquifer protection.
- Minimize disturbance of natural grades and vegetation, and utilize existing topography for natural drainage systems.
- Preserve natural vegetated buffers along water resources and wetlands.
- Minimize impervious surfaces and maximize infiltration of cleansed runoff to appropriate soils.
- Reduce peak flow to minimize the likelihood of soil erosion, stream channel instability, and flooding and habitat destruction.
- Use wetlands and water bodies to receive or treat runoff only when it is assured that these natural systems will not be overloaded or degraded.
- Provide a maintenance schedule for management practices, including designation of maintenance responsibilities.

Two issues are central here: first, an improved natural resource base can contribute to enhanced livelihoods for a growing rural population but is not a panacea; second, even a moderate degree of equity requires high levels of social organization and an ability among women and the poor to articulate their requirements, together with continuing vigilance to ensure that their rights are not overridden. Provisions are left in this DPR to ensure strong and sustainable social organizations.

EXIT PROTOCOL

Withdrawal phase

The following activities are to be taken up during this period.

1) Consolidation and completion of various works.

2) Building the capacity of the community based organizations to carry out the new agenda items during post project period.

3) Sustainable management of natural resources

4) Up-scaling of successful experiences regarding farm production systems /off-farm livelihoods, successful experiences related to above aspects through revolving fund under the project as well as credit and technical support from external institutions

5) Preparation of project completion report with details about status of each intervention, Documentation of successful experiences

6) Formal allocation of user's right over common property resources (CPRs)

7) Collection of user charges for CPRs; Repair, maintenance and protection of CPRs

8) Sustainable utilization of developed natural resources

9) Involvement of gram Panchayat/corresponding institutions (as a governance body) in addressing the above aspects and Participatory planning, implementation and monitoring of activities to be carried out

10) Terminal evaluation of project as per the expected outcomes.

11) Reconstruction/restoration of damaged assets created during the implementation of IWMP project

WITHDRAWAL MECHANISM

Since the beginning of this project the community members are being facilitated to adopt operational strategies in capacity building. The Watershed Committee/Watershed Association will be converted in to a self sufficient, independent institution which will be able to maintain post project activities on its own. The convergence and harmonization of resources of different flagship schemes and programmes will be channeled through this micro watershed development project, in particular. At the end of the project (after saturation) the concerned PIA shall hand over the assets created during the project period, responsibilities and post project management etc. to the Watershed committee through a memorandum of agreement .

Monitoring and Evaluation

A continuous monitoring and periodic evaluation of the implementation of the project activities on the watershed is necessary to assess whether the activity helps to meet the intended goal/objective. Any adjustment to be made has been discussed, agreed and endorsed by the village general assembly before they were implemented. The LFA given below shall be a guiding tool to carry out the monitoring and evaluation process.

As per government guidelines, monitoring & evaluation is an integral part of the IWMP project. Arrangements have been already done to take up the responsibility of monitoring and evaluation. There is an inbuilt GIS based monitoring system in the programme. Apart from this the PIA or the SLNA can make necessary arrangements by making use of the service of the empanelled NGOs, (e.g. SUSTHIRA) Government Agencies/departments, academic and resource agencies, who had the capacity and expertise to conduct monitoring and evaluation study and documentation.

Implementation & Administration

As per the standing orders and guidelines of the government and DoLR, the responsibility of implementation of IWMP project is vested in the Block Panchayat. However, in this decentralized programme management process, implementation by Block Panchayat alone has many limitations. This is because of the size of the project and the size of the project area. Therefore, the Block Panchayat has to be assisted from different corners and by different intuitions.

Institutional arrangements had already been done in all the watershed to support Block Panchayat in implementation. These include, the Grama Panchayat, Grama Sabhas, Watershed Committees (WCs), Watershed Development Teams (WDTs) and Neighbourhood clusters. Apart from this the service of SUSTHIRA, the TSO, can also be made use of wherever found necessary.

Regarding the Administration, institutions formed and facilitated by SUSTHIRA, the TSO, are strong enough and capacitated properly to look into the matter. Besides, the WDT team which consists of three paid staff – an Engineer with B.Tech, A social Engineer (Mobilizer) with MSW and a data entry operator with PGDCA will be the core agency in the administrative process of the project. The Watershed Committee (WC) which has a paid secretary will be shouldering the responsibility of administration at the grass roots level in association with Neighbourhood clusters.

In any stage of implementation if the PIA feel that there should be a technically eligible organization is needed to ensure proper implementation and administration of the IWMP project, the expertise of SUSTHIRA can also be made available. Thus, there will be all arrangements at all levels to ensure that the project is properly implemented and the expected results are achieved.

Documentation

For any development project must be documented properly for generating further knowledge for the future planning and implementation of similar projects. IWMP is an important project which involves several processes and procedures. Every steps, right from the process of planning till the end of consolidation all that have been involved in the project need to be properly registered and documented.

Documentation can be visual like video documentation and photographic documentation. Documentation can also be verbal like process report making (Process documentation) Charts showing progress and improvements of different situation and project components (e.g. Measurement of water table, progress in construction work of bunds and ponds, rainfall data and temperature data etc), display boards to illustrate the project area and project components with budget outlay (this will make the project more transparent) etc.

Since this part of the project is very important and inevitable, expertise and professional capacity is needed to carry out documentation. To meet the purpose, NGOs like SUSTHIRA can be involved and their expertise can be made use of.

Acknowledgement

In this process of DPR preparation, we need to acknowledge the support and guidance provided by the Project Director, PAU, Palakkadu, the Joint Director and Chief Executive of SLNA, The Thrithala Balock President and his team, Block Panchayat Secretary and his colleagues, Agriculture officers of the concerned Grama Panchayats, The Concerned Grama Panchayat Presidents and their team, The MGNRGS supervisors in the Block Panchayat and in the Grama Panchayat and last, but not least, the elected members of the Grama Panchayats and the watershed committee members. A special mention is required here for the support and cooperation rendered to us by the participating Watershed Neighbourhood Clusters.

Conclusion

Planning commission of India says that “Degradation and erosion of natural resources, namely, land, water, forest, biodiversity (plant, animal and microbial genetic resources), livestock and fisheries along with air and sunlight – those parts of the natural world that are used to produce food and other valued goods and services and which are essential for our survival and prosperity, are one of the root causes of the agrarian crisis in the country”. No doubt, Kerala community began to experience such a situation when they dishonoured the natural forces and attacked them indiscriminately.

Natural resources (land, water, biodiversity and genetic resources, biomass resources, forests, livestock and fisheries) – the very foundation of human survival, progress and prosperity, have been degrading fast, and the unprecedented pace of their erosion is one of the root causes of the agrarian crisis that the country is facing. The demographic and socio-economic pressures notwithstanding, the unmindful agricultural intensification, over use of marginal lands, imbalanced use of fertilizers, organic matter depletion and deteriorating soil health, extensive diversion of prime agricultural lands to non-agricultural uses, misuse and inefficient use of irrigation water, depleting aquifers, salinization of fertile lands and water logging, deforestation, biodiversity loss and genetic erosion, and climate change are the main underlying causes.

Therefore it is high time to make people understand the after effects of environmental deterioration and make them involved in environmental protection measures through conservation of soil, water and biomass conservation. We are sure that this attempt of watershed based development intervention through IWMP project of the rural development department will certainly help the rural communities to transform their life from a situation utter poverty to a situation in which they have livelihood and ensured means of livelihood – natural resources.

Often, the treated areas have reverted back to the original status and the impact of the development on productivity, equity and sustainability is generally invisible at larger scales. This was ascribed primarily to the lack of focus on productivity enhancement and on livelihood component under the watershed programmes. Sustaining people and their interest in conserving the natural resources for their livelihood has been ensured in IWMP.

INTEGRATED WATERSHED MANAGEMENT PROGRAMME – THRITHALA BLOCK PANCHAYATH – (IWMP 1/2010-11)

Master plan for Four Years

Funding pattern in Percentage

Year	Administr-ation	Monitoring	Evaluation	Entry Point Activity	Institution & Capacity Building	DPR preparation	Watershed Develop-ment Activities	Livelihood Activities	Production system & Micro Enterprises	Consolidation Phase	Total
1St	2	0.2	0.2	4	3	1	5.6	2	2	0	20
2nd	3	0.3	0.3	0	1	0	19.4	3	3	0	30
3rd	2.5	0.25	0.25	0	1	0	16.5	2	2.5	0	25
4th	2.5	0.25	0.25	0	0	0	14.5	2	2.5	3	25
Total	**10**	**1**	**1**	**4**	**5**	**1**	**56**	**9**	**10**	**3**	**100**

INTEGRATED WATERSHED MANAGEMENT PROGRAMME – THRITHALA BLOCK PANCHAYATH (IWMP-I/2010-11)

Master plan for Four Years

BUDJECT (Area: 5911 Ha)

Year	Administration	Monitoring	Evaluation	Entry Point Activity	Institution & Capacity Building	DPR preparation	Watershed Develop-ment Activities	Livelihood Activities	Production system & Micro Enterprises	Consolidation Phase	Total IWMP project fund
1St	1773300	177330	177330	3546600	2659950	886650	4965240	1773300	1773300	0	17733000
%	2	0.2	0.2	4	3	1	5.6	2	2	0	20
2nd	2659950	265995	265995	0	886650	0	17201010	2659950	2659950	0	26599500
%	3	0.3	0.3	0	1	0	19.4	3	3	0	30
3rd	2216625	221662.5	221662.5	0	886650	0	14629725	1773300	2216625	0	22166250
%	2.5	0.25	0.25	Q	1	0	16.5	2	2.5	0	25
4rd	2216625	221662.5	221662.5	0	0	0	12856425	1773300	2216625	2659950	22166250
%	2.5	0.25	0.25	0	0	0	14.5	2	2.5	3	25
Total	**8866500**	**886650**	**886650**	**3546600**	**4433250**	**886650**	**49652400**	**7979850**	**8866500**	**2659950**	**88665000**
%	**10**	**1**	**1**	**4**	**5**	**1**	**56**	**9**	**10**	**3**	**100**

INTEGRATED WATERSHED MANAGEMENT PROGRAMME - THRITHALA BLOCK PANCHAYATH - IWMP 1 – BUDGET – SECTOR I WATERSHED DEVELOPMENT ACTIVITIES

Sl No	Name of Watershed	Year Wise	IWMP Fund	MNREGS/Other Source	Total	WDF
1	Chalisserry	1st year	869400	252117	1121517	10 % General & 5 % SC / ST
		2nd year	3011850	419550	3431400	
		3rd year	2561625	390400	2952025	
		4th year	2251125	157000	2408125	
2	Kavukkodu	1st year	374640	202600	577240	
		2nd year	1297860	234230	1532090	
		3rd year	1103850	157000	1260850	
		4th year	970050	186840	1156890	
3	Kothachira	1st year	74760	68963	143723	
		2nd year	258990	63900	322890	
		3rd year	220275	36000	256275	
		4th year	193575	29100	222675	
4	Pattisserry II	1st year	778680	169090	947770	
		2nd year	2697570	50575	2748145	
		3rd year	2294325	60295	2354620	
		4th year	2016225	60867	2077092	
5	Pattisserry III	1st year	200760	200500	401260	
		2nd year	695490	33040	728530	
		3rd year	591525	81800	673325	
		4th year	519825	91280	611105	
6	Puliyapattakkayal	1st year	1864800	0	1864800	
		2nd year	6460200	0	6460200	
		3rd year	5494500	0	5494500	
		4th year	4828500	0	4828500	
7	Ullannur	1st year	802200	231895	1034095	
		2nd year	2779050	179700	2958750	
		3rd year	2363625	204435	2568060	

		4th year	2077125	107445	2184570	
	TOTAL		**49652400**	**3668622**	**53321022**	

INTEGRATED WATERSHED MANAGEMENT PROGRAMME - THRITHALA BLOCK PANCHAYATH - IWMP 1 – Budget – Sector II Livelihood Activities for Land less / Asset less

Sl No	Name of Watershed	Year Wise	IWMP Fund	MNREGS / Other Source	Total	WDF
1	Chalisserry	1st year	310500	0	310500	10 % General & 5 % SC / ST
		2nd year	465750	0	465750	
		3rd year	310500	109325	419825	
		4th year	310500	310800	621300	
2	Kavukkodu	1st year	133800	0	133800	
		2nd year	200700	0	200700	
		3rd year	133800	47170	180970	
		4th year	133800	166200	300000	
3	Kothachira	1st year	26700	0	26700	
		2nd year	40050	0	40050	
		3rd year	26700	10155	36855	
		4th year	26700	26700	53400	
4	Pattisserry II	1st year	278100	0	278100	
		2nd year	417150	0	417150	
		3rd year	278100	102665	380765	
		4th year	278100	321900	600000	
5	Pattisserry III	1st year	71700	0	71700	
		2nd year	107550	0	107550	
		3rd year	71700	25405	97105	
		4th year	71700	71800	143500	
6	Puliyapattakkayal	1st year	666000	0	666000	
		2nd year	999000	0	999000	
		3rd year	666000	233400	899400	
		4th year	666000	666000	1332000	
7	Ullannur	1st year	286500	0	286500	
		2nd year	429750	0	429750	
		3rd year	286500	100725	387225	

		4th year	286500	313500	600000	
TOTAL			**7979850**	**2505745**		**10485595**

INTEGRATED WATERSHED MANAGEMENT PROGRAMME - THRITHALA BLOCK PANCHAYATH

IWMP 1 – Budget – Sector III Production System & Micro Enterprises based livelihood activities

Sl No	Name of Watershed	Year Wise	IWMP Fund	MNREGS/Other Source	Total	WDF
1	Chalisserry	1st year	310500	1500	312000	10 % General & 5 % SC / ST
		2nd year	465750	2250	468000	
		3rd year	388125	375	388500	
		4th year	388125	675	388800	
2	Kavukkodu	1st year	133800	3850	137650	
		2nd year	200700	900	201600	
		3rd year	167250	750	168000	
		4th year	167250	750	168000	
3	Kothachira	1st year	26700	300	27000	
		2nd year	40050	60	40110	
		3rd year	33375	2625	36000	
		4th year	33375	825	34200	
4	Pattisserry 2	1st year	278100	900	279000	
		2nd year	417150	150	417300	
		3rd year	347625	375	348000	
		4th year	347625	375	348000	
5	Pattisserry 3	1st year	71700	300	72000	
		2nd year	107550	40	107590	
		3rd year	89625	2975	92600	
		4th year	89625	375	90000	
6	Puliyapattakkayal	1st year	666000	0	666000	
		2nd year	999000	60	999060	
		3rd year	832500	7500	840000	
		4th year	832500	7500	840000	
7	Ullannur	1st year	286500	1500	288000	
		2nd year	429750	750	430500	

		3rd year	358125	1875	360000	
		4th year	358125	1875	360000	
TOTAL			**8866500**	**41410**	**8907910**	

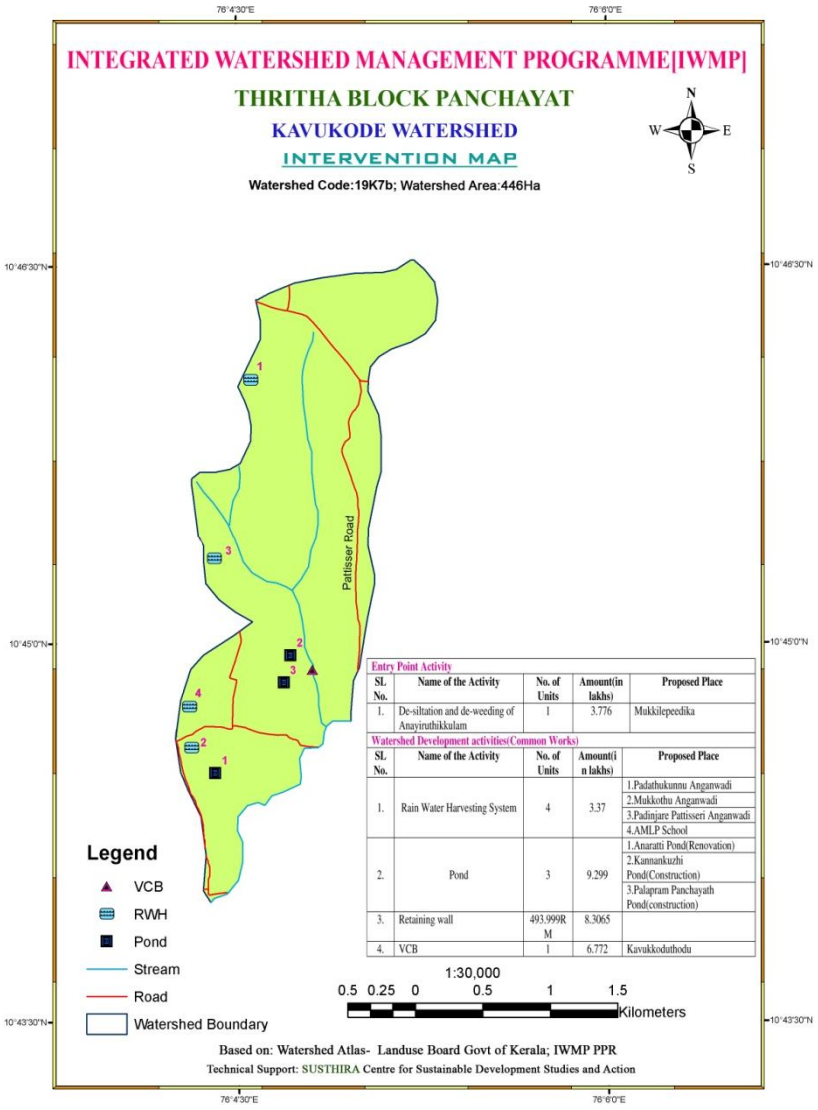
INTEGRATED WATERSHED MANAGEMENT PROGRAMME - THRITHALA BLOCK PANCHAYATH
IWMP 1 – Budget – Sector IV Entry Point Activity

SL NO	NAME OF WATEWRSHED	IWMP FUND	MNREGS/OTHER SOURCE	WDF	TOTAL
1.	Ullannur	573000	1620	0	574620
2.	Kavukkod	267600	70400	0	338000
3.	Kothachira	53400	1018	0	54418
4.	Chaliserry	621000	3012	0	624012
5.	Pattiserry - II	556200	97140	0	653340
6.	Pattiserry - III	143400	105	0	143505
7.	Puliyapattakayal	1332000	23227	0	1355227
	Total	**3546600**	**196522**	**0**	**3743122**

INTEGRATED WATERSHED MANAGEMENT PROGRAMME - THRITHALA BLOCK PANCHAYATH
IWMP 1 – Budget – Sector V Capacity Building Training

SL NO	NAME OF WATEWRSHED	IWMP FUND	MNREGS/OTHER SOURCE	WDF	TOTAL
1.	Ullannur	716250	0	0	716250
2.	Kavukkod	334500	0	0	334500
3.	Kothachira	66750	0	0	66750
4.	Chaliserry	776250	0	0	776250
5.	Pattiserry - II	695250	0	0	695250
6.	Pattiserry - III	179250	0	0	179250
7.	Puliyapattakayal	1665000	0	0	1665000

	Total	**4433250**	**0**	**0**	**4433250**

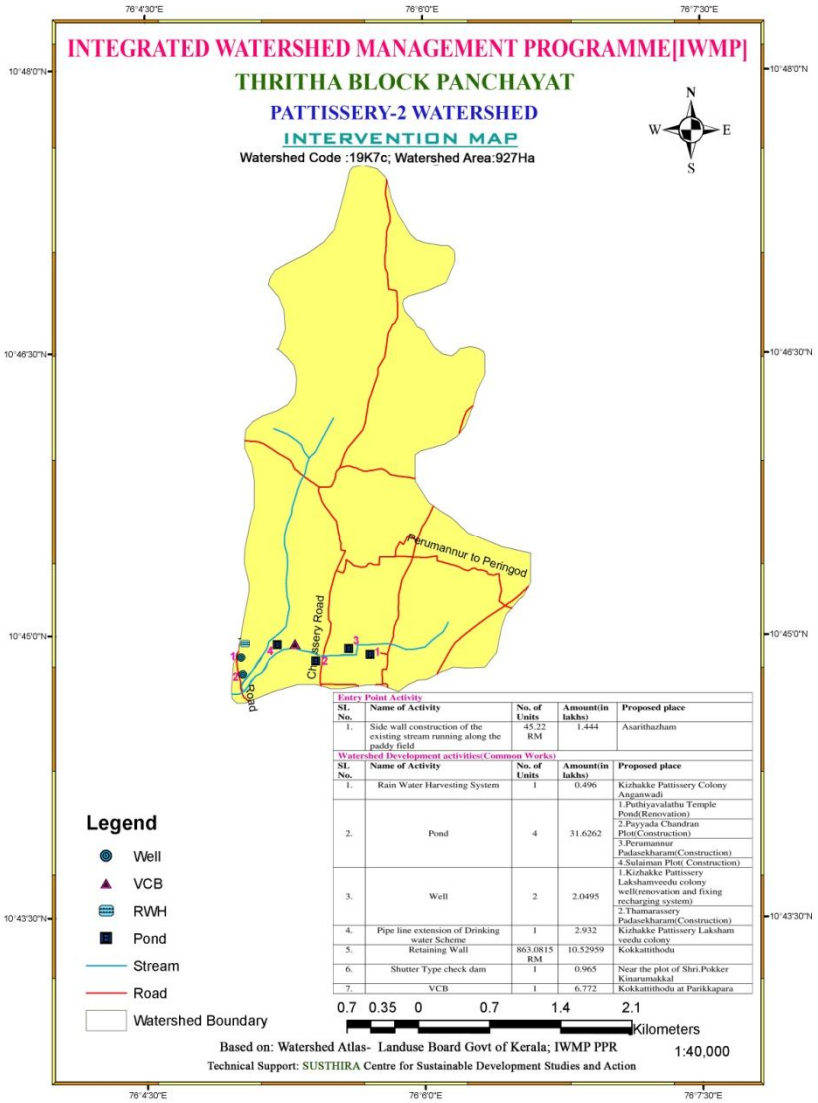


Entry Point Activity

SL No.	Name of the Activity	No. of Units	Amount(in lakhs)	Proposed Place
1.	De-siltation and de-weeding of Anayiruthikkulam	1	3.776	Mukkilepeedika

Watershed Development activities(Common Works)

SL No.	Name of the Activity	No. of Units	Amount(in lakhs)	Proposed Place
1.	Rain Water Harvesting System	4	3.37	1.Padathukunnu Anganwadi
				2.Mukkothu Anganwadi
				3.Padinjare Pattisseri Anganwadi
				4.AMLP School
2.	Pond	3	9.299	1.Anaratti Pond(Renovation)
				2.Kannankuzhi Pond(Construction)
				3.Palapram Panchayath Pond(construction)
3.	Retaining wall	493.999RM	8.3065	
4.	VCB	1	6.772	Kavukkoduthodu

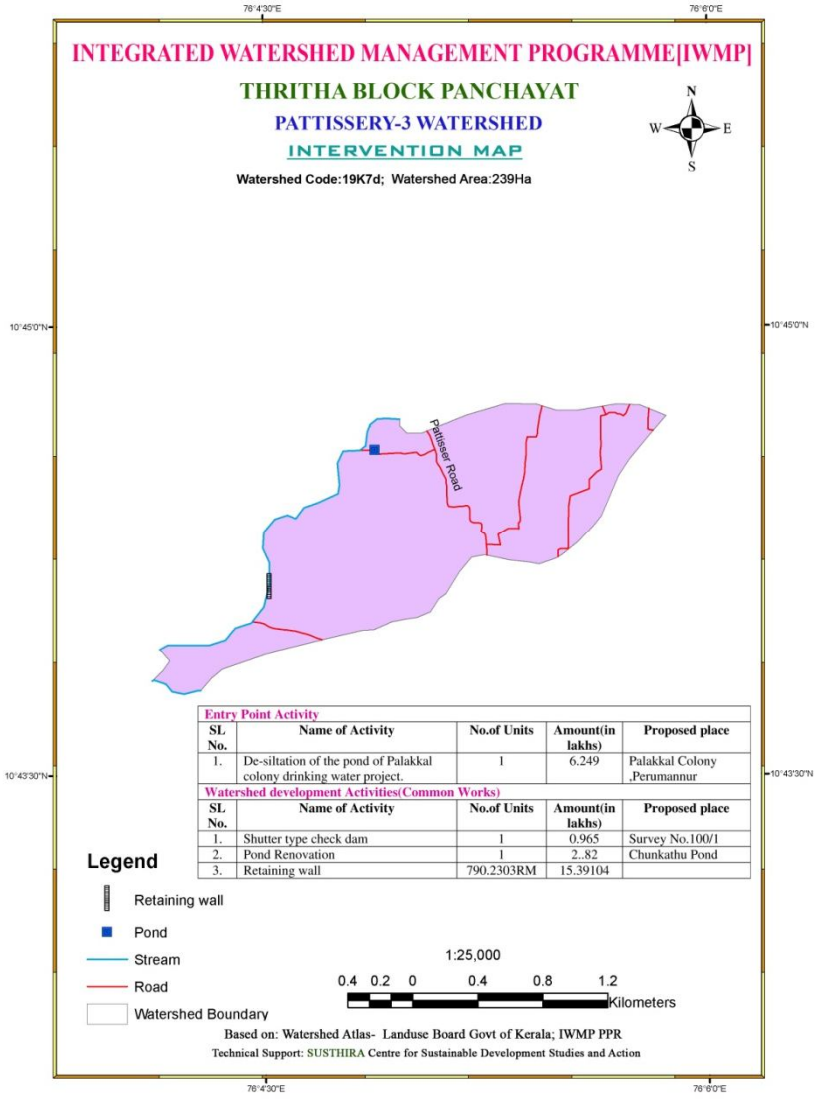


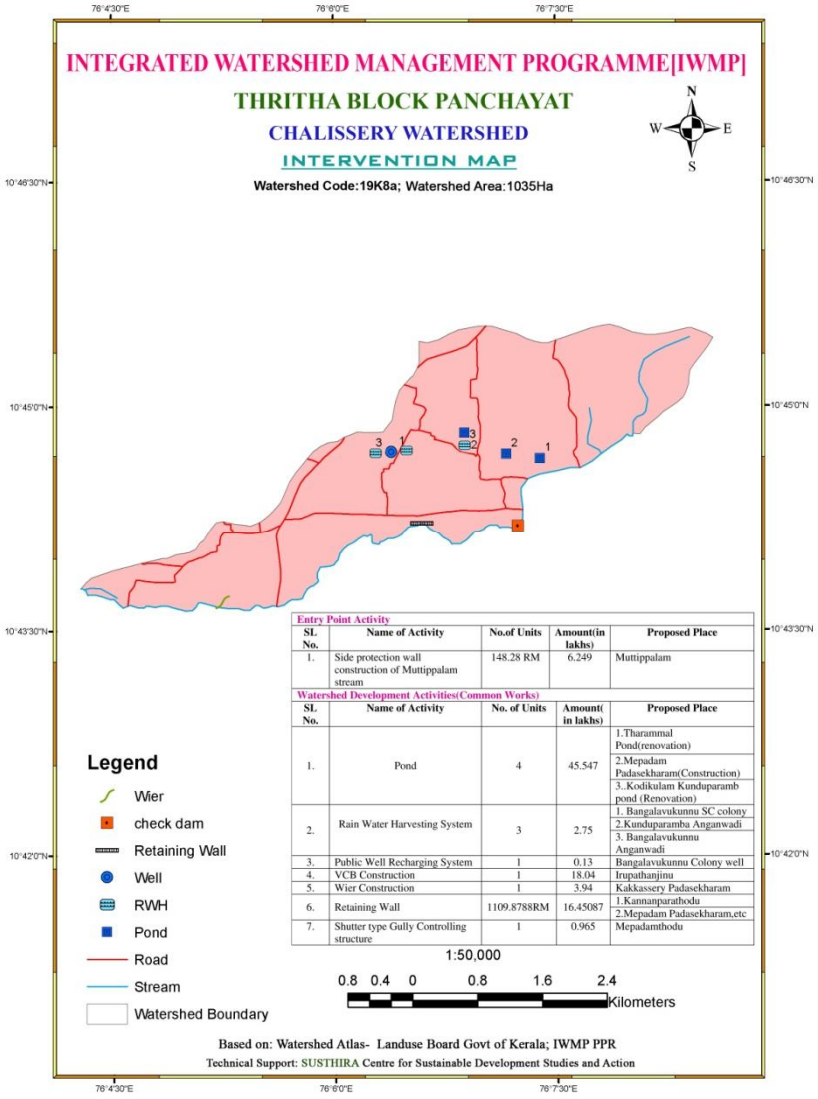
Entry Point Activity

Sl. No.	Name of Activity	No. of Units	Amount(in lakhs)	Proposed place
1.	Side wall construction of the existing stream running along the paddy field	45.22 RM	1.444	Asarithazham

Watershed Development activities(Common Works)

Sl. No.	Name of Activity	No. of Units	Amount(in lakhs)	Proposed place
1.	Rain Water Harvesting System	1	0.496	Kizhakke Pattissery Colony Anganwadi
2.	Pond	4	31.6262	1.Puthiyavalathu Temple Pond(Renovation) 2.Payyada Chandran Plot(Construction) 3.Perumannur Padasekharam(Construction) 4.Sulaiman Plot(Construction)
3.	Well	2	2.0495	1.Kizhakke Pattissery Lakshamveedu colony well(renovation and fixing recharging system) 2.Thamarassery Padasekharam(Construction)
4.	Pipe line extension of Drinking water Scheme	1	2.932	Kizhakke Pattissery Laksham veedu colony
5.	Retaining Wall	863.0815 RM	10.52959	Kokkattithodu
6.	Shutter Type check dam	1	0.965	Near the plot of Shri.Pokker Kinarumukkal
7.	VCB	1	6.772	Kokkattithodu at Parikkapara


76°4'30"E
76°6'0"E
INTEGRATED WATERSHED MANAGEMENT PROGRAMME[IWMP]
THRITHA BLOCK PANCHAYAT
PATTISSERY-3 WATERSHED
INTERVENTION MAP
Watershed Code:19K7d; Watershed Area:239Ha
N
W
E
S
10°45'0"N
10°43'30"N
Pattisser Road
Entry Point Activity
SL No. | Name of Activity | No.of Units | Amount(in lakhs) | Proposed place
1. | De-siltation of the pond of Palakkal colony drinking water project. | 1 | 6.249 | Palakkal Colony ,Perumannur
Watershed development Activities(Common Works)
SL No. | Name of Activity | No.of Units | Amount(in lakhs) | Proposed place
1. | Shutter type check dam | 1 | 0.965 | Survey No.100/1
2. | Pond Renovation | 1 | 2..82 | Chunkathu Pond
3. | Retaining wall | 790.2303RM | 15.39104 |
Legend
Retaining wall
Pond
Stream
Road
Watershed Boundary
1:25,000
0.4 0.2 0 0.4 0.8 1.2
Kilometers
Based on: Watershed Atlas- Landuse Board Govt of Kerala; IWMP PPR
Technical Support: SUSTHIRA Centre for Sustainable Development Studies and Action

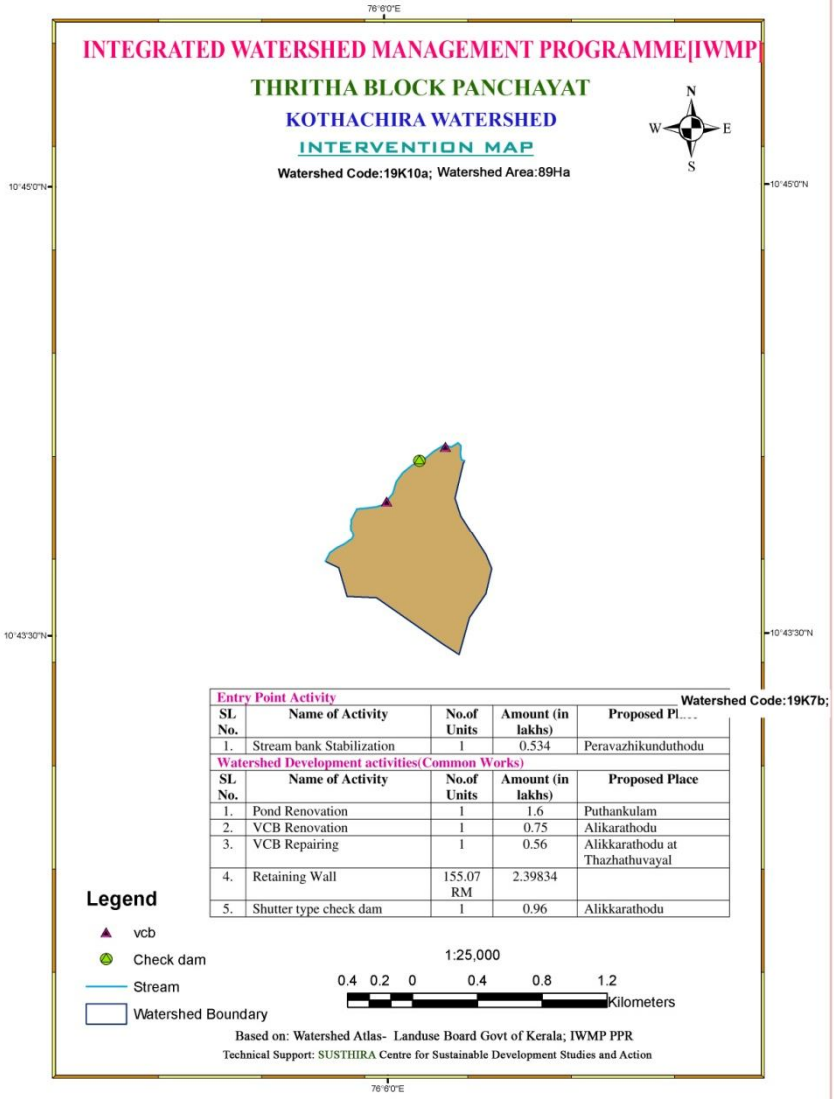


Entry Point Activity

SL No.	Name of Activity	No.of Units	Amount(in lakhs)	Proposed Place
1.	Side protection wall construction of Muttippalam stream	148.28 RM	6.249	Muttippalam

Watershed Development Activities(Common Works)

SL No.	Name of Activity	No. of Units	Amount(in lakhs)	Proposed Place
1.	Pond	4	45.547	1.Tharammal Pond(renovation)
				2.Mepadam Padasekharam(Construction)
				3..Kodikulam Kunduparamb pond (Renovation)
2.	Rain Water Harvesting System	3	2.75	1. Bangalavukunnu SC colony
				2.Kunduparambu Anganwadi
				3. Bangalavukunnu Anganwadi
3.	Public Well Recharging System	1	0.13	Bangalavukunnu Colony well
4.	VCB Construction	1	18.04	Irupathanjinu
5.	Wier Construction	1	3.94	Kakkassery Padasekharam
6.	Retaining Wall	1109.8788RM	16.45087	1.Kannanparathodu
				2.Mepadam Padasekharam,etc
7.	Shutter type Gully Controlling structure	1	0.965	Mepadamthodu



Entry Point Activity

SL No.	Name of Activity	No.of Units	Amount (in lakhs)	Proposed Pl...
1.	Stream bank Stabilization	1	0.534	Peravazhikunduthodu

Watershed Development activities(Common Works)

SL No.	Name of Activity	No.of Units	Amount (in lakhs)	Proposed Place
1.	Pond Renovation	1	1.6	Puthankulam
2.	VCB Renovation	1	0.75	Alikarathodu
3.	VCB Repairing	1	0.56	Alikkarathodu at Thazhathuvayal
4.	Retaining Wall	155.07 RM	2.39834	
5.	Shutter type check dam	1	0.96	Alikkarathodu

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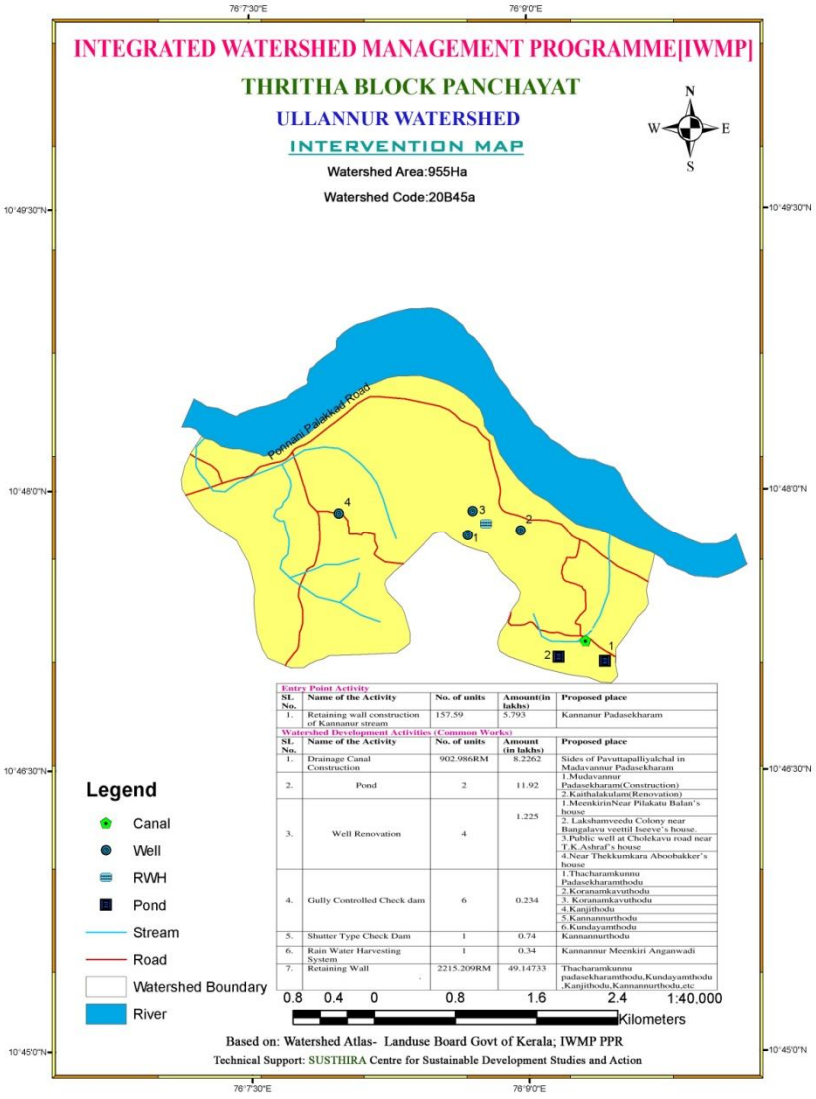
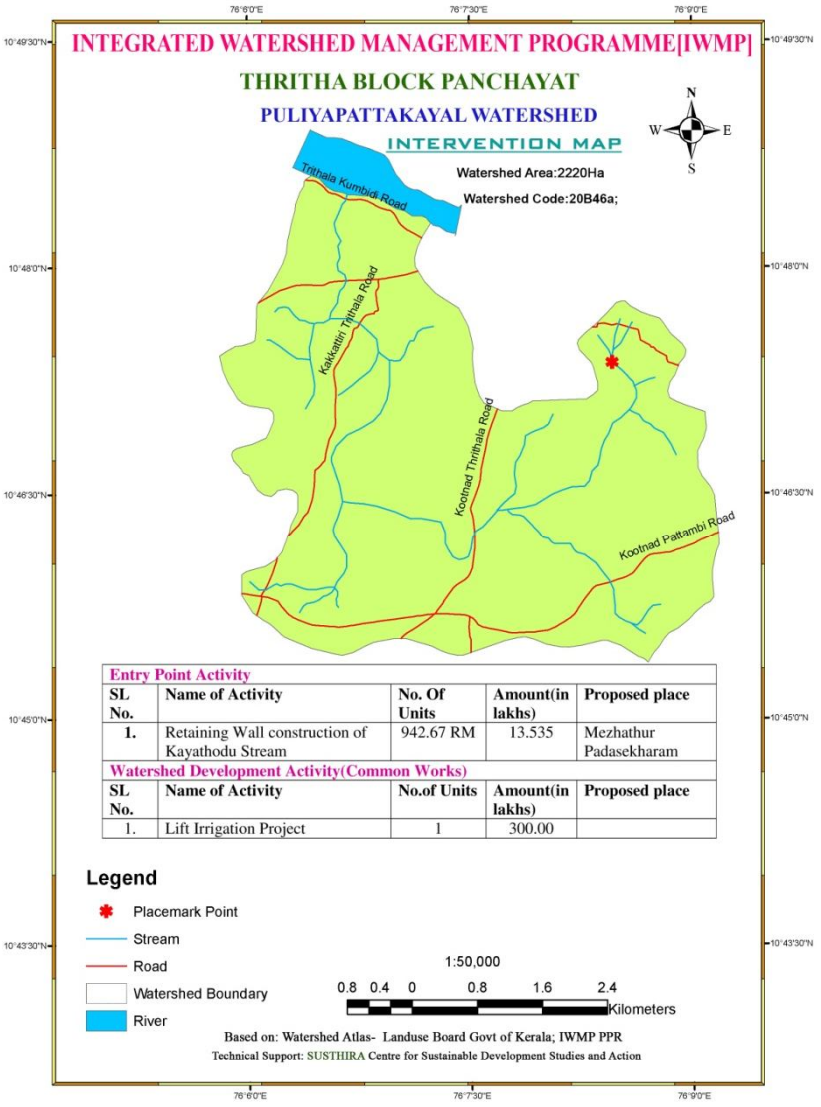


Entry Point Activity

Sl. No.	Name of the Activity	No. of units	Amount(in lakhs)	Proposed place
1.	Retaining wall construction of Kannanur stream	157.59	5.793	Kannanur Padasekharam

Watershed Development Activities (Common Works)

Sl. No.	Name of the Activity	No. of units	Amount (in lakhs)	Proposed place
1.	Drainage Canal Construction	902.986RM	8.2262	Sides of Pavuttapalliyalchal in Madavannur Padasekharam
2.	Pond	2	11.92	1.Mudavannur Padasekharam(Construction) 2.Kaithalakulam(Renovation)
3.	Well Renovation	4	1.225	1.MeenkirinNear Pilakatu Balan's house 2. Lakshamveedu Colony near Bangalavu veettil heeve's house. 3.Public well at Cholekavu road near T.K.Ashraf's house 4.Near Thekkumkara Aboobakker's house
4.	Gully Controlled Check dam	6	0.234	1.Thacharamkunnu Padasekharamthodu 2.Koranamkavuthodu 3. Koranamkavuthodu 4.Kanjithodu 5.Kannamurthodu 6.Kundayamthodu
5.	Shutter Type Check Dam	1	0.74	Kannanmurthodu
6.	Rain Water Harvesting System	1	0.34	Kannanmur Meenkiri Anganwadi
7.	Retaining Wall	2215.209RM	49.14733	Thacharamkunnu padasekharamthodu,Kundayamthodu ,Kanjithodu,Kannanmurthodu,etc



Entry Point Activity				
SL No.	**Name of Activity**	**No. Of Units**	**Amount(in lakhs)**	**Proposed place**
1.	Retaining Wall construction of Kayathodu Stream	942.67 RM	13.535	Mezhathur Padasekharam
Watershed Development Activity(Common Works)				
SL No.	**Name of Activity**	**No.of Units**	**Amount(in lakhs)**	**Proposed place**
1.	Lift Irrigation Project	1	300.00	

LOGICAL FRAME WORK ANALYSIS (LFA)

Narrative Summary	Expected Results	Objectively Verifiable indicators (OVI)	Means of Verifications (MOV)	Risk/Assumptions
Goal: (Overall Objective) The degraded rangeland restored and the production improved in the watersheds of Thrithala Block Panchayat by more efficient utilization of natural resources through the proper and effective implementation of Integrated Watershed Management Programme plan.	• The income of families will increased • Living standard will improve • Increase of ground water table • Irrigation during off-season	• Purchase power of villagers will increase • Annual expenditure and saving of households • Household assets • Number of people migrating for employment opportunity • Cropping pattern	• Impact assessment study • Evaluation report • Compare between baseline survey and evaluation report • Physical observation • Physical Verification and FGD with farmers	Political Intervention
Objective 1	**Outcome**			
Total agriculture production increased	• Modern agriculture techniques for enhancing of agriculture productivity through crop demonstration plot. • Increased Agriculture income • Total agriculture production will increase • Soil moisture content	• Net area under agriculture increased • vegetation cover in the project area present • Percentage of farmers cultivating the crops incrreased	• Impact assessment study • Evaluation report • Discussion with Villagers/Farmers • Trend analysis of crop cultivation	Maintenance of the Structure after the project completion

	increased			
Activities to realize the Objective	**Outputs**			
1. Soil and moisture conservation works	Completion of soil moisture works.	Number of watershed physical structure presents in the project area Diversified farming	Physical verification Discussion with Villagers/Farmers	
2. Use of advance water conservation techniques.	Optimum utilization of available water	Number of households having drip irrigation system of their houses	Physical verification	
Modern agriculture techniques for enhancing of agriculture productivity through crop demonstration plot.	Change in the cultivation pattern and adoption of new techniques in agriculture to realize the maximum potential of the land	Number of people migrating for employment	Observations	
Objective – 2	**Outcome**			
per capita income of BPL and marginal farmers increased through Various livelihood activities	• No. of migrating families from the project area reduced • Employment available within the project area. • Unemployment decreased	• Number of people migrating for employment opportunity • Number of people engaged in livelihood activities. • Number of people involved in self employment activities	• Impact assessment study • Physical verification/ Photographs • FGDs and PRA	
Activities to realize the Objective	**Output**			
1. Promotion of livelihood activities	People set-up their micro-enterprise on demand based activities.	Number of people showing their interest to set-up micro industry	Observations	
2. Capacity building activities for improvement entrepreneurial skill.	Improved knowledge and enhancement of skills for self development	Number of small enterprise set-up	Impact assessment study	

Objective – 3	Outcome			
Local institutions strengthened	• Presence of strong and dynamic local governance • People's participation and representation increased	• Number of meetings initiated by the local leaders. • Number of peoples' organization present in the grass root level	• Impact assessment study • Evaluation report, FGD, Observations	Interest of the People.
Activities to realize the Objective	**Output**			
1. Organized training and awareness programme for Village institutions	Quality of local leaders improved and more democratic method of decision making used	Number of case resolved within the locality.	Observations	
2. Capacity building workshops and exposure visits User Group and Watershed Committee	Local leaders taken interest to understand the programmes and schemes utilized for the common benefit of the village.	Number of schemes utilize for the benefit of the villages.	FGDs and PRA	
3. Formation of people's organization in the grass root level	• Proper management of available resources by the people's organization Ensured • Projects properly implemented • Participation of deprived section increased • Representation of local people increased	• Activities of the watershed is implementing smoothly without any hindrance • Number of deprived/ poor people participated in the meeting of Gram Sabha • Number of participants represent in the project meeting		