

IWMP II - PIA - CHENGANNUR BLOCK PANCHAYAT



INTEGRATED WATERSHED MANAGEMENT PROGRAMME



DETAILED PROJECT REPORT

IWMP II /2011-12
PIA- CHENGANNUR BLOCK PANCHAYAT

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PROGRAMME**

DETAILED PROJECT REPORT

Technical Support Organization



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ABBREVIATIONS

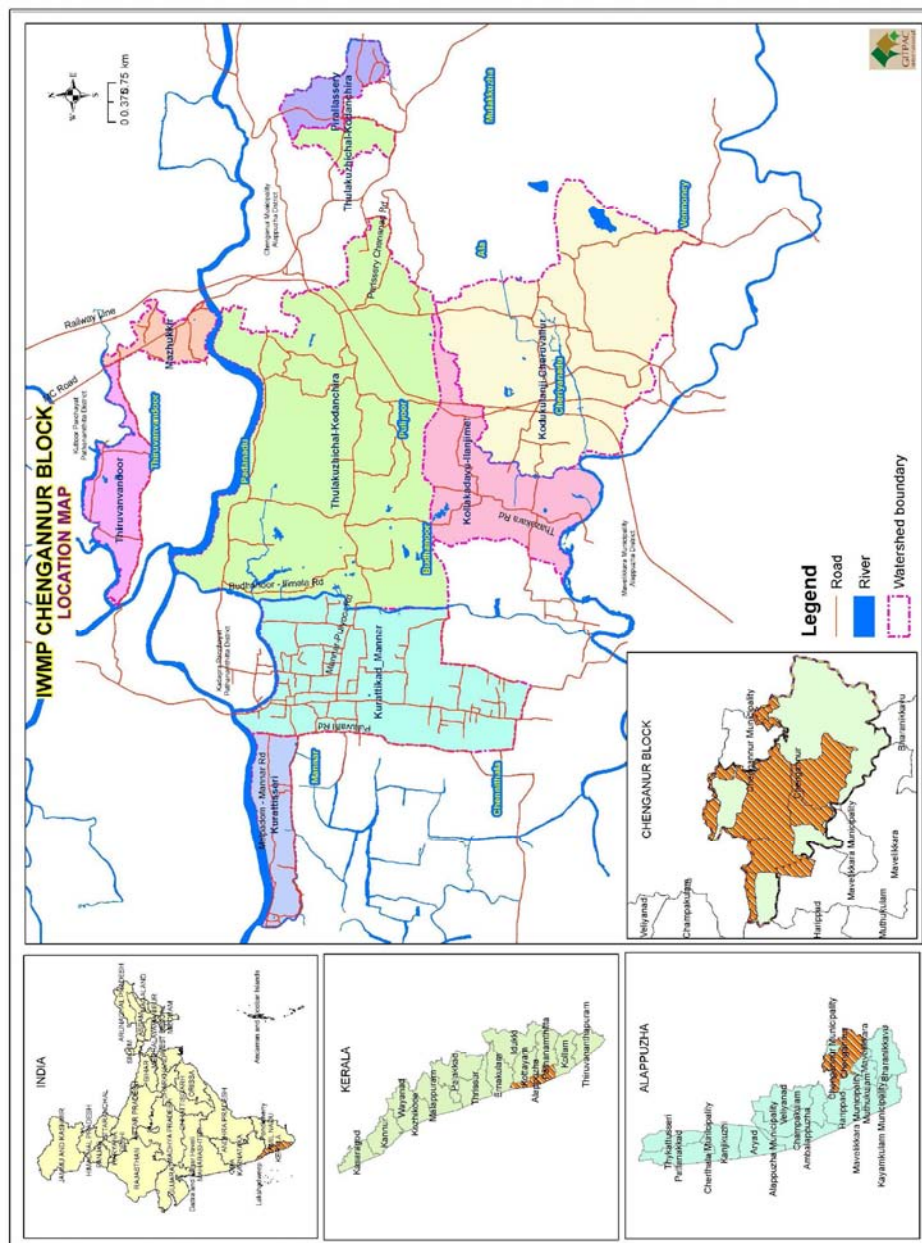
APL	Above Poverty Line
AAP	Annual Action Plan
BLCC	Block Level Coordination Committee
BPL	Below Poverty Line
DLCC	District Level Coordination Committee
DPC	District Planning Committee
EPA	Entry Point Activities
GIS	Geographic Information System
GP	Grama Panchayat
GW	Ground Water
IEC	Information, Education and Communication
IWMP	Integrated Watershed Management Programme
LSS	Livelihood Support System
MCM	Million Cubic Meters
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MLA LAD	Member of Legislative Assembly Local Area Development scheme
MoU	Memorandum of Understanding
MPLAD	Member of Parliament Local Area Development
NABARD	National Bank for Agriculture and Rural Development
OBC	Other Backward Caste
OC	Other Convergence
PIA	Project Implementing Agency
PRA	Participatory Rural Appraisal

PRI	Panchayat Raj Institution
PS&M	Production System and Microenterprises
SC	Scheduled Caste
SHG	Self Help Group
SLNA	State Level Nodal Agency
SPSP	State Perspective and Strategic Plan
ST	Scheduled Tribe
TSO	Technical Support Organization
UG	User Group
VEO	Village Extension Officer
WC	Watershed Committee
WCC	Watershed Coordination Committee
WCDC	Watershed Cell cum Data Centre
WDT	Watershed Development Team
WW	Women Welfare

Introduction

Integrated Watershed Management Programme (IWMP) is a modified programme of erstwhile Drought Prone Areas Programme (DPAP), Desert Development programme (DDP) and Integrated Watersheds Development Programme (IWDP) of the Department of Land resources. This consolidation is for optimum use of resources, sustainable outcomes and integrated planning. The scheme was launched during 2009 – 10. The programme is being implemented as per Common Guidelines for Watershed Development Projects 2008

Location



The project area of IWMP- II/2011-12 includes two blocks namely, Chengannur and Mavelikkara located in Alappuzha district. The project area falls within East Longitude between (76⁰29' 39" and 76⁰39' 2") and North Latitude (9⁰14'49"and 9⁰21'22").

Chengannur block is towards the extreme eastern part of Alappuzha district. It has a geographic area of 108.83 sq km. There are 8 Grama Panchayats in it and all of it comes in the project area fully or partially. To the northern part of watershed area lies Pulikeezhu block of Pathanamthitta, to the southern part of watershed area lies Mavelikkara block. To the east lies Kulanada block of Pathanamthitta district and to the west lies Harippad block in Alappuzha district. The project consists of eight micro-watersheds namely Mazhukkir (10P12a), Piralassery (10P60c), Thulakuzhichal – Kodanchira (10P61a), Kurattikad - Mannar (10P62a), Kurattisseri (10P63a), Thiruvanvandoor (11M55a), Kollakadavu-Ilanjimeel (9A7a) and Kodukulanji-Cheruvallur (9A7c). The total project area of the watershed is about 6819Ha and it has been selected for treatment under Integrated Watershed Management Programme (IWMP).

Name of catchment

Name of the project	District	Blocks	No of micro watersheds	Geographical area (Ha)	Proposed area to be treated (Ha)	Estimated Cost (Rs in lakhs)	PIA
IWMP- II 2011-12	Alappuzha	Chengannur, Mavelikkara	8	6819	6819	818.28	Chengannur block panchayat

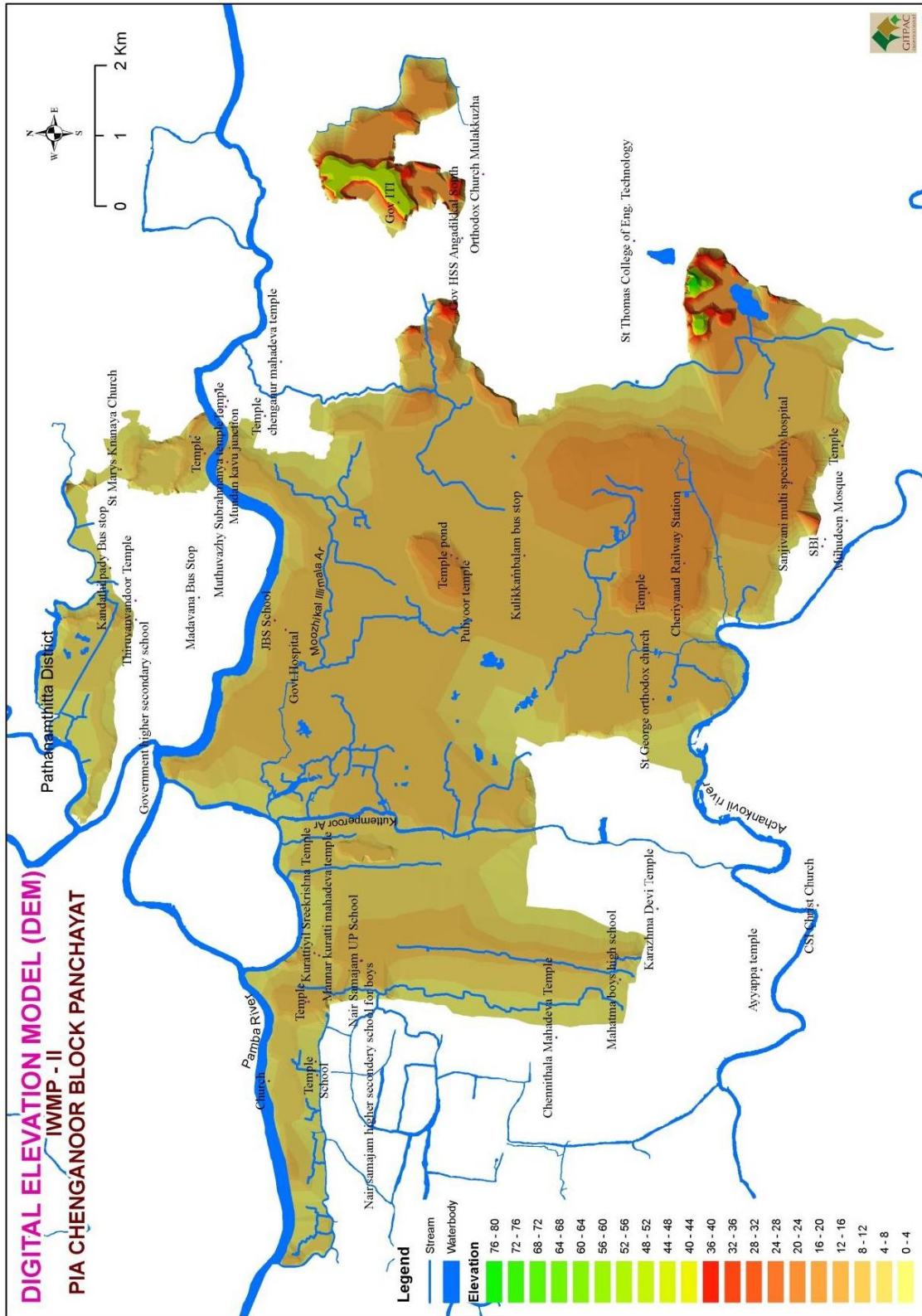
Watersheds are selected and its details regarding the block, panchayats, wards it covers is given below:

Watershed details in the project area

No	Name	Villages	Watershed Code	Area (Ha)	Block	Gram Panchyats covered	Wards covered	Latitude	Longitude	Above Mean Sea level (Meter)
1	Mazhukkir	Thiruvanvandoor	10P12a	143	Chengannur	Thiruvanvandoor	6,7,10,11	9°19'55" and 9°21'8" N	76°35'36" and 76°36'18" E	6.5 to 14.5
2	Piralassery	Mulakuzha	10P60c	180	Chengannur	Mulakuzha	1,2	9°18'6" and 9°19'16" N	76°37'58" and 76°39'20" E	5 to 57
3	Thulakuzhichal – Kodanchira	Pandanad, Puliyoor, Ennakkad, Ala, Mulakuzha	10P61a	2522	Chengannur	Ala Budhanoor Mulakkuzha Padanadu Puliyoor	Ala- 1, 2 Budhanoor- 1,2,3,4,12,13,14 Mulakkuzha-1 Pandanadu- 5,6,7,8,9,10,11, 12,13 Puliyoor-1,2,3,4,5,6,7,8,9, 12,13	9°17'32" and 9°20'25" N	76°32'59" and 76°38'13" E	3.5 to 53
4	Kurattikad-Mannar	Mannar, Tripperunthara, Kurattissery, Chennithala	10P62a	1168	Mavelikkara	Mannar Chennithala	Mannar 5,6,7,8,9,10,11,12, 13,15,16,17,18 Chennithala 3,4,5,6,13	9°16'39" and 9°19'45" N	76°31'30" and 76°33'10" E	2.5 to 11.5
5	Kurattisseri	Kurattissary	10P63a	245	Mavelikkara	Mannar	1,2,3,4	9°19'5" and 9°19'36" N	76°29'39" and 76°31'43" E	2 to 7.5
6	Thiruvanvandoor	Thiruvanvandoor	11M55a	272	Chengannur	Thiruvanvandoor	1,2,3,4,5,6	9°20'36" and 9°21'21" N	76°33'5" and 76°35'40" E	1.5 to 12
7	Kollakadavu-Ilanjimel	Puliyoor, Ennakkad, Cheriyanad, Ala	9A7a	646	Chengannur	Puliyoor Budhanoor Cheriyanad Ala	Puliyoor- 10,11,12 Budhanoor- 5,6 Cheriyanad- 1, 2, 14 Ala-1	9°15'55" and 9°17'46" N	76°33'18" and 76°36'8" E	3.5 to 15
8	Kodukulanji-Cheruvallur	Cheriyanad, Ala, Venmony	9A7c	1643	Chengannur	Cheriyanad Venmoney Ala	Cheriyanad-1,2,3,4,5,6, 7,8,11, 12,13,14,15 Venmoney-1,14,15 Ala-7,8,9,10,13	9°14'50" and 9°17'38" N	76°34'25" and 76°37'33" E	4 to 46

Physiographic Characteristics

Physiographic Characteristics directly/indirectly influences the spatial organization of a region. Apart from its influence on physical environment it also influences the spatial distribution of settlements, agricultural land use, transport lines and other variables affecting the process of the watershed area. The highest elevation in Piralassery watershed and Southern side Kodukulanji- Cheruvallur watershed is 80m above MSL. Kurattisseri watershed of Mannar Panchayath forms the lowest elevation of the watershed. A major area of the watershed is in low land areas and hence managing the water flow to enable cultivation in the paddy fields forms important in the Watershed management. There are 8 micro watershed are occupied in this area Muzhukkir, Piralasseri, Thulakzhichal-Kodanchira, Kurattisseri, Thiruvanavandoor, Kollakadavu - Illanjimel, Kodukulanji-cheruvallur, Kurattikad-Mannar watershed are located in the very gentle sloping of the plain topographically. Piralasseri, kurattiseeri are seen in very steep slope and Kodukulanji cheruvallur, Thulakuzhichal Kodanchira watershed are found in the south and south eastern tip of the undulating topography. In this undulating topographic terrain are helps to enhance stream flow direction and flow accumulation of the watershed basin



Drainage

The drainage pattern seen in the project area is amorphous pattern, with a slight lineage towards trellis pattern, flat terrain and human influence might be the reasons for the same. Most of the streams join the main stream in right angle; this may be due to human intervention for irrigation. The Kuttemperoor Ar which drains in a north-south direction links both Pamba and Achankovil Rivers and the water in Kuttemperoor Ar flows to both Rivers depending upon the water level of the Rivers.

Criteria for selection of Watersheds

No	Criteria	Score	Ranges & scores			
i	Poverty index (% of poor to population)	10	Above 80% (10)	80 to 50% (7.5)	50 to 20% (5)	Below 20%(2.5)
ii	% of SC/ST population	10	More than 40%(10)	20 to 40%(5)	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/	15	-66.7&below (15)	-33 to - 66.6(10)	0 to -33.2(0)	
	DPAP/DDP Block		DDPBlock	DPAP block	Non DPAP/DD P block	Above 70% (reject)
vii	Area under rain-fed agriculture	15	More than 90%(15)	80 to 90%(10)	70 to 80%(5)	Fully covered(0)
viii	Drinking water	10	No source(10)	Problematic village(7.5)	Partially covered(5)	
ix	Degraded land	15	High – above 20% (15)	Medium – 10 to 20%(10)	Low – less than 10% of TGA(5)	
x	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable	Lands with moderate production & where productivity can be enhanced with	Lands with high production & where productivity can be marginally enhanced with reasonable efforts(5)	

			efforts(15)	reasonable efforts(10)	
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 contagious 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 micro 0- watersheds in cluster(15)	4 to 6 watersheds in cluster(10)	2 to 4 micro watersheds in cluster(5)
xiii	Cluster approach in the hills(more than one contagious 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)

The weightage for the project area as per 13 criteria is given below.

No	District	Name of the project	No. of micro-watersheds	Proposed project area (ha)	Type of project (Hilly/ Desert/ Others)	Weightage under the criteria													
						1	2	3	4	5	6	7	8	9	10	11	12	13	Avg
1	Alappuzha	IWMP-2/2011-12	8	6821	Plains	5	3	0	5	0	0	15	5	5	10	5	10	NA	63

Climate

The project area experiences humid tropical climate with heavy rains from the northeast and southwest monsoons and also severe summer. Along the coast, climate is moist and hot and towards the interior of the district it is slightly cooler and drier. Southwest monsoon from June to September contributes to nearly 60.3% of the annual rainfall. This is followed by the northeast monsoon from October to December, which

contributes about 20.9% of the annual rainfall, and the balance 18.8% is accounted for January to May months.

Annual rainfall of Alappuzha District

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2001	81.7	63.6	13.0	177.6	368.6	627.6	845.0	248.0	426.2	340.8	95.2	14.2	3301.5
2002	0.0	3.0	22.2	96.2	445.7	568.6	220.2	375.6	85.0	448.5	302.0	0.0	2567.0
2003	0.0	59.0	60.0	161.7	110.4	504.2	430.2	345.2	93.8	496.9	95.4	0.0	2356.8
2004	3.8	0.0	53.4	100.4	827.8	519.8	324.0	306.5	195.8	508.5	253.0	0.0	3093.0
2005	16.4	63.6	37.4	200.2	206.8	602.6	451.7	132.1	312.8	251.2	119.4	73.4	2467.6
2006	43.0	0.0	46.0	107.4	511.0	505.5	430.4	309.2	349.1	407.6	188.2	0.0	2897.4
2007	0.0	22.2	3.6	200.4	264.4	596.9	861.3	418.8	363.4	279.7	168	13	3191.7
2008	0	60	2009	145.8	62	392.8	641.5	236.8	273.1	308.9	171	8.8	2501.6
2009	0	0	78.2	99.1	286.7	629.9	563.8	207	214.4	165.7	299.2	97.2	2641.2
2010	23.4	0	42.2	191.8	346.5	537.4	469.4	253.2	253.6	561.4	241.8	131	3051.7

Source: Agriculture Contingency Plan for Alappuzha District, National Initiative on Climate Resilient Agriculture

Generally March to May is hottest and December and January months are coldest. Generally the wind is predominantly from east and north-east during morning hours and during the evening hours the wind direction is from west and north-west. The wind speed is high during May (13.6 kmph) at Alappuzha.

The district generally has a tropical humid climate with an oppressive summer and plentiful seasonal rainfall. The period from March to the end of May is the hot season. This is followed by the southwest monsoon season, which continues till the end of September.

The district receives an average of 2965.4 mm as the normal rainfall. Out of this, southwest monsoon contributes the major part of the annual rainfall.

The highest temperature noticed is 34.2°C and the lowest noticed is 20.5°C in the block. Average Maximum temperature ranges between 30°C and 35°C during the months of March to April and the average minimum ranges between 20°C and 25°C during December and January. Please find the following table.

Monthly Mean Temperature of last ten years (°C)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

2002	Min	22.6	23.2	24.1	25.1	24.2	23.2	22.9	22.6	23.3	22.9	23.1	22.1
	Max	32.2	32.0	33.5	33.6	31.7	29.5	29.4	29.0	30.8	31.9	31.9	33.2
2003	Min	22.0	23.4	23.9	24.9	24.6	22.8	21.7	22.1	22.1	22.1	22.3	20.6
	Max	32.6	33.0	34.0	34.1	32.9	30.8	28.8	29.5	30.7	31.3	32.2	32.6
2004	Min	20.7	21.7	23.6	23.5	22.1	22.0	21.5	21.3	22.0	21.6	21.6	20.9
	Max	32.0	34.2	34.0	33.7	30.1	29.7	29.3	28.9	30.8	30.8	32.3	32.9
2005	Min	23.8	23.8	25.5	23.7	24.1	21.9	21.3	22.6	23.9	23.7	23.7	23.1
	Max	32.6	32.9	32.8	32.9	33.6	30.4	29.2	30.4	29.7	31.1	31.2	31.2
2006	Min	22.4	22.8	24.7	25.7	24.9	23.8	22.7	23.0	23.2	23.1	22.9	21.8
	Max	32.1	32.4	32.7	33.1	32.1	30.5	29.1	29.2	30.0	30.4	30.9	32.1
2007	Min	21.6	22.5	24.9	24.5	25.0	23.0	22.0	22.4	22.9	22.9	22.7	22.1
	Max	31.8	31.7	32.5	32.8	32.3	29.2	28.4	29.1	30.0	30.9	31.4	32.1
2008	Min	21.2	22.8	22.7	23.6	24.2	23.0	22.2	22.6	22.9	22.9	22.8	22.0
	Max	31.9	31.2	31.6	31.8	32.1	30.0	29.0	29.5	30.3	31.1	31.1	32.0
2009	Min	20.5	22.2	23.6	24.7	24.3	23.2	22.5	22.8	23.0	23.6	23.0	22.7
	Max	32.8	32.4	33.1	33.3	32.1	30.7	29.8	30.5	30.1	31.7	32.3	32.8

2010	Min	21.9	23.2	24.6	24.4	24.2	23.6	23.1	24.3	24.6	24.3	24.6	23.7
	Max	32.2	32.8	34.2	34.0	33.0	30.2	29.1	28.3	29.3	30.4	30.4	30.8
2011	Min	23.0	23.1	24.9	24.5	25.7	24.2	23.3	23.1	23.0	23.9	23.1	22.5
	Max	31.5	31.6	32.7	32.8	32.6	30.9	29.3	29.2	29.6	31.6	31.5	32.2

Groundwater

Central groundwater board's report on Alappuzha district has given detailed data of the amount of annual recharge, Net annual GW availability, existing water draft etc. According to it, the stage of development of groundwater of Chengannur block is 29.33% and that of Mavelikara block is 25.21%. The development is categorized as safe.

Block-wise groundwater availability

Block	Chengannur Block	Mavelikara Block
Total Annual GW recharge (MCM)	55.16	48.61
Natural discharge during non-monsoon season(MCM)	5.52	4.86
Net annual GW availability (MCM)	49.64	43.75
Existing gross ground water draft for irrigation (MCM)	7.9	6.08
Existing gross ground water draft for domestic & industrial water supply (MCM)	6.66	4.95
Existing gross ground water draft for all uses (MCM)	14.56	11.03
Allocation for domestic and industrial water supply up to next 25 years (MCM)	7.93	5.79
Requirement for domestic and industrial water supply up to next 25 years (MCM)	9.56	6.97
Net GW availability for future Irrigation development (MCM)	33.81	31.88
Stage of Development ,%	29.33	25.21
Category	Safe	Safe

The observation wells were taken at the following location to get the pre monsoon and post monsoon ground water depth.

Sl no	Watershed	Panchayat	Ward	Location – Survey Number	Depth of groundwater	
					Pre-monsoon	Post - monsoon
1	Thulakuzhichal-Kodanchira	Puliyoor	9	94	5.23	4.97
2	Kurattissery	Mannar	1	7	5.87	5.43
3	Kodukulanji-Cheruvallur	Ala	8	114	4.35	3.31
4	Piralassery	Mulakkuzha	2	162	4.32	4.49
5	Kodukulanji-Cheruvallur	Cheriyannadu	3	286	4.2	5.1

Water supply and irrigation

Drinking water supply is a major problem in the area. Other than few panchayats like Pandanadu, Mannar , Cheriyannadu, rest face acute shortage of water during summers. Other than piped water supply, people in the area are dependent on groundwater through open well, bore well and through ponds.

Pampa, Achencoil, Varattar are the natural water sources passing through the area. Pampa Irrigation Project's the main canal is passing through the block. It releases water unscientifically which causes water logging and flooding in the areas like Mulakkuzha, Venmoney, Cheriyannad, and Puliyoor hence making it unsuitable for paddy cultivation. Also the area is affected by floods at times. The frequency is not too high, but almost 11 villages gets affected and at times hit by drought. Thus the mismanagement of water is a major problem.

Demographic and Socio economic characteristics

Chengannur block has a population of 1, 73,843 as per 2011 census.

The watershed area has a total population of 94,200. Males are 45,990 in number and females are 48,210. Literacy rate of the project area is high and is 95%.

The details of watershed wise distribution of population are given below:

Population details of the project area

Watershed	Male	Female	Total
Mazhukkir	876	939	1815
Piralasseri	525	624	1149
Thulakuzhichal-Kodanchira	16155	16629	32784
Kurattikad-Mannar	7098	7359	14457
Kurattisseri	1344	1377	2721
Thiruvandoor	3150	3045	6195
Kollakadavu-Ilanjimel	8031	8454	16485
Kodukulanji-Cheruvallur	8811	9783	18594
Total	45990	48210	94200

The details of the population belonging to different caste, community, tribe is given below. Out of total, 15% belongs to Scheduled caste and 0.03% belongs to scheduled tribe.

Details of Population and various categories

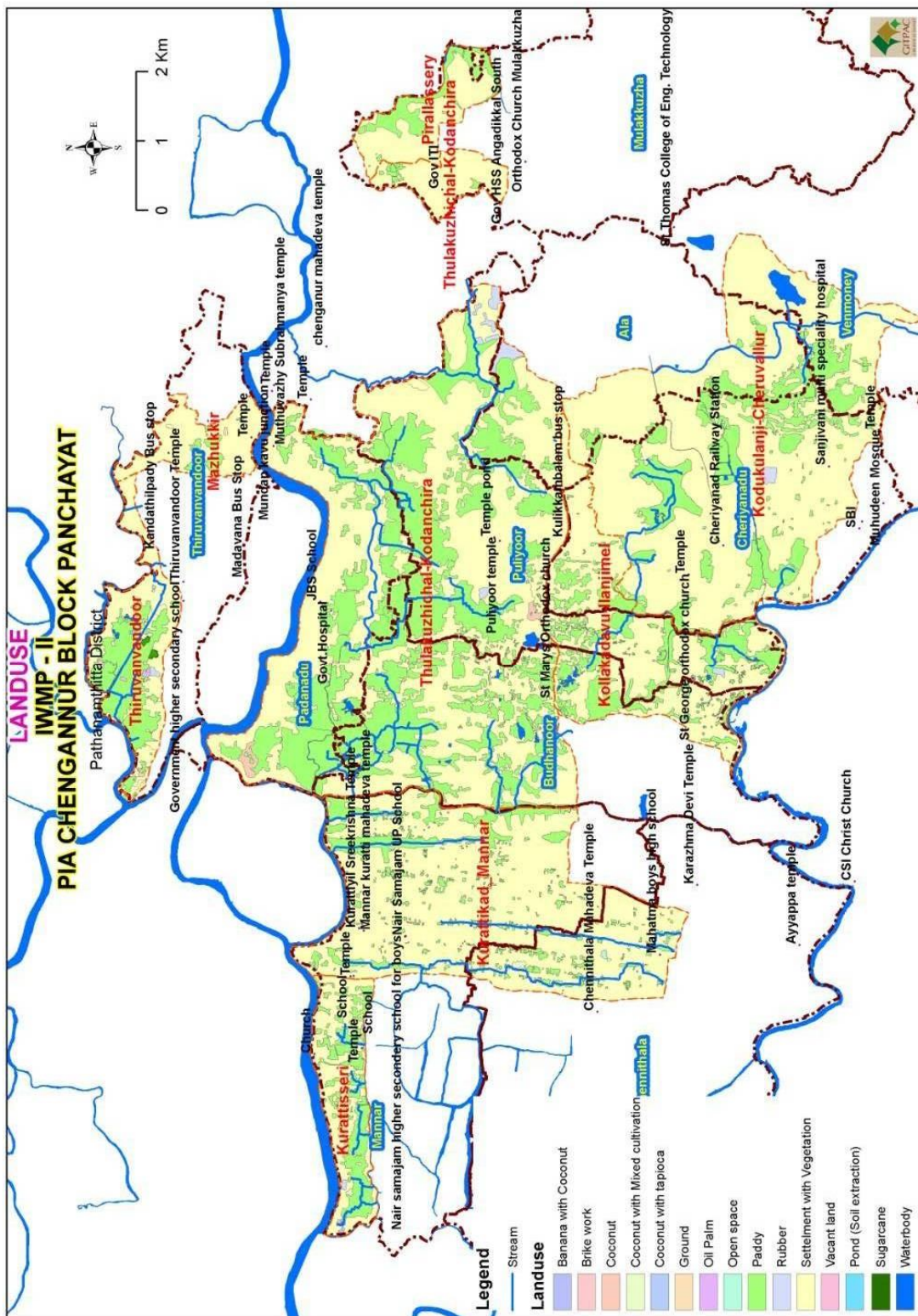
Watershed	SC	ST	General	OBC	Total
Mazhukkir	174	0	1425	216	1815
Piralasseri	258	0	864	27	1149
Thulakuzhichal-Kodanchira	7335	4	21503	3942	32784
Kurattikad-Mannar	882	14	11614	1947	14457
Kurattisseri	558	7	1661	495	2721
Thiruvandoor	1074	0	4518	603	6195
Kollakadavu-Ilanjimel	3648	1	10589	2247	16485
Kodukulanji-Cheruvallur	4500	0	10947	3147	18594
Total	18429	26	63121	12624	94200

Agriculture and present landuse

Table provides the broad landuse classification of the block area. From the table it is noted that item under homsted farming constitutes the major share of landuse in the block area. After this, paddy forms the second share. It is clear from the table that paddy is a major share of landuse in the region. Watershed activities need to be more concentrated around the management of low lands and paddy cultivation areas in the watersheds. Coconut and rubber forms nominal share of land uses.

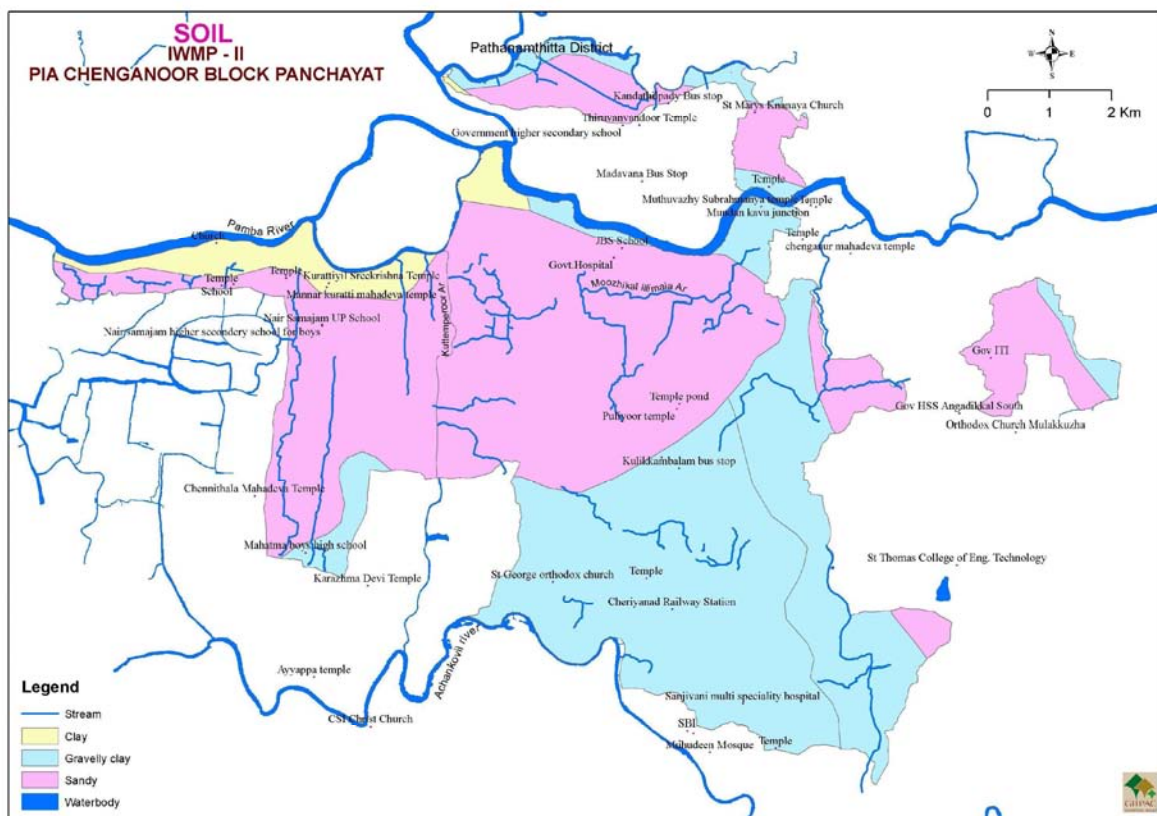
Details of Landuse pattern in the area

Sl.No	Landuse	Area Ha
1	Banana with Coconut	0.61
2	Coconut	14.27
3	Coconut with Mixed cultivation	3.83
4	Coconut with tapioca	0.20
5	Ground/Open space/ Vacant land	2.43
6	Oil Palm	1.15
7	Paddy	1968.23
8	Sugarcane	2.16
9	Rubber	28.91
10	Homestead farming	4710.88



Soil

Soil is classified based on texture. It has been classified in to three classes in the study area viz Clay, Gravelly Clay, and Sandy. The most part of the area agricultural activity practiced are paddy, coconut, vegetables, rubber, pepper etc. The major soil type is Sandy and it is found in North -West and North- East portion of the project area. More than 70 Percentage of the basin is seen in Sandy soil and it cover 3585 hectares of the area, about 30 Percentage of the area is found in Gravelly Clay and Clay is around 3234 hectares present in North and Southern tip of study area.



Methodology

Watershed is a geo-hydrological and biological unit draining through a common point called outlet. It is a dynamic system of living and non-living things. Watershed management can be simply described as development of physical and biological elements for sustainable and self-reliant interdependence. Such a development can be achieved through a complete understanding of a system and sub-system of the watershed. Hence, the exploration of all the elements of a watershed becomes an important component of watershed planning so as to efficiently address the needs of all the dependants.

The common guidelines for Watershed Development Projects 2008 provide a framework for the preparation of DPR under IWMP. The following methodology is adopted for the preparation of DPR under IWMP.

a) Marking of watershed boundaries accurately from the ground.

The boundaries of each watershed are marked with the help of Toposheet, Cadastral maps, Google maps, Watershed maps etc. The micro watershed boundaries are overlaid on cadastral map and the boundaries are corrected through ground truth verification. The final boundary demarcation has been done with the help of WDT and ward members.

b) Data Collection

The data collection is basically done through the participatory methods. The information about soil, water, biomass, agriculture situation, changes in agricultural practices etc. has been collected through participatory methods.

The project work starts with cadastral map of the area, with all survey numbers marked. The maps have been taken to the field during PRA and all details have been marked on this map. This includes information about the location of houses in the area, characteristics of land held by the household with respect to soil, water, agriculture, income, water supply methods, floods, draughts, fire etc. in the area.

The baseline data collection is based on a structural questionnaire which needs to be filled by each household. Each house owner shall fill up the details of the assets, land use and land utilization, land condition etc. Information about the socio economic condition, land ownership, survey numbers and details of crops, fallow land area etc, are also encoded.

Community participation is mobilized to take part in full activities.

c) Focus Group Discussion

Focus group discussion (FGD) was an effective way by which, we gathered together people from similar backgrounds or experiences to discuss a specific topic of interest. The group of participants were guided by a moderator (or group facilitator), who introduced the topics for discussion and helped the group to participate in a lively and natural discussion amongst themselves. FGDs were conducted for farmers, Padashekara samithis and dairy farmers etc. to understand the problems faced by them. The focus group discussions were preliminarily on the type of conservation methods which could be adopted for conservation of land, water, soil etc. in the given region.

d) Primary Data Collection

Primary data were collected using structured questionnaire from the field with the help of locals and officials. The surveys and discussions that were conducted are Socio economic survey, stakeholder survey, focus group discussions, PRAs etc. The major parameters like literacy, population, no.of houses, infrastructure status, livestock etc. were collected from these surveys and discussions. Detailed site inspections of each watershed were conducted. This included identification of problems, analyzing solutions which were incorporated in the proposals of each watershed.

e) Secondary Data Collection

All the data available through secondary sources were collected in the initial stages. Following are the major data collected:

- Block Development plans
- Mahatma Gandhi NREGA – Panchayat wise watershed reports
- Geology maps
- Cadastral maps
- Soil map
- Toposheet
- Administrative maps
- Panchayat Maps

Secondary data on NGO's, institutional setup, Groundwater table data, rainfall data etc. were also collected from the respective organizations. Maps of soil, geology, Administrative maps etc. were also collected from the concerned offices.

f) Data Analysis

Socio economic data analysis has been done through the statistical software “SPSS” and spatial Data have been analyzed using ArcGIS Software. From SPSS, data on social, economic and infrastructure status of the households were generated. Along with this, spatial data from ArcGIS helped in understanding the exact scenario of the watershed.

f) Identification of Entry point activities

The entry point activities were identified taking into account of potential as a model for replication, these were finalized after discussion with concerned authority and community. Entry point activity helps to brought rapport with the village community.

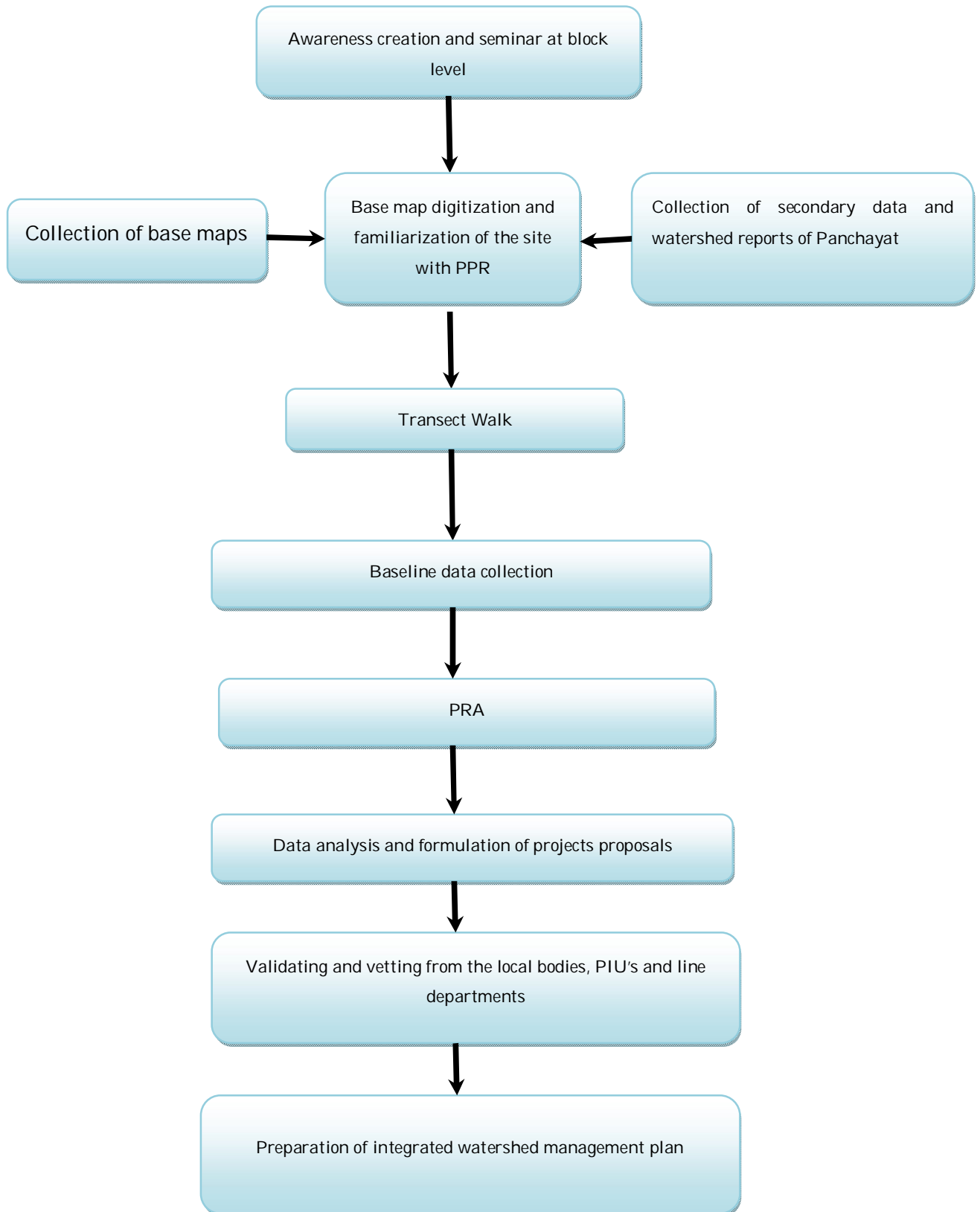
g) NRM activities

Natural Resource Management activities are identified through intensive PRA techniques for each micro watersheds and discussions with stakeholder’s like Self Reliance Groups, Elected representatives, Farmers group, Dairy Farmers group, Agricultural Department, Irrigation Department, and Fisheries Department etc. The projects are detailed out after their active participation and detailed estimation was also prepared.

h) Preparation of Watershed management plan

Compiling all of the above Integrated watershed management plan is prepared with focus to sustainability and overall development.

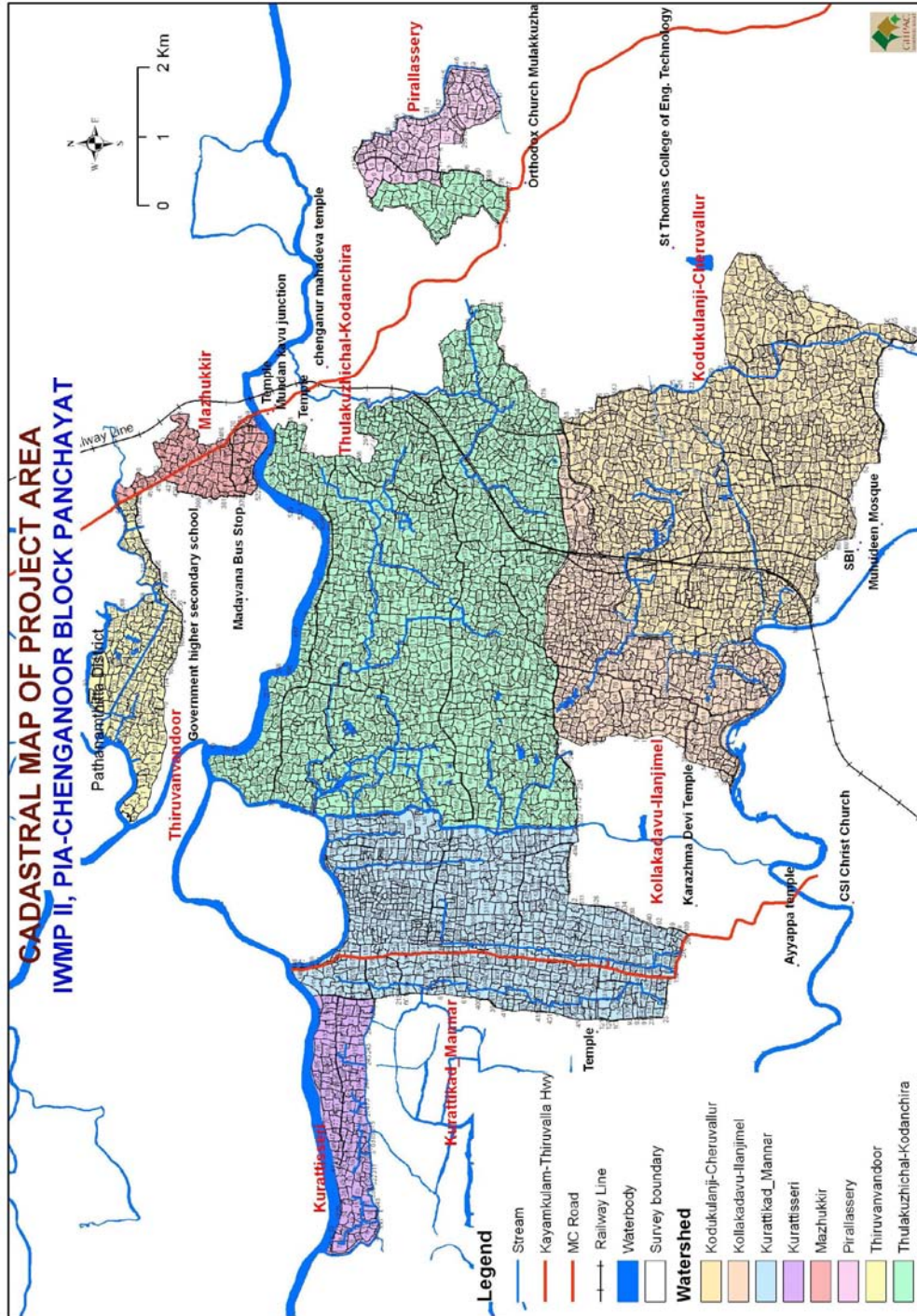
The methodology is shown in the flow chart below:



Funding Pattern of IWMP

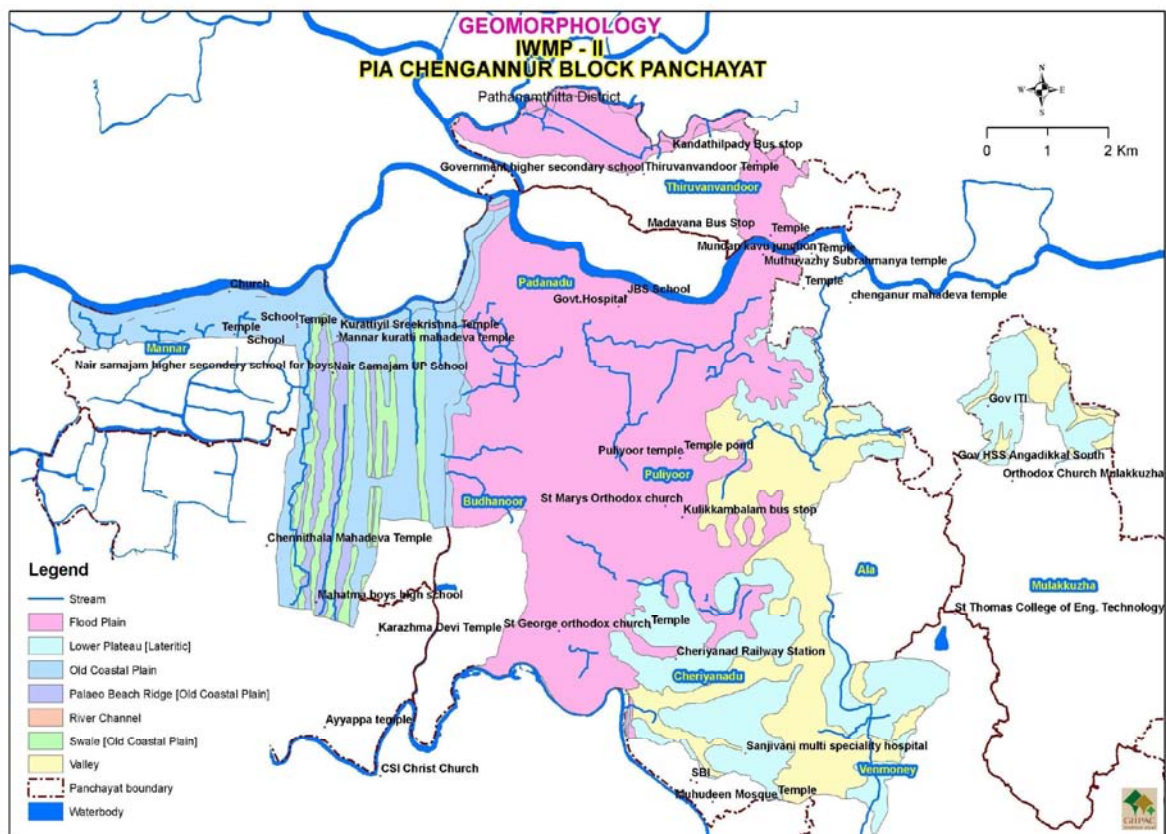
BUDGET COMPONENT	Share of the Total Budget (%)	Amount (Rs in lakhs)
MANAGEMENT COST		
Administrative Cost	10	81.83
Monitoring	1	8.18
Evaluation	1	8.18
PREPARTORY PHASE		
Entry point activities	4	32.73
Institution and Capacity building	5	40.91
Detailed Project Report (DPR)	1	8.18
WATERSHED WORK PHASE		
Watershed Development Works	56	458.24
Livelihood activities	9	73.65
Production system and micro enterprise	10	81.83
CONSOLIDATION PHASE	3	24.55
TOTAL	100	818.28

Cadastral map



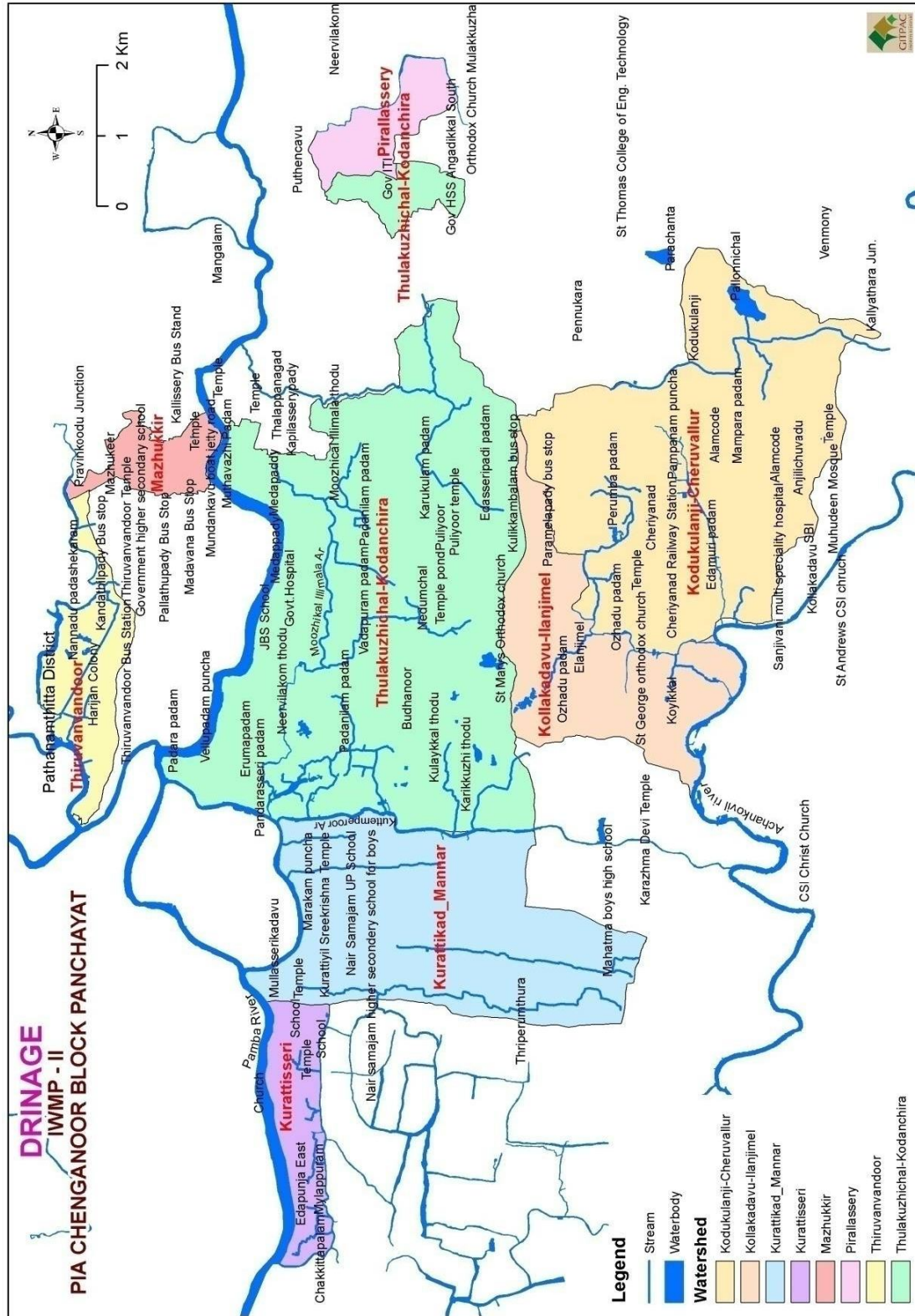
Geomorphology

The Chengannur block is geomorphologically not uniform. It is characterized with landforms resultant from both denudational as well as marine/coastal processes. Lateritic sloping terrain found on the southern and eastern part is formed by the denudation processes while the imprints of coastal/marine processes can be seen in the western, central and northern parts. Lowland geomorphology with imprints of prehistoric coastal/marine processes forms the major share of landforms of this block. Paleo beach ridge, Swale and Old coastal plains show the regression of sea from this area during the geological time.



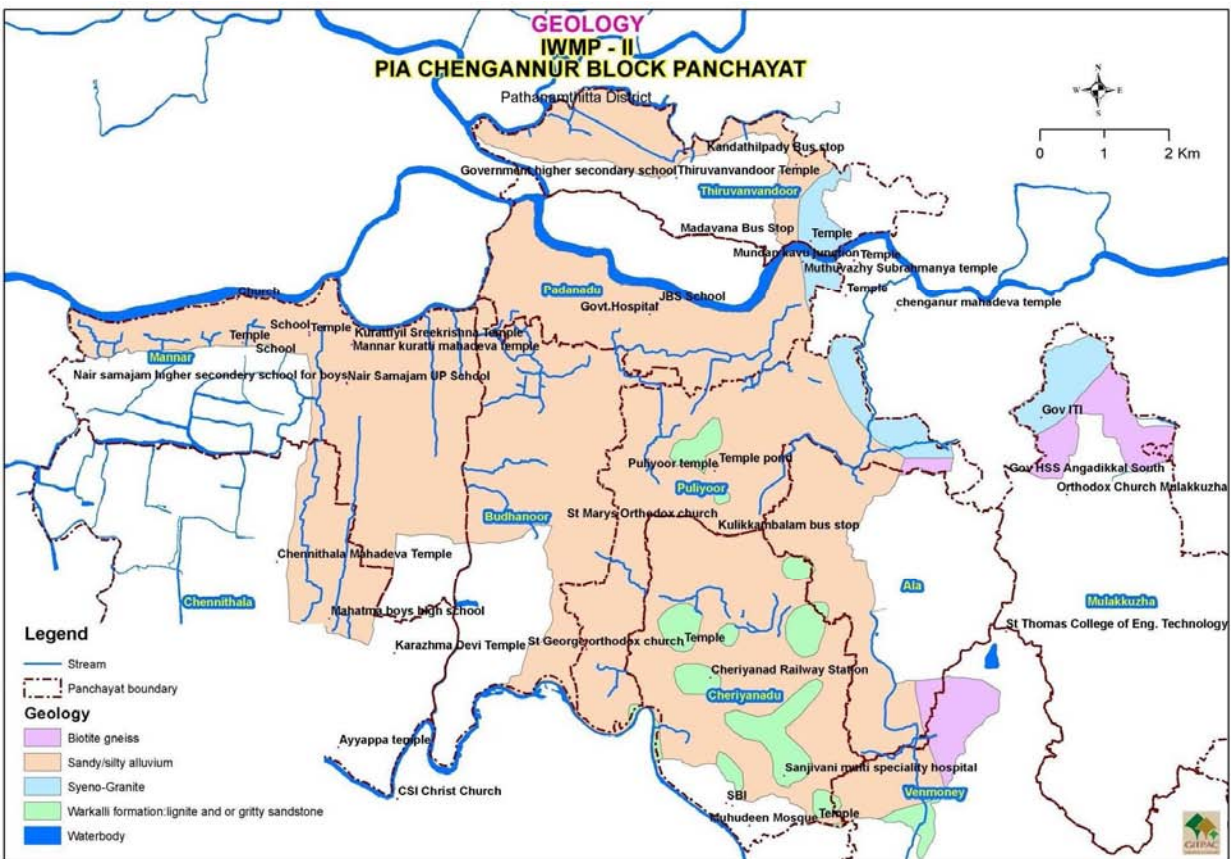
Drainage

The drainage pattern seen in the project area is amorphous pattern, with a slight lineage towards trellis pattern, flat terrain and human influence might be the reasons for the same. Most of the streams join the main stream in right angle; this may be due to human intervention for irrigation. The Kuttemperoor Ar which drains in a north-south direction links both Pamba and Achankovil Rivers and the water in Kuttemperoor Ar flows to both Rivers depending upon the water level of the Rivers.



Geology

Geologically, the project area is formed by quaternary sediments. Recent to sub-recent sediments are observed. The quaternaries in the project area are mainly of fluvial deposits process. Residual laterite formations are encountered in south-eastern parts of the district and Granites are encountered in and around Chengannur area. The Charnockite, Khondalite and Granites form the basement. Charnockites and Khondalites are encountered at depth. They are overlain by Tertiaries. The laterite/alluvial sediments overlay the Tertiaries. The major portion of the watershed under study comprises of sandy/silty alluvium. In Pirallaseri watershed, biotite gneiss and syeno-granite forms the geological formation of the region. There are traces of Syeno – Granite and sandstone in the eastern part of the block. These traces are mainly in Thulakkuzhichal Kodanchira, Kodukulanji Cheruvallor, Kurattissery, Kurattikkad Mannar, Thiruvanvandoor watersheds.



Demographic and Socio economic characteristics

Chengannur block has a population of 1,50,440 as per 2001 census. The watershed area has a total population of 94,200. Males are 45990 in number and females are 48210. Literacy rate of the project area is high and is 95%.

The details of water shed wise distribution of population is given below:

Population details of the project area

Watershed	Male	Female	Total
Mazhukkir	876	939	1815
Piralasseri	525	624	1149
Thulakuzhichal-Kodanchira	16155	16629	32784
Kurattikad-Mannar	7098	7359	14457
Kurattisseri	1344	1377	2721
Thiruvandoor	3150	3045	6195
Kollakadavu-Ilanjimel	8031	8454	16485
Kodukulanji-Cheruvallur	8811	9783	18594
Total	45990	48210	94200

The details of the population belonging to different caste, community, tribe is given below. Out of total, 15% belongs to Scheduled caste and .03% belongs to scheduled tribe.

Details of Population and various categories

Watershed	SC	ST	General	OBC	Total
Mazhukkir	174	0	1425	216	1815
Piralasseri	258	0	864	27	1149
Thulakuzhichal-Kodanchira	7335	4	21503	3942	32784
Kurattikad-Mannar	882	14	11614	1947	14457
Kurattisseri	558	7	1661	495	2721
Thiruvandoor	1074	0	4518	603	6195
Kollakadavu-Ilanjimel	3648	1	10589	2247	16485
Kodukulanji-Cheruvallur	4500	0	10947	3147	18594
Total	18429	26	63121	12624	94200

Educational Facilities in the Block:

There are no major institutions like Colleges in the water shed area. There are no major technical institutions in the watershed area. There are 13 High Schools, 8 Nos Higher Secondary School and 3 Nos Parallel colleges in this area.

Health Facilities in the Block:

There are no major health institutions in the block. There are 7 Nos PHC's, 2 Nos CHC's, 2 Nos Ayurveda Dispensaries in the area.

Credit Facilities:

There are 27 banks in this watershed area which include private and Nationalised banks.

Market Facilities:

There are 6 major markets in the watershed area. These are basically situated in the corresponding Panchayat centres.

Recreational Facilities in the Block:

There are no major recreational facilities found in the project area except school grounds and temple premises.

The table below gives the number of people living above and below poverty line in the watershed areas.

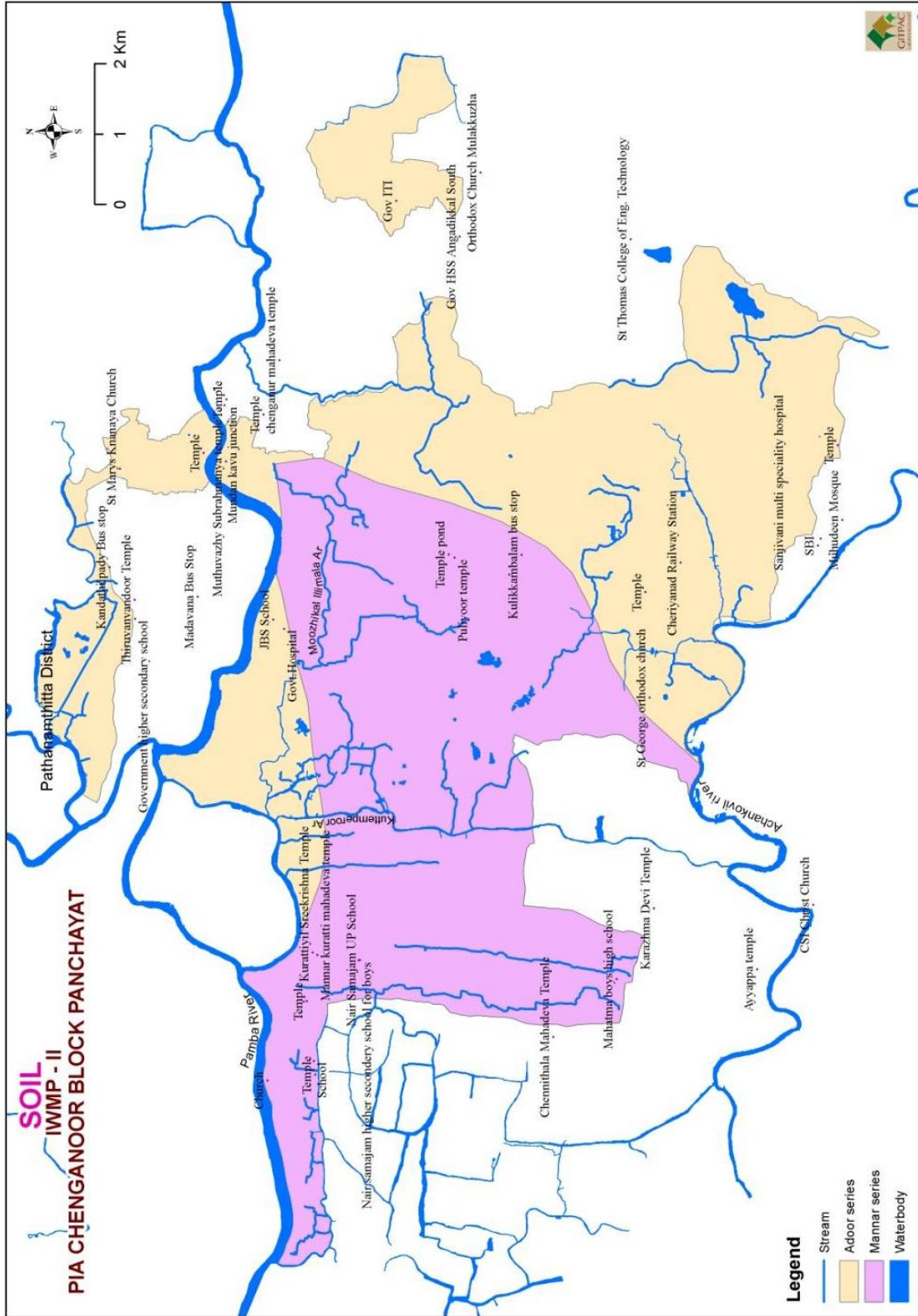
Watersheds	APL	BPL	Total
Mazhukkir	1059	756	1815
Piralasseri	369	780	1149
Thulakuzhichal-Kodanchira	16389	16395	32784
Kurattikad-Mannar	8361	6096	14457
Kurattisseri	1629	1092	2721
Thiruvanvandoor	3657	2538	6195
Kollakadavu-Ilanjimel	8409	8076	16485
Kodukulanji-Cheruvallur	8916	9678	18594
Total	48789	45411	94200

The existing livelihood options for the people are employment in agriculture, construction sector, wage labour in semi skilled and unskilled activities, trading etc. Middle and upper class are employed in service sector, government and large private enterprises. Agriculture is not the soul income anymore. Agricultural labour is part of the employment of the poor. For the poor families another major chunk is the income from MGNREGS. Lower income people also attempt animal husbandry with mixed

results. More often the cash income from such activities is not sufficient due to a number of factors. As a result of lack of job opportunities in the agriculture sector due to low productivity and poor income from land, people are migrating from the area. Thus inducing the farmer to fallow the land and search for better alternatives. As more and more people move to the urban areas seeking employment, whatever rural economic activities remain, gets weakened and faces a gradual demise. Only the people with constant and assured income or people who are unable to move remain in the villages. Thus a large chunk of land remains fallow and cultivation decreases. The details of number of people migrating from each watershed are given in the table below.

Soil

The major soil types of the area are gravelly clay, gravelly clay loam, and loamy sand. The cultivation of paddy, coconut, vegetables, rubber, pepper etc are common here. Major portion of the block in the Western side of the block constitutes to Mannar series and a portion of the watershed area falls in Adoor series in the Eastern part. Mannar series soil is generally found in lowland whereas Adoor series soil varies from sand to sandy loam soil and are grayish brown to dark brown in colour. The details of various micro soil types in the block area is The details of various crops in the area are given below:



Soil type of the watershed area

No	Name of the watershed	Major soil types		
		Gravelly clay loam(hectare)	Loamy sand (hectare)	Total (hectare)
1	Mazhukkir	143	0	143
2	Piralasseri	180	0	180
3	Thulakuzhichal-Kodanchira	1094	1430	2524
4	Kurattikad-Mannar	73	1096	1168
5	Kurattisseri	0	245	245
6	Thiruvanvandoor	266	0	272
7	Kollakadavu- Ilanjimel	319	326	646
8	Kodukulanji-Cheruvallur	1643	0	1643

Institutional building and Project management

Department of Local Self Government is the nodal department for the implementation of IWMP at the state level. State Level Nodal Agency (SLNA) is coordinating and providing guidelines for the effective planning and implementation of the individual IWMP projects. District Planning Committee (DPC) is responsible for the planning and implementation of the projects at the district level. To help the DPC and to coordinate the project level activities Watershed Cell Cum Data Centre (WCDC) is working at the District level.

Details of District Level Coordination Committee (DLCC)

Sl. No	Name	Designation
1	U Prabitha Hari, President Alappuzha District Panchayat	Chairman
2	N.Padmakumar, Collector, Alappuzha District	Member Secretary
3	K Vanajakumari , Project Manager, IWMP	Convener
4	Joint Programme Coordinator (MGNREGA)	Member
5	District Planning Officer	Member
6	District Animal Husbandry Officer	Member
7	District Soil Survey Officer	Member
8	District Soil Conservation Officer	Member

9	Deputy Director of Fisheries	Member
10	Executive Engineer, Minor irrigation/LSGD, Kerala Water Authority	Member
11	Divisional Forest Officers	Member
12	District Officer, Ground Water Department	Member
13	Representative, Kerala Rural Water Supply Agency	Member
14	District Mission Co-ordinator, Kudumbasree	Member
15	District Co-ordinator, Information Kerala Mission(IKM)	Member
16	District Co-ordinator, Horticulture Mission	Member

Institution building at Block Level

Chengannur Block Panchayat is the Project Implementation Agency (PIA) for this IWMP project. They are responsible for all the activities under the project starting from the preparation of Detailed Project Report (DPR) till the completion of project. A Block Level Coordination Committee(BLCC) has been formed for the timely implementation of the project and to provide help to the PIA in technical and administrative matters related to the project. Watershed Development Team (WDT) has been formed and started working under the PIA. Details of PIA are given below.

Details of Project Implementation Agency (PIA)

1	Name of the Project	IWMP-II/2011-12
2	Programme Implementation Agency	Chengannur Block Panchayat
3	Implementation Officer	Secretary, Chengannur Block Panchayat
4	Address of PIA	Secretary, Chengannur Block Alappuzha.
5	Telephone	04792464298
6	Email	bdochr@gmail.com

Details of Block Level Coordination Committee (BLCC)

Sl. No	Name	Designation
1	Bindhu Kaladharan Chengannur Block President (Panchayat)	Chairman
2	Kavitha, Block Panchayat President	Co-Chairman
3	Sreekumar, Block development officer, Chengannur	Member Secretary
4	A R Vijayalakshmi (Assistant Director (Agriculture))	Technical Expert
5	Joji Cheriyan, PIA Block Vice President	Member
6	Nirmala Mathew, Development Standing Committee Chairperson, Chengannur Block Panchayat.	Member
7	G Shyam Assistant Executive Engineer (LSGD)	Member
8	Samualkutty, President, Ala GP	Member
9	Rukmini, President, Budhanoor GP	Member
10	Vilasini Karunakaran, President, Cheriyanad GP	Member
11	Gopalakrishna Kurup, President, Mulakuzha Gp	Member
12	Valsala Mohan, President, Pandanad GP	Member
13	Rekha Reji, President, Puliyoore GP	Member
14	Thomas Kondody, President, Thiruvanvandoor GP	Member
15	Ajitha P.C, President, Venmony GP	Member
16	Sheeja Anil, President, Chenithala GP	Member
17	Valsala Balakrishnan, Mannar GP	Member
18	Athira. R, Representative, Technical Support Organization (TSO)	Member
19	Bineesh. S, Representative , Technical Expert, WCDC	Member
20	Shahina.R, Representative , Technical Expert, WDT	Member

Details of Watershed Development Team (WDT)

No.	Name	Age	Sex	Designation	Qualification
1	Neethu N Nair	22	F	Engineer (WDT member)	Diploma in Civil Engineering
2	Shahina R	24	F	Social Mobilizer (WDT member)	Master of Social Work
3	Ambili L	30	F	Data Entry Operator (DEO)	B Com, PGDCA
4	Ajith K	27	M	Agriculture assistant	ITI, horticulture

Institution building at Grama Panchayat (GP) Level

Watershed management works are implemented at Grama Panchayat level. The GPs supervise, support and advise Watershed Committee. The different institutions formed as part of IWMP are given below.

Watershed Committee (WC)

Watershed Committee has a pivotal role to play during and after the project implementation period. The dates of Neerthada Gramasabha convened in each watershed are given below. These Grama Sabhas constitutes the WCs for each watershed. These WCs will work as the subcommittees of GPs. In the case of Watersheds spread over more than one GP, separate subcommittees are formed in each GP to manage the watershed development project in the GP.

Details of Watershed Coordination committee (WCC)

Sl. No	Name	Designation
1	Panchayat President (Chenganur Block)	Chairman
2	Panchayat Presidents (Mavelikkara Block)	Co-Chairmen
3	Panchayat Secretary (Chenganur Block)	Member Secretary
4	Watershed Development Team (WDT)	Member
5	Technical Support Organization (TSO)	Member
6	Agriculture Officers	Member
7	Watershed Committee Secretaries	Member
8	Ward Members	Member

Details of Watershed Committees in the Project Area

Sl. No.	Name of the Micro Watershed	Name of the Committee Members	Phone numbers
1.	Kurattissery	Valsala Balakrishnan (Mannar G P President), Chairperson Prakash Moolayil-(SC) Laila Noushad-(landless) Kamala Mohan (women) Renjini Harikumar (ST) Ramesan K.K. (UG) Anil Manthra P.D. Sasidharan K.K. Sridharan T.C. Gopalan Sulphikker Ali (SHG)	9447256478 9947196313 9605059410 9947559939 9847629120 9349368001
2.	Piralassery	Gopalakrishna Kurup (Mulakkuzha G P President), Chairperson Thomas Martin (V.E.O Mulakkuzha G P),Secretary Madanan Mani Rajeswari Radhamani A.G Rajamma K. R Gopalakrishnan (SC) John M. P Sugathamma Surendran	9446193164 9495441312 8606293358 9947736172 04792467060 9656064906 9526792902 9747243522 9562300739
3.	Thulakuzhichal-Kodanchira	Rekha Reji (Puliyoor G P President), Chairperson Vavakuttan (V.E.O Puliyur G P),Secretary Ramani,12 Pushpa Hari,7 Rani Suresh,1 Lilly George,1 Maya Uthaman,8 Molamma Sabu,6 Ambika Sahadevan,12 Thankamani Raju,2 Sasikala, 1	9744563307 9745507115 9947650612 9747556882 9544088686 9961097510 9656766384 9745283359 9846442470 9747059869 9562691256

4.	Kollakadavu-Ilanjimel	Rekha Reji (Puliyoor G P President), Chairperson Binu V (V.E.O Puliyur G P), Secretary Chellamma Kunjachan,10 Ambili Baburaj,10 Vijayalakshmi,12 Elizebeth,11 Jayasree, 6 Ammini Divakaran,5 Geetha O. Pilla, 1 Usha Sukumaran,2 Sukumari Chandran	9744563307 9497674707 9496427496 9387945161 9745671445 9961025413 8606429470 9747858748 9947833178 9562420290 9961150529
5.	Thiruvanvandoor	Thomas Kondody (Thiruvanvandoor G P President), Chairman Sheela (V.E.O Thiruvanvandoor G P), Secretary Jittu Sunny, 2 Manju Mohan,2 Sindhu Abraham, 3 Kunjoonjamma John, 4 Mini Muralidharan, 4 Sujatha Padmakaran, Sobhana Mohan, 4 Latha Prasad, 4 Jaya Krishnankutty, 5	9496043682 9446405773 9526228997 9446170838 9605363383 0479-2429405 9947088985
6.	Mazhukkir	Thomas Kondody (Thiruvanvandoor G P President), Chairman Sheela (V.E.O Thiruvanvandoor G P), Secretary Kanakamma K. N Salaja Neelakandan (SHG) Joy Angeparambil (SHG) KO Uthupan Kovilan (SHG) V C Joseph Velluvanthanam (SHG) Thomas Kutti Vallyekkkal (SHG) Monachan Kuttuvelil (SHG)	9496043682 9446405773 9495909884 9562189626

7.	Kodukulanji-Cheruvalloor	Vilasini Karunakaran (Cheriyanaad G P President), Chairperson Soman (V.E.O Cheriyanaad G P), Secretary Karthikeyan, 15 (SC) Lilly Joy, 1 (landless) Pushpa M. Nair (woman) Athira, 6 (SHG) Surendran, 8 (UG) E. K. Goni. 14 Venmonv	9539488109 9446438097 9446918645 9567100577 9496157503 9605388685 9656537714
8.	Kurattikkad- Mannar	Valsala Balakrishnan (Mannar G P President), Chairperson Anandhan, 16 (SC) Ambili, 16 (ST) Ramachandran Nair, Chennithala Prasanna (SHG) Chennithala Ajitha Rajan, 16 Valsalakumari (women) Sudha Mohan (landless) Chennithala Thankamani (landless) A jaykumar	9447256478 9605349036 9249267644 9446422783 9961305623 8606558602 9495283983 9544471003 9744592209

Self Help Groups (SHGs)

There are many SHGs working in the project area already. These SHGs are registered in the Block. These groups are organized through credit and thrift activities. Some of the groups are also engaged in micro-enterprises also. These SHGs are formed either under SGSY scheme or under kudumbashree. Both women and men SHGs are active in the project area.

Details of the watershed SHGs in the project area are given below.

Details of SHGs as on August 2013

Name and code number of watershed	Watershed areas covered in Panchayats	If the watershed areas is spread over more than one GP, specify the number of wards	SHGs	
			Ward No	No of SHGs
Kollakadavu-Ilanjimal 9A7a	Ala	1	1	1
	Budhanoor	2	5,6	16
	Cheriyanaad	3	1,2,14	5

	Puliyoor	3	10,11,12	19
Thulakuzhichal-Kodanchira 10P61a	Ala	2	1,2	3
	Budhanoor	7	1,2,3,4,12,13,14	36
	Mulakkuzha	1	1	2
	Pandanad	9	5,6,7,8,9,10,11,12,13	14
	Puliyoor	11	1,2,3,4,5,6,7,8,9,12,13	47
Kodukulanji-Cheruvalloor 9A7c	Ala	5	7,8,9,10,13	4
	Cheriyamad	12	1,2,3,4,5,6,7,8,11,12,13,14	72
	Venmony	3	1,14,15	8
Pirlassery 10P60c	Mulakkuzha	2	1,2	4
Mazhukkir 10P12a	Thiruvandoor	4	6,7,10,11	3
Thiruvandoor 11M55a	Thiruvandoor	6	1,2,3,4,5,6	15
Kurattissery 10P63a	Mannar	4	1,2,3,4	12
Kurattikkad-Mannar 10P62a	Chennithala	5	3,4,5,6,13	7
	Mannar	13	5,6,7,8,9,10,11,12,13,15,16,17,18	16
Total				289

The SHG s based on categories are as follows

Category	Number of SHGs
SC	88
Minority group	20
Mixed	14
With only men	8
With women	159

User Groups (UGs)

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

Capacity Building Activities

One of the key features of the watershed development is the capacity building support. It is a crucial component to achieve the desired results from watershed development projects. Five percent of the total project cost has been earmarked for institution and capacity building. Following programmes are being done.

Training I: Awareness programme of IWMP

Training II: Awareness programme SHGs of IWMP

Training III: Awareness programme on Production System and Microenterprises (PS&M) and Livelihood Support System (LSS)

Training IV: Planning and implementation of projects related to creation of common assets

Training V: Concept of watershed management, roles and responsibilities

Training VI: Empowering peoples representatives for IWMP

Entry Point Activities

Introduction

Introduction of any new schemes and external interference of new groups are not easily accepted by the community. Entry Point Activities are those interventions identified by the community as felt needed during the initial interventions. So the EPA activities under IWMP help to build up a rapport with the village community. Entry Point Activities are part of community mobilization process to get more and more participation of the community in the watershed planning and to meet a part of community needs. According to the Common Guidelines of Integrated Watershed Management Programme (IWMP), 4% of the total project cost is earmarked for Entry Point Activities.

Entry Point Activities in the project area include construction of well recharging, rain water harvesting structures, establishment of biogas plants, cleaning and renovation of ponds and drains and various other activities.

The details of the entry point activities are given below:

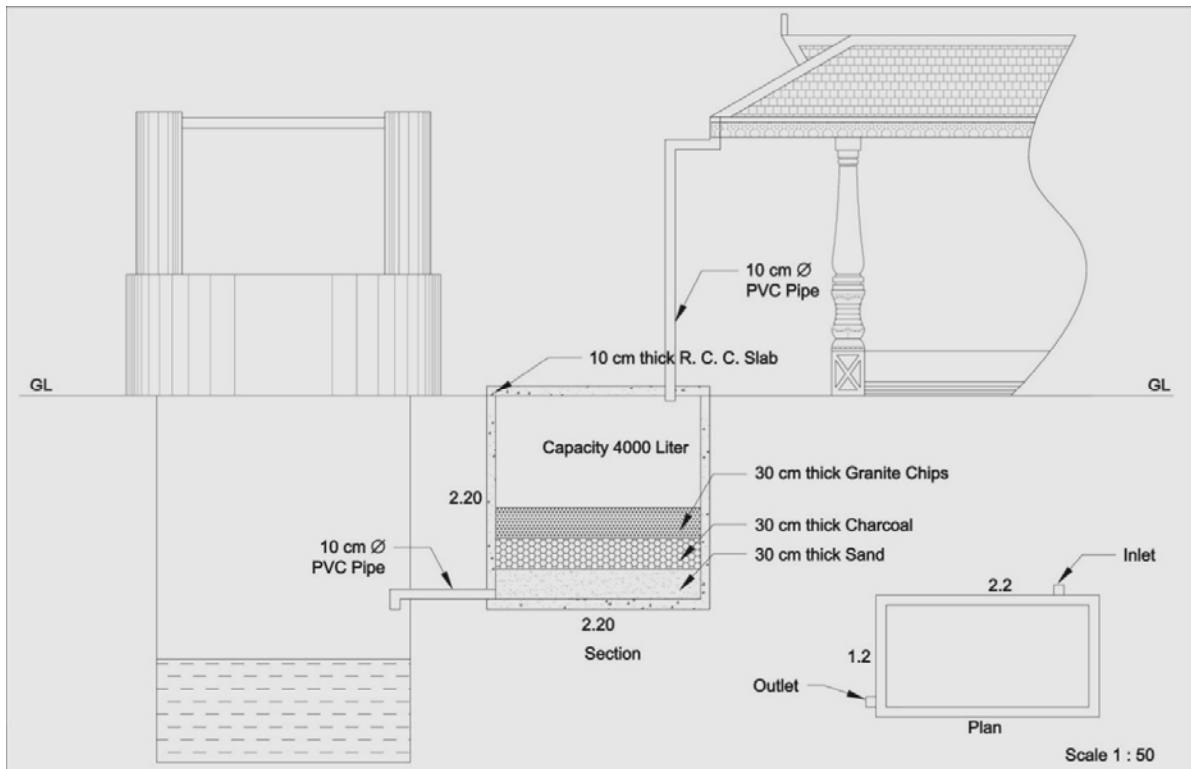
Entry point Activities

Sl no	Watershed	Grama panchayat	EPA	Ward number	Location (survey No.)	Estimated cost	Area Benefited(ha)	No.of families benefited	Name of agency
1	Thulakuzhichal – Kodanchira	Puliyoor	Well Recharging	9	Block office (183/1)	63,000	1.6	500	Block panchayat
2	Thulakuzhichal – Kodanchira	Puliyoor	Well Recharging	9	LSGD office(184)	67,000	1.6	500	Socio economic unit foundation
3	Thulakuzhichal – Kodanchira	Puliyoor	Rainwater Harvesting structure	9	GHSS (157/5)	2,41,000	1.17	179	Socio economic unit foundation
4	Thulakuzhichal – Kodanchira	Puliyoor	Biogas plant	8	Premetric hostel	80206	0.292	26	Socio economic unit foundation
5	Thulakuzhichal – Kodanchira	Budhanoor	Biogas plant	12	Women Canteen(12/3)	80,206	0.008	400	Socio economic unit foundation
6	Thulakuzhichal – Kodanchira	Budhanoor	Biogas plant	2	Budhanoor HSS(295/A)	81000	1.2	678	Socio economic unit foundation
7	Kurattikad-Mannar	Chennithala	Rainwater Harvesting	4	Navodaya School(132/11)	3,20,000	5.4	523	Socio economic

			structure						unit foundation
8	Kurattikad-Mannar	Mannar	Rainwater Harvesting structure	11	SKVHS(338/4)	2,41000	.312	307	Socio economic unit foundation
9	Kurattikad-Mannar	Mannar	Biogas plant	11	UPS Kuttamperoor	81000	0.564	230	Socio economic unit foundation
10	Kurattikad-Mannar	Mannar	Biogas plant	17	Nair Samajam HSS(635/5)	81000	2	3000	Socio economic unit foundation
11	Thiruvanvandoor	Thiruvanvandoor	Rainwater Harvesting structure	1	Ayappa college(10/1-28)	2,41,000	1.17	317	Socio economic unit foundation
12	Kollakadavu-Ilanjmel	Cheriy Nadu	Rainwater Harvesting structure	14	DBHSS(307/5)	2,33,000	1.2	420	Socio economic unit foundation
13	Kodukulanji-Cheruvallur	Ala	Rainwater Harvesting structure	8	JMHSS kodukulanji(602/2-1)	2,33,000	0.316	217	Socio economic unit foundation
14	Kodukulanji-Cheruvallur	Venmoney	Biogas plant	14	JBS (64/2-1)	81000	0.72	90	Socio economic unit foundation

15	Kodukulanji-Cheruvallur	Ala	Rain water harvesting structure	8	CMS UPS	2,41,000	1.2	126	Socio economic unit foundation
Total Amount						2,364,412			

Well recharging drawing and Estimate



Item No.	Description of Work	No.	Length	Breadth	Depth	Qty	Rate	Unit	Amount
1	Putting up ring bund 1m top width and 2m bottom width and height 2.5m with 1/2 split coconut post 5m long driving down 2m below bed level 60cm c/c both side and tying with 1/3 split coconut post and bamboos alternatively tied with coconut planted cudjan both sides and filling with clay and dismantling the bund after completion of work.	1	5			5	4009	M3	20045
2	Bailing out water with 5HP Engine and pump set including hire charges cost of fuel lubricating oil, pay of staff etc. complete.						1351	day	1351
3	Earth work excavation in loose clay in or under water and depositing the cut soil including lead and lift as per direction								
	Head wall 2No	2	5	1.3	1	13			
	Pipe portion		1.4	1.3	1	1.82			
	TOTAL					14.82	1263	/10 M3	1872
4	Dry Rubble masonry for foundation including all Charges Conveyance, Labour Charge etc. complete								
	Head wall	2	5	1.3	0.5	6.5			
	Pipe portion		1.4	1.3	0.5	0.91			
	Total					7.41	2096	M3	15531
5	Cement Concrete 1:4:8 using		4	1.3	0.1	0.52	5370	M3	2792

	40mm broken stone								
6	Providing R.C.C Spun pipe (NP2)900mm dia including conveyance and fitting charges, cost of all materials labour charges etc. complete.		5				3092	M	15460
7	Random Rubble masonry for super structure including all charges conveyance labor charges etc	2	5	(1+0.5)/2	2	15			
	Deduct pipe portion	2x3.14x0.45x0.45x0.78				0.99			
	Deduct PCC	2	1.3	1	0.1	0.26			
	Total					13.75	3682	M3	50628
8	Cement Concrete 1:3:6 using 20mm Broken stone for wearing coat including hire for form work water curing all labor charges etc. complete.	2	5	0.5	0.05	0.25	6810	dm3	1700
9	Earth Filling with gravelly earth cut and conveyed from available source including all cost etc. complete		2.5	2.5	2.5	15.625			
	Deduct pipe portion	3.14*0.45*0.45*2				1.272			
	less deduction					14.353	9059	10m3	13002
	L S and Unforeseen Charges								5119
	Total								127500

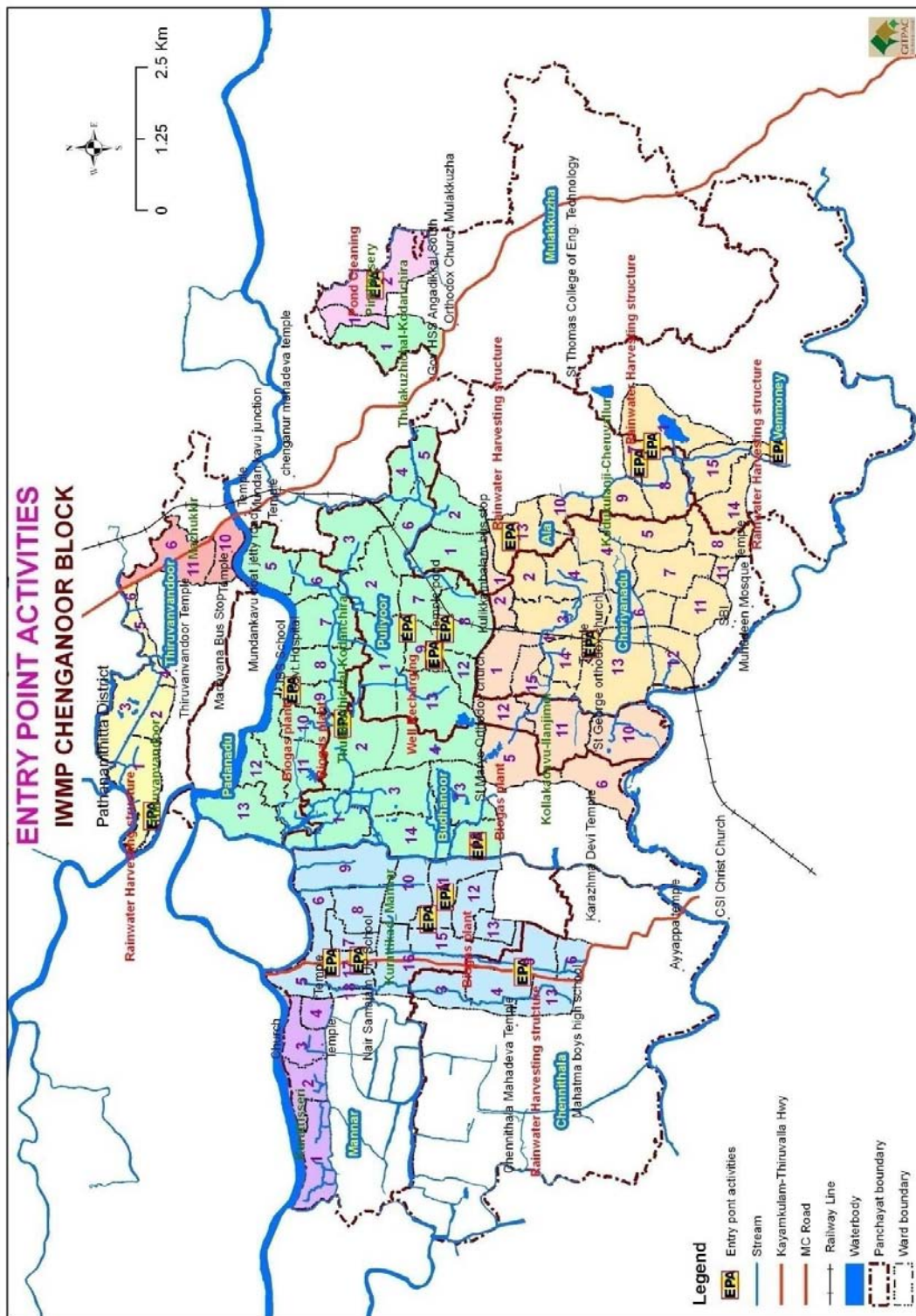
Expected outcomes from Entry Point Activities

The details of the various entry point activities with the pre-intervention status and the expected post-intervention status is given below:

Sl No	Activity	Present status	Expected Post intervention status
1	Rain Water Harvesting	Many areas are facing drinking water scarcity with	Harvested water can be used for many purposes

	structure	condition worsening in some areas.	and hence scarcity can be reduced to an extent
2	Well recharging	Acute drinking water shortage in the area	Rise in water table and increase in water levels.
3	Biogas plant	No proper waste disposal and hence unhygienic conditions prevail.	Proper disposal of waste along with availability of fuel. Thus energy can be obtained from waste and hygiene can be maintained.
4	Renovation of streams and ponds	Covered with waste and garbage, causing reduction/stoppage of flow, reduction in depth and silting thus affecting cultivation as water does not reach the ponds	Increased availability of water and there by increased productivity of agriculture.

Map showing Entry point activities



Problems to Be Addressed

Introduction

The treatment in a watershed depends on the specific problems faced by area. The eight watersheds in the project area face many common problems because of the similarities existing among the micro watersheds. The major problems identified through PRA techniques which have led to the identification of the interventions to be undertaken under the IWMP project are soil erosion, water scarcity, waste dumping, waterbody contamination, silt depositing etc. each watershed has specific problems mainly pertaining to water and agriculture related.

Problems in the Watershed Areas and Possible Interventions

No	Name	Area (Ha)	Problems	Interventions
1	Mazhukkir	143	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Rain water management issues	Rainwater harvesting interventions
2	Pirlassery	180	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Soil erosion due to steep slope	Contour bundings provided
			Water management issues and water scarcity issues	Well recharging ,rain water harvesting structures proposed

3	Thulakuzhichal – Kodanchira	252 2	Poor maintenance of bunds	Bund strengthening
			Unavailability of seeds and plants for agriculture	Agriculture nursery
			Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Siltation of natural streams	Desiltation of natural water channels, ponds and streams
			Poor maintenance of public wells	Public well maintenance
			Poor rain water tapping	Initiatives for water harvesting
			Waste management issues in public spaces	Introduction of bio gas plants
4	Kurattikad-Mannar	116 8	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Water management issues	Maintenance and management of culverts
			Poor maintenance of padasekharam bunds	Bund strengthening of padasekharam
			Poor water management	Maintanance of

			structures	waterharvesting structures
			Household level solid waste management issues	Alternate proposals for HH level solid waste management
5	Kurattisseri	245	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Water management issues	Maintenance and management of culverts
			Poor maintenance of padasekharam bunds	Bund strengthening of padasekharam
			Poor water management structures	Water flow structures maintenance
			Household level solid waste management issues	Alternate proposals for HH level solid waste management
6	Thiruvanvan door	272	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Water management issues	Water flow structures maintenance
			Rainwater improper management	Rainwater harvesting structures proposed
7	Kollakadavu -Ilanjmel	646	Siltation of natural streams	Desiltation of natural water channels, ponds and streams

			Poor maintenance of public wells	Public well maintenance
			Poor rain water tapping	Initiatives for water harvesting
			Waste management issues in public spaces	Introduction of bio gas plants
			Poor agriculture mechanization	Agriculture mechanization
			Water management issues, Water harvesting issues of wells	Well recharge interventions
8	Kodukulanji -Cheruvallur	1643	Unmanaged natural streams and their poor geometrics	Side protection, cleaning and deepening of natural water channels, ponds and streams
			Siltation of natural streams	Desiltation of natural water channels, ponds and streams
			Poor maintenance of public wells	Public well maintenance
			Poor rain water tapping	Initiatives for water harvesting
			Waste management issues in public spaces	Introduction of bio gas plants
			Poor agriculture mechanization	Agriculture mechanization
			Water management issues, Water harvesting	Well recharge interventions

			issues of wells	
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Natural Resource Management (NRM)

Natural resource management aims to maintain and improve natural resource base and provide a sustainable development of the area. People in the project area depend upon agriculture and allied activities for income and hence it is very important for sustaining the activities. Management of natural resources helps to enhance livelihood of the local community on a sustainable basis and increase the efficiency and productivity.

As identified, the main problems are mentioned in the earlier chapter. The solutions for these are identified in the NRM activities specific for each microwatershed detailed below.

a) Well recharging.

Groundwater is recharged naturally by rain and to a smaller extent by surface water. Man-made activities can result in loss of top-soil resulting in reduced water infiltration, enhanced surface runoff and reduction in recharge. Use of groundwater especially for irrigation, may also lower the water tables. Well recharging will help to increase groundwater and thus provide water for sustained use.

b) Contour bunding

The bunds will help in slowing the water run-off during rainstorms to prevent soil erosion and allow for the water to percolate in to the soil

c) Cleaning and desiltation of ponds and canals

Ponds and canals are the major source of water for domestic purposes. But now, people fear to use this water because of the waste and other weeds. The flow of canals has stopped due to waste dumping and ponds have been accumulated with wastes. It is very important to clean and make it useable for people. So by creating proper awareness, community should be encouraged to renovate existing ponds. The silt extracted from the ponds can be used to raise bund around the pond. This bund will prevent the entry of flood water into it.

d) Side protection of canals, ponds etc.

This will help in prevention of soil erosion and thus silting of ‘vachals’ and ponds.

e) Deepening of canals

Presently, most of the canals are filled with water hyacinth and silt. Removal of silt will increase the water storage capacity of the canal, which in turn, will help to improve safe water in wells and ponds. And also will help for irrigation.

f) Renovation of public well

Public wells presently are being used less due to its broken condition and water being filled with weeds and fungus. In many areas it is the only source of water and thus it is very important to restore it and make it useable by people.

g) Rainwater Harvesting Structure

This helps in storing water which can be used later. It prevents wasting of rain-water and using it whenever necessary. The main aim is to collect rain water using storage structures and prevent its runoff.

h) Biogas Plant

Biogas plant is used to bio-digest the bio-waste produced within the site and therefore produces energy for activities in and around the site. A proper waste disposal does not exist presently in the site, the place requires a strategy to get rid of the waste and a biogas plant is apt for it. This will contribute to lessening the health hazards, waste accumulation, water pollution, etc.

i) Creation of Motor Shed

This is a shed constructed to keep the pumping motor. A side of the field will be used to collect and store water and to distribute water from this area to rest of the field, motor is used. To keep it, motor shed will be constructed. It also facilitates mechanization for agricultural activities.

j) Vented Cross Bar

This is used to obstruct the flow of water and distribute water to the nearby fields. This acts as a shutter allowing the flow and obstruction of water, thus helping in irrigation of the fields.

k) Pipe Compost

Wastes from the households are not being disposed properly. Presently wastes from houses are being thrown into water bodies in plastic bags causing environmental pollution. Wastes from households can be disposed by using pipe compost.

l) Plant Nursery

A nursery is a place where plants are propagated and grown to usable size. It helps afforestation of waste land. This is provided to enhance the greenery and encourage plantation.

m) Afforestation

Afforestation refers to the conversion of wasteland into a woodland or forest. Afforestation is the best technique used to minimize the greenhouse effect. Therefore, there is constant necessity to develop afforestation programs in order to preserve and protect the forestry including the wasteland. Planting trees is good for ecology as a whole and also prevents soil erosion. Afforestation acts as a catchment for water and soil conservation.

Production System and Microenterprises

One important component in the Common Guidelines for Watershed Development Projects (2008) is to support production/farming system based livelihood activities and enterprises. 10% of the total project cost is assigned to support the production system and micro enterprises for land owning households. This component aims to diversify and to maximize the production and productivity of agriculture system as a whole and target the land holders with cascading benefits, landless agriculture labour, leased farmers and share croppers.

The activities/interventions related to Production System and Microenterprises planned for the project area are as follows:

a) Horticulture

Horticulture is very important in the project area because majority of population buy vegetable and fruits from shops which are grown in other states. Main objective is to engage people in cultivation of local vegetables. Vegetables and fruits like banana, mango, jack fruit, guava, vegetables, cow pea, ladies finger, brinjal, greater yam, drum stick, spinach, tapioca etc. can be grown in the area.

b) Food processing unit (chips, pickles, jam, catering units)

Food processing is a large sector that covers activities such as agriculture, horticulture, plantation, animal husbandry and fisheries. The food processing sector is critical to India's development, for it establishes a linkage between Industry and Agriculture. It has also emerged as one of the major Drivers of economic growth. It is significant to identify that while the GDP growth rate increased from 3.5 per cent in 2002-03 to 9 per cent in 2006-07, the food processing sector has grown from 7 per cent to 13 per cent during the same period. The food processing industry in India is one of the biggest in terms of production, growth, consumption and export.

In India, processing level is very low, ie. around 2 per cent for fruits and vegetables, 26 per cent for marine, 6 per cent for poultry and 20 per cent for buffalo meat as against 60-70 per cent in the developed countries. India's export of processed food in global trade is only 1.5 per cent. Value addition is around 20 per cent. The highest share of processed food is in the dairy sector, where 37 per cent of the total product is processed. So if the food processing sector taps the market at right time with right strategies it is sure that they can come up with profitable business. Primary food processing is a major industry with lakhs of rice mills/hullers, flour mills, pulse mills and oil seed mills. There are several thousands of bakeries, traditional foods units and fruit/vegetable /spice processing in the unorganized sector.

Kerala is rich in coconut, spices, fruits, vegetables, sea food and processed foods. The spices, pickles and the marine products are the major food product export from Kerala. There are mainly 1274 food processing units in Kerala alone. These processed units operate mainly in the small scale sector. The spices, pickles and the marine products are the major food product export from Kerala. The state could emerge as plantation based food products exporter through value addition. The food processing sector in the state commands nearly Rs 5000 crores in exports and has a potential to become Rs 30, 000 crore worth industry. Food processing industry (FPI) is significant to the Kerala economy on account of its contribution to the food requirements.

c) Animal Husbandry & Allied Activities

Animal husbandry, agriculture and allied activities have been the core livelihood for majority of the rural people since time immemorial. It provides productive employment, especially self employment and the most valuable supplementary income to a vast majority of rural households, majority are small and marginal farmers and landless laborers. Livestock provide increased economic stability to the poor masses. They act as

cash buffer in case of small stock and as captive reserve in case of larger stock. Livestock provide quality animal protein to human population in the form of milk, eggs, meat and value added products.

Animal husbandry is one sector which has high potential for growth. The potential of the sector needs to be exploited as this can play a key role in providing sustainable employment in their location itself and arrest migration of people to urban areas. As animal husbandry is an activity which can easily be taken up by rural communities as skill and resource requirements are minimal, inputs are locally available and marketing does not pose a major problem, it can act as an engine in poverty alleviation programmes by making asset less poor into income generating asset owing population. This will go a long way in not only augmenting food security, human security, empowerment of women and rural youths, 1 but will also help in triggering and invigorating the rural economy ultimately contributing significantly to the comprehensive socio-economic transformation of the State.

d) Vegetable seed production, planting material production and medicinal plant unit etc

The scheme of production and distribution of vegetable seeds is aimed at popularizing the use of quality seeds. It aims in creating infrastructure in the form of nurseries, tissue culture units in the country to provide quality planting material for the area expansion and replanting/rejuvenating of the old orchards. Assistance to farmers is given for establishment of small nurseries, tissue culture units, area expansion and training of farmers. The State Governments and public Institutions are also provided assistance for establishment of large nurseries, large tissue culture units and for generation of publicity material etc.

The scheme of medicinal and aromatic plants aims at preserving and cultivating the various medicinal and aromatic plants because lack of systematic collections and conservation of medicinal and aromatic plants and lack of awareness about the commercial cultivation and on farm processing can lead to depletion of the herbal wealth in the country. Some of the herbs might have been extinct and many may be on the verge of extinction due to the over exploitation. The scheme aims at protecting the genetic wealth in medicinal and aromatic herbs of the country by promoting commercial cultivation of commercially demanded herbs and by preserving the endangered species in the herbal gardens.

e) Fish processing unit

India has the largest marine products and processing potential with varied fish resources along with 8041 km long coastal line, 28000 km of Rivers and millions of hectares of reservoirs. Considerable infrastructure facilities for processing marine products have been developed over a period of time. At present, there are over 372 freezing units with a daily processing capacity of 138229.10 tones.

Kerala is one of the most important maritime states in the country, contributing significantly to the Indian Seafood Industry. There are about 287 seafood exporters in Kerala, with 124 Processing plants, 169 Cold Storages, with a total storage capacity of 23086.50, which are the highest figures in the country. About 90% of the present production from the marine sector is from within a depth range of up to 50 to 70 meters and remaining 10% from depths extending up to 200 meters.

The major marine products exported from the State include Frozen Shrimp/ Prawn/ Fish/ Cuttle Fish/ Squid, Dried items like Shrimp/ Shark Fins/ Cuttle Fish bones/ Fish Maws, Canned Shrimps/ Fish, Lobster, Crab, Clam, Mussel, Squid tubes, Aquarium fishes, Fresh fish, etc.

f) Eco-friendly products making units (Bamboo products, paper and cloth bags, handicraft products, clay works, herbal products etc)

Bamboos were found abundant in the forest and home gardens in Kerala. Until recently, every village and almost every medium/large household used to have its own sufficient stock of bamboos. If Kerala is considered as a conglomeration of villages now defined as the panchayats, every panchayat had its bamboo working artisan families from the traditional communities. It was this traditional family of artisans, especially from the paraya (SC) community, who satisfied the requirements of the agrarian economy. Baskets, mats and winnowers were the main items produced. Eco friendly products like paper, cloths bags, handicraft products etc can take up as major activity for production system.

Livelihood Support

The Common Guidelines for Watershed Development Projects (2008) gives priority for livelihood support for land-less/asset-less persons. 9% of the total project cost is assigned to support the livelihood activities for land-less/asset-less households. This aims to maximize the utilization of potential generated by watershed activities and to

create sustainable livelihoods and enhanced incomes for households within the watershed area. It also facilitates inclusiveness through enhanced livelihood opportunities for the poor through investment into assets, improvements in productivity and income, access of the poor to common resources and to augment and benefit the livelihood strategy at household level.

The guiding principles for Livelihood improvement are:

1. Livelihood improvement initiatives that emphasize on natural resource based activities and conform to principles of equity, gender sensitivity and transparency.
2. Livelihood guidelines for land-less/asset-less households aims at improved household income, participation and division of labour, access to information, knowledge, appropriate technologies and resources.

The activities/interventions related to livelihood improvement for the project area are as follows:

- a. Poultry
- b. Cattle Rearing
- c. Mushroom Cultivation
- d. Pisci culture
- e. Vegetable Cultivation
- f. Api Culture
- g. Flower farming

Scope of Convergence

The various activities of IWMP can be converged with various other departments. The following are the departments with which the works can be converged.

Sl. No.	Type of intervention	Department/Schemes which can be converged with IWMP
1	Promotion of cultivation	1. Department of Agriculture 2. LSGD 3. MGNREGA
2	Drainage, Irrigation Bund creation	1. Department of Major Irrigation 2. Department of Minor Irrigation 3. MGNREGA 4. LSGD 5. MPLAD / MLA LAD



3	Afforestation	1. MGNREGA 2. LSGD 3. Department of Social Forestry
4	Horticulture	1. Department of Agriculture 2. MGNREGA 3. LSGD
5	Fish Culture	1. Department of Fisheries

Detailed Action Plan

Funding pattern

The detailed action plan shows the funding pattern distribution, detailed estimates and various works taken up. A total of 818.28 lakhs is being allocated for the works. The distribution of funds is as follows.

BUDGET COMPONENT	Share of the Total Budget (%)	Amount (Rs in lakhs)
MANAGEMENT COST		
Administrative Cost	10	81.83
Monitoring	1	8.18
Evaluation	1	8.18
PREPARTORY PHASE		
Entry point activities	4	32.73
Institution and Capacity building	5	40.91
Detailed Project Report (DPR)	1	8.18
WATERSHED WORK PHASE		
Watershed Development Works	56	458.24
Livelihood activities	9	73.65
Production system and micro enterprise	10	81.83
CONSOLIDATION PHASE		
	3	24.55
TOTAL	100	818.28

Information, Education & Communication (IEC) activities

Total amount allocated (IEC, Capacity Building activities) - 40,91,400/

Information, Education & Communication (IEC) activities

SI No	Particulars	Executing Agency	Estimate	Expected outcome
1	Brochure	PIA	175000	Distributing to all households through SHGs and UGs to make aware of the Programme
2	Wall Paintings	PIA	75000	Wall Paintings at prominent locations
3	Posters	PIA	100000	Advocacy campaign with the help of community based organizations for conservation of bio-diversity.
4	Display Holdings	PIA	150000	Installation of hoardings to sensitize public.
5	Exposure Visit	PIA	75000	To visit places where trainings providing for skilled activities
6	Booklet	PIA	100000	Printing booklet on importance of rain water harvesting, biodiversity conservation etc for the students
7	Awariness Class	PIA&TSO	125000	To sensitize public on various topics

Capacity building at community level

This will be implemented by PIA with the help of TSO.

Training No I

1	Title of the training programme	Awareness programme of IWMP
2	Rationale	The need for watershed based development programs, concepts involved in watershed development, IWMP-its objectives, steps involved in the implementation of the program, financial management etc
3	Objectives	<ul style="list-style-type: none"> • To create awareness among the peoples representatives regarding the need for watershed based development programs • Concepts of IWMP • Projects involved in the programs • Scope of the project • Roles and responsibilities • Financial management
4	Target group	Peoples' Representatives in Watershed Area
5	Duration	1 day
6	No of participants	200
7	No of batches	1
8	Expected outcomes	Ensure smooth implementation of the projects, interfere with issues if any while implementation, financial transparency, ensure peoples participation etc
9	Estimated Amount	Rs.50000

Training No II.

1	Title of the training programme	Awareness programme SHGs of IWMP
2	Rationale	The watershed community must be made aware of the programme, its concepts, the need of the hour, motivate them to become part of the programme.
3	Objectives	<ul style="list-style-type: none"> • To familiarize the concept of IWMP • To familiarize the basics of watershed • The scope of watershed development in their area. • Various activities proposed under NRM, PS&M and LSS. • To ensure their participation for the success of the project.
4	Target group	Watershed Community
5	Duration	1 day
6	No of participants	50 per Batch
7	No of batches	8
8	Expected outcomes	Community awareness and ensure peoples participation
9	Estimated Amount	Rs.1,30000

Training No. III.

1	Title of the training programme	Awareness programme on Production System and Microenterprises (PS&M) and Livelihood Support System (LSS)
2	Rationale	The watershed community must be made aware of the various PS&M and LSS programmes envisaged in the project, group formation, credit support through banks, Accounting procedures etc.
3	Objectives	<ul style="list-style-type: none"> • To motivate the community to initiate various PS&M. • To generate additional income for such activities. • To attain self-sustainability. • d. To ensure women empowerment.
4	Target group	SHGs: rearing cattle, fodder cultivation, Pisciculture, Apiculture,

		Horticulture, Mushroom cultivation, Food processing etc.
5	Duration	1 day
6	No of participants	50
7	No of batches	100 Batches
8	Expected outcomes	Increase the standard of living through increase in per-capita income, attain self-sustainability etc.
9	Estimated Amount	Rs.16,250,00

Training No. IV.

1	Title of the training programme	Planning and implementation of projects related to creation of common assets
2	Rationale	Creating awareness among UGs regarding the mode of creation of common assets
3	Objectives	<ul style="list-style-type: none"> • Make aware the UGs regarding their responsibility • The need for establishing common assets • The mode of operation in establishing common assets • Financial procedures involved
4	Target group	UGs
5	Duration	1 day
6	No of participants	50 per Batch
7	No of batches	8 batches (one per one Watershed)
8	Expected outcomes	Empower the UGs to take up the responsibility of creating common assets as well as their future maintenance
9	Estimated Amount	Rs.1,300,00

Training No. V.

1	Title of the training programme	Concept of watershed management, roles and responsibilities
2	Rationale	Impart awareness among the watershed committees regarding the concept of watershed management, roles and responsibilities, operational guidelines, financial management etc.

3	Objectives	<ul style="list-style-type: none"> To create awareness among the WCs regarding the concept of watershed management To define the roles and responsibilities of WC Financial management of the project Management of WDF
4	Target group	WCs
5	Duration	1 day
6	No of participants	40 per Batch
7	No of batches	3
8	Expected outcomes	Empowerment of WCs for effective implementation of the project and proper maintenance of commonly created assets
9	Estimated Amount	Rs.49400/-

Training No. VI.

1	Title of the training programme	Empowering peoples representatives for IWMP
2	Rationale	The need for watershed based development programs, concepts involved in watershed development, IWMP-its objectives, steps involved in the implementation of the program, financial management etc
3	Objectives	<ul style="list-style-type: none"> To create awareness among the peoples representatives regarding the need for watershed based development programs Concepts of IWMP Projects involved in the programs Scope of the project Roles and responsibilities Financial management
4	Target group	District, block and Grama Panchayath members
5	Duration	2 days
6	No of participants	60 per Batch
7	No of batches	2 batches
8	Expected outcomes	Ensure smooth implementation of the projects, interfere with issues if any while implementation, financial transparency, ensure peoples participation etc.
9	Estimated Amount	Rs.94800/-

IWMP Skill Development Training Financial Plan

Skill development plan

Sl. No	Name of Activity	No. Of Groups	Strength for each Group	Total Nos to be trained	Expenditure per head for one day	Expenditure per Batch	No of Batches	Batch wise expense	No of days	Total Amount
1	Horti Culture(Green)	5	10	50	210	2300	1	2300	2	23300
2	Api Culture	6	60	60	210	2300	1.2	2760	2	27960
3	Mush room	10	100	100	210	2300	2	4600	2	46600
4	Cattle Rearing	100	900	1000	210	2300	20	46000	1	256000
5	Goat farming	70	750	700	210	2300	14	32200	1	179200
6	Eggary Birds	60	500	600	210	2300	12	27600	1	153600
7	Vegetable Cultivation	60	800	600	210	2300	12	27600	2	279600
8	Pisci Culture	10	150	100	210	2300	2	4600	2	46600
9	Food Processing	10	100	100	210	2300	2	4600	2	46600
10	Other activities	6	100	600	210	2300	12	27600	1	153600
Total		337	3470	3910	2100	23000	78.2	179860	16	12,13,060

Total Amount allocated for Capacity Building Plan as per the above

Training Plan - 20,792,00/-

Skill Development Program as per the Separate Plan - 12,13,060 /-

IEC Activities - 8,000000/-

Total - 40,91,400/

Detailed action plan for Natural Resource management activities

The various NRM activities are detailed out and its action plan along with phase wise distribution is given in the tables below:

Abstract of Natural Resource Management Activities						
Sl No.	Watershed	Watershed Code	Cost			
			IWMP	MGNREGA	Other Convergence	TOTAL
1	Pirallassery	10P60c	11.58	1.30	0.00	12.88
2	Kodukulanji- Cheruvallur	9A7c	109.96	31.97	23.20	165.13
3	Thulakuzhichal- Kodanchira	10P61a	173.13	50.99	9.35	233.47
4	Kurattissery	10P63a	15.90	0.74	1.38	18.02
5	Kurattikad-Mannar	10P62a	76.51	11.32	0.72	88.55
6	Kollakadavu-Ilanjimeel	9A7a	42.49	13.05	0.00	55.54
7	Thiruvanvandoor	11M55a	18.93	11.19	0	30.12
8	Mazhukkir	10P12a	9.73	2.05	0.19	11.97
Grand Total			458.23	122.61	34.84	615.68

Natural Resource Management Activities

Natural Resource Management Activities								
SI No.	Watershed Code	Panchayath	Ward	Work	Amount (in Lakhs)			
					IWMP	MGNREGA	OC	TOTAL
1	Pirallassery Watershed (10P60c)							
1	10P60c	Mulakkuzha	1	Well Recharging (25 Nos.) in Nikarumpuram	2.50			2.50
2	10P60c	Mulakkuzha	1	Rain water pits for well recharging(25 Nos.) in Nikarumpuram		0.17		0.17
3	10P60c	Mulakkuzha	1	Contour bunding Nikarumpuram	1.19			1.19
4	10P60c	Mulakkuzha	1	Rain water pits 1*1*1 (120 Nos.) in Ward1		0.80		0.80
5	10P60c	Mulakkuzha	2	Well Recharging in Ariyattathu Bhagom(50 Nos.)	5.00			5.00
6	10P60c	Mulakkuzha	2	Rain water pits 2*2*2 (50 Nos.)		0.33		0.33
7	10P60c	Mulakkuzha	2	Cleaning Desiltation of Thachakottu pond.	4.20			4.20
8	10P60c	Mulakkuzha	1,2	Afforestation	0.19			0.19
9	10P60c	Mulakkuzha	2	Contour bunding in survey no: 8 & 9	1.50			1.50
				Total	14.58	1.30	0.0	15.88
2	Kodukulanji- Cheruvallur Watershed (9A7c)							
1	9A7c	Cheriyyanadu	2	Side Protection of Mozhanthara Perumba padam thodu.	4.13		16.5	20.63
2	9A7c	Cheriyyanadu	2	Cleaning and Deepening of Mozhanthara Perumba padam thodu.		0.4		0.4
3	9A7c	Cheriyyanadu	3	Renovation of Public well and Well recharging(1 No.)	0.28			0.28
4	9A7c	Cheriyyanadu	3	Renovation of Public well(1 No.)	0.2			0.2
5	9A7c	Cheriyyanadu	4	Desiltation and Side protection of Kallupathikuzhy Pond.	5.64			5.64
6	9A7c	Cheriyyanadu	4	Cleaning and deepening of Kallupathikuzhy Pond and Thodu starting from Kallupathikuzhy Pond leads to Padasekharam..		1.3		1.3

7	9A7c	Cheriyyanadu	5	Renovation of Public well (1 No.)	0.21			0.21
8	9A7c	Cheriyyanadu	6	Water harvesting structure for Sree Vijayeshwary HS	2.33			2.33
9	9A7c	Cheriyyanadu	6	Side protection of Edamuri thodu leading to Pampanam Puncta.	4.6			4.6
10	9A7c	Cheriyyanadu	6	Cleaning and deepening of Edamuri thodu leading to Pampanam Puncta.		0.83		0.83
11	9A7c	Cheriyyanadu	7	Desiltation and Side protection of Aalakkottu pond.	9.93			9.93
12	9A7c	Cheriyyanadu	7	Formation of thodu from Aalakkottu pond towards drairage channel.		1.4		1.4
13	9A7c	Cheriyyanadu	7	Formation of Bio-gas plant for Govt: Mohammadans high school(1 No.)	0.81			0.81
14	9A7c	Cheriyyanadu	7	Renovation of Public well(1 No.) near Govt: Mohammadans high school	0.17			0.17
15	9A7c	Cheriyyanadu	8	Side protection of thodu from Cashew nut factory towards Pannikkuzhy.	8.71			8.71
16	9A7c	Cheriyyanadu	8	Cleaning and deepening of thodu from Cassue nut factory towards Pannikkuzhy.		0.85		0.85
17	9A7c	Cheriyyanadu	11	Side Protection of Koppayi thodu from Kavalaykkal Village office to Registrar office.	11.65			11.65
18	9A7c	Cheriyyanadu	11	Cleaning and deepening of Koppayi thodu from Kavalaykkal Vilege office to Reistrar office.		0.56		0.56
19	9A7c	Cheriyyanadu	11	Side Protection of Koppayi thodu from Kavalaykkal Village office to Registrar office.			6.7	6.7
20	9A7c	Cheriyyanadu	13	Desiltation and Side protection of Cherukara kavu Pond.	3.47			3.47
21	9A7c	Cheriyyanadu	13	Deepening and Cleaning of Thevalakulam Chal Thodu.		1.01		1.01
22	9A7c	Cheriyyanadu	14	Side Protection of Chengottu Padasekharam thodu.	3.03			3.03
23	9A7c	Cheriyyanadu	14	Deepening and Cleaning of Chengottu Padasekharam thodu.		0.25		0.25
24	9A7c	Cheriyyanadu	14	To facilitate mechanisation for agricultural work (1 No.)	0.75			0.75

25	9A7c	Cheriyyanadu	14	Cleaning of Padasekharam		0.2		0.2
26	9A7c	Cheriyyanadu	14	Desiltation and Side protection of Plakkattil Pond.	3.4			3.4
27	9A7c	Cheriyyanadu	15	Side Protection of Kayalody puncha.	5.51			5.51
28	9A7c	Ala	8	Recharging of well (30 No.)	3			3
29	9A7c	Ala	9	Side protection of Mampuzha North to Mampra padasekharam thodu	8.87			8.87
30	9A7c	Ala	9	Cleaning and Deepening of thodu leads to Mampara padasekharam.		1.5		1.5
31	9A7c	Ala	10	Cleaning and Deepening side protection of Karivalam Nedumthodu.		10.05		10.05
32	9A7c	Ala	10	Formation of Vented Cross Bar for distributory of Varattar (1 No.)	3.45			3.45
33	9A7c	Ala	10	Deepening of thodu from Thekketharapady leads to plathottathilpady.	3.84			3.84
34	9A7c	Ala	10	Cleaning and Deepening side protection from Thekketharapady leads to plathottathilpady.		11.48		11.48
35	9A7c	Ala	13	Side protection of Peroor thodu leads Ala padasekharam.	3.73			3.73
36	9A7c	Ala	13	Cleaning and Deepening of Peroor thodu leads Ala padasekharam.		0.08		0.08
37	9A7c	Ala	13	Side protection of Ala padasekharam thodu	8.58			8.58
38	9A7c	Ala	13	Cleaning and Deepening of Ala padasekharam thodu.		0.2		0.2
39	9A7c	Venmoney	1	Desiltation of Thodu leading from Pallonni chal	6			6
40	9A7c	Venmoney	1	Well Recharging (30 Nos.)	3			3
41	9A7c	Venmoney	1	Rain water pits 2m x 2m x 2m		0.15		0.15
42	9A7c	Venmoney	15	Side protection for Thazhathu temple pond.	2.28			2.28
43	9A7c	Venmoney	15	Desiltation of Thazhathu temple pond.		1.71		1.71
44	9A7c	Venmoney	15	Pipe Culvert for Thazhathu temple to Mampara padam thodu (1 No.)	1.3			1.3
45				Agricultural Nursery	1.09			1.09
Total					109.96	31.97	23.2	165.13

3 Thulakuzhichal- Kodanchira Watershed (10P61a)								
1	10P61a	Budhanoor	1	Formation of sakthikulangara Enginethara bund road (length 90m, width 3m, filling 0.60m ht + length 10m, width 3m, filling 1.20m ht)	2.26			2.26
2	10P61a	Budhanoor	1	Motor shed (3.0x3.0m) 2 Nos.	2.10			2.10
3	10P61a	Budhanoor	2	Formation of Vented cross bar in puthusserikuzhy Vadapuram Padasekharam (1 No.)	3.45			3.45
4	10P61a	Budhanoor	2	Deepening of puthusserykuzhy vadapuram thodu.		1.25		1.25
5	10P61a	Budhanoor	3	Side Protection of Stadium road.	0.91			0.91
6	10P61a	Budhanoor	3	Desiltation of Edassery kavu Pond	0.90			0.90
7	10P61a	Budhanoor	3	Cleaning and protection of Edassery kavu Pond using coir-geotextiles.		0.45		0.45
8	10P61a	Budhanoor	4	Side Protection from Maruthanadu leads to Kodanchira.	2.35			2.35
9	10P61a	Budhanoor	12	Desiltation and Side protection of Pammam Chal	6.64			6.64
10	10P61a	Budhanoor	13	Desiltation and Side protection of Mukkathu pond.	5.60			5.60
11	10P61a	Budhanoor	14	Side Protection from Parayamthundy culvert to Palayil culvert in Kulayikkal Padasekharam.	9.05			9.05
12	10P61a	Budhanoor	14	Deepening from Parayamthundy culvert to Palayil culvert in Kulayikkal Padasekharam.		0.60		0.60
13	10P61a	Budhanoor	14	Side filling for stone pitching from Parayamthundy culvert to Palayil culvert in Kulayikkal Padasekharam.			5.15	5.15
14	10P61a	Puliyoor	1	Formation of Vented cross bar in puthusserikuzhy Vadapuram Padasekharam (1 No.)	3.45			3.45
15	10P61a	Puliyoor	1	Cleaning of Padasekharam.			2.20	2.20
16	10P61a	Puliyoor	1	Formation of Motor shed(2Nos.).	2.10			2.10
17	10P61a	Puliyoor	1	Formation of Water Retaining structure.	0.77			0.77
18	10P61a	Puliyoor	1	To facilitate mechanisation for agricultural activities (1 No.)	0.75			0.75
19	10P61a	Puliyoor	1	To facilitate mechanisation for agricultural activities (1.64			1.64

				1 No.)			
20	10P61a	Puliyoor	2,3	Desiltation of Chittattuvelil padasekharam thodu.	9.60		9.60
21	10P61a	Puliyoor	2,3	Cleaning and Side protection of Chittattuvelil padasekharam thodu using coir-geotextiles.		12.65	12.65
22	10P61a	Puliyoor	2,3	Cleaning of Padasekharam.			2.00
23	10P61a	Puliyoor	2,3	Deepening of Ambattuchal- Monkuzhchal thodu.	7.20		7.20
24	10P61a	Puliyoor	4,5	Well recharging (30 Nos.)	3.00		3.00
25	10P61a	Puliyoor	4,5	Rain water pits 2m x 2m x 2m		0.20	0.20
26	10P61a	Puliyoor	5	Side protection of Jaladhara bund road thodu.	4.53		4.53
27	10P61a	Puliyoor	7	Deepening and cleaning of Uthirankuzhy thodu.	6.84		6.84
28	10P61a	Puliyoor	7	Cleaning and Side protection of Uthirankuzhy thodu using coir-geotextiles.		4.40	4.40
29	10P61a	Puliyoor	8,9	Deepening and Side protection of thamara chal	20.00		20.00
30	10P61a	Puliyoor	8,9	Cleaning of Thamara chal		15.00	15.00
31	10P61a	Puliyoor	8,9	Well recharging (30 Nos.)	3.00		3.00
32	10P61a	Puliyoor	8,9	Rain water pits 2m x 2m x 2m		0.20	0.20
33	10P61a	Puliyoor	13	Desiltation of Narachamuttom Nedumchal.	1.70		1.70
34	10P61a	Puliyoor	13	Formation and Side protection using coir-geotextiles of Narachamuttom Nedumchal.		11.30	11.30
35	10P61a	Puliyoor	13	Maintanance of Motor Shed (1 No.)	1.00		1.00
36	10P61a	Padanadu	5-13	Side protection of Ellimala Moozhikkal thodu.	46.30		46.30
37	10P61a	Padanadu	5-13	Cleaning and Deepening of Ellimala Moozhikkal thodu.		4.30	4.30
38	10P61a	Padanadu	8	Side protection of Sreekrishna Swami temple pond.	6.32		6.32
39	10P61a	Ala	1,2	Side protection of Thottangara - Uthirankuzhy Kolathachanparambu thodu.	17.65		17.65
40	10P61a	Ala	1,2	Deepening of Thottangara - Uthirankuzhy Kolathachanparambu thodu.	1.28		1.28
41	10P61a	Ala	1,2	Cleaning of Thottangara -Uthirankuzhy		0.25	0.25

				Kolathachanparambu thodu.				
42	10P61a	Mulakkuzha	1	Well Recharging for Kurathiyara Palanikunnathil Colony (55 Nos.)	5.50			5.50
43	10P61a	Mulakkuzha	1	Rain water pits (55 Nos.)		0.37		0.37
44	10P61a	Mulakkuzha	1	Agricultural nursery	1.34			1.34
45	10P61a	Mulakkuzha	1	Tree Planting 80 Nos.		0.02		0.02
				Total	177.23	50.99	9.35	237.57
4	Kurattissery Watershed (10P63a)							
1	10P63a	Mannar	1	Renovation of Public well (1 No.)	0.11			0.11
2	10P63a	Mannar	1	Renovation of Public well (1 No.)	0.07			0.07
3	10P63a	Mannar	1	Formation of slab culvert(3.5m x 1.5m) of Edapunchawest Motor thara road (1 No.)	7.34			7.34
4	10P63a	Mannar	1	Cleaning and Deepening of Edapunchawest Motor thara road thodu.		0.31		0.31
5	10P63a	Mannar	2	Reconstruction of slab culvert (1 No.)	1.22			1.22
6	10P63a	Mannar	2	Cleaning and Deepening of thodu.		0.43		0.43
7	10P63a	Mannar	2	Formation of Wing wall for Medayil Culvert.	0.51			0.51
8	10P63a	Mannar	3	Side protection of Paddy field near north side of Kilanneril mill.	5.08			5.08
9	10P63a	Mannar	3	Side protection of Paddy field near north side of Kilanneril mill.			0.58	0.58
10	10P63a	Mannar	4	Side protection of Moorthattamukku to Vezhathar Padasekharam.	1.57			1.57
11	10P63a	Mannar	1-4	Pipe Compost to Households (200 Nos.)			0.80	0.80
				Total	15.90	0.74	1.38	18.02
5	Kurattikad-Mannar Watershed (10P62a)							
1	10P62a	Chennithala	3	Side protection of Pizhakkara Pulari thodu.	3.85			3.85
2	10P62a	Chennithala	3	Cleaning and Deepening of Pizhakkara Pulari thodu.		0.30		0.30

3	10P62a	Chennithala	4	Side protection of kodukuttypady Anjilavillappady thodu.	5.00		5.00
4	10P62a	Chennithala	4	Cleaning and Deepening of kodukuttypady Anjilavillappady thodu.		3.45	3.45
5	10P62a	Chennithala	5	Side protection of Accrot MHS thodu.	5.16		5.16
6	10P62a	Chennithala	5	Side protection of Accrot MHS thodu using coir-geotextiles.		5.45	5.45
7	10P62a	Chennithala	6	Formation of bund road for Polayilpady Keerthipady thodu.	2.91		2.91
8	10P62a	Chennithala	6	Cleaning of Polayilpady Keerthipady thodu.		0.45	0.45
9	10P62a	Chennithala	13	Side protection of Vadakke Thottankkara culvert.	3.80		3.80
10	10P62a	Mannar	5	Side protection of Mullassery kadavu thodu.	0.60		0.60
11	10P62a	Mannar	6,8,9	Formation of Marakam puncha bund road+ Extension of Engine thara and slab	8.10		8.10
12	10P62a	Mannar	6,8,9	Side protection of bund road using coir-geotextiles.		1.15	1.15
13	10P62a	Mannar	7	Cleaning Deepening and Side protection of Vilayil temple pond.	4.38		4.38
14	10P62a	Mannar	10	Formation of Vettuvakkery- Anjilikkuzhy bund road	4.66		4.66
15	10P62a	Mannar	11	Cleaning Deepening and Side protection of Sree kunnathoor devi temple pond.	7.30		7.30
16	10P62a	Mannar	12	Side protection of Veroor Kizhakkathil Padasekharam.	4.00		4.00
17	10P62a	Mannar	13	Side protection of kannankuzhy madom thodu leads to Kuttamperoor river.	6.67		6.67
18	10P62a	Mannar	13	Cleaning and Deepening of kannankuzhy madom thodu leads to Kuttamperoor river.		0.52	0.52
19	10P62a	Mannar	13	Cleaning Deepening and Side protection of Ariyanoor pond.	5.11		5.11
20	10P62a	Mannar	15,16	Side protection of Koyikkal Pallom thodu.	6.71		6.71
21	10P62a	Mannar	17	Side protection of Koyikkalpady Thuruthiyilpady thodu.	9.07		9.07

22	10P62a	Chennithala		Pipe Compost to Households (50 Nos.)			0.20	0.20
23	10P62a	Mannar		Pipe Compost to Households (130 Nos.)			0.52	0.52
				Total	77.32	11.32	0.72	89.36
6	Kollakadavu-Ilanjimeel Watershed (9A7a)							
1	9A7a	Puliyoor	10,11,12	Strengthening of bund using desilted clay of ozhadu padasekharam thodu (250 metre length) and maintenance of motor thara.	24.07			24.07
2	9A7a	Puliyoor	10,11,12	Cleaing of thodu.		5.00		5.00
3	9A7a	Budhanoor	5	Side protection of Ponpuzha Chal.	6.42			6.42
4	9A7a	Budhanoor	5	Deepening cleaning and Side protection using coir-geotextiles of Ponpuzha Chal.		6.45		6.45
5	9A7a	Cheriy Nadu	1	Side Protection of Gurumandhiram to Athiyan palam thodu.	12.00			12.00
6	9A7a	Cheriy Nadu	1	Cleaning and Deepening of Gurumandhiram to Athiyan palam thodu.		1.60		1.60
				Total	42.49	13.05	0.00	55.54
7	Thiruvandoor Watershed (11M55a)							
1	11M55a	Thiruvandoor	3-4	Deepening and Bund Formation of thodu and Planting of vettiver plants (8 Nos. per m2).	7.45			7.45
2	11M55a	Thiruvandoor	3-4	Cleaning and protection of thodu using coir-geotextiles.		11.19		11.19
3	11M55a	Thiruvandoor	3-4	Construction of VCB	6.48			6.48
4	11M55a	Thiruvandoor	1	Rain water harvesting structure (10,000 Litre Capacity)for Survey No. 3,4	5.00			5.00
				Total	18.93	11.19	0.00	30.12
8	Mazhukkir Watershed (10P12a)							
1	10P12a	Thiruvandoor	6	Side protection of thodu Vettikodu temple leads to Varikkottil	9.69			9.69

2	10P12a	Thiruvanvandoor	6	Cleaning deepening and side protection of thodu Vettikodu temple leads to Varikkottil		2.05		2.05
3	10P12a	Thiruvanvandoor	6,7,10,11	Afforestation	0.04			0.04
4	10P12a	Thiruvanvandoor	6,7,10,11	Pipe Compost to Households (48 Nos.)			0.19	0.19
				Total	9.73	2.05	0.19	11.97
				GRAND TOTAL	466.14	122.61	34.84	623.59

Livelihood Action Plan

Total Amount-73.65

Revolving fund – 51.55

Livelihood Activities – 22.1

The common guidelines for watershed developments project gives priority for livelihood support for landless/asset less persons. 9% of the project cost is assigned to support the livelihood activities for landless/asset less households. Productivity enhancement and livelihoods shall be given priority along with conservation measures. In the rainfed areas, the animal resources become a major source

of income for the people. The activities proposed under the livelihood action plan below are meant for improving livelihood of the poor and marginalized people in the project area. It is proposed to earmark 9 percent of the total allotted amount for the activities under this plan. Major portion of this component is suggested to give to the SHGs working in the project area as revolving funds for improving their livelihood improvement/income generation activities. Assetless/landless people will engage in the livelihood activities either in rented or leased land. Livelihood Action Plan (70% of the fund using as seed money for the SHGS (RF)

Action Plan for Livelihood Activities											
Sl No.	Item	Total Project Cost(In Lakhs)	Unit Cost in rupees	Unit	I Year	II Year	III Year	IWMP	Beneficiary	Bank	Others
1	Supply of Cattles	20	20000	Each	5	7	8	9	1	10	
2	Supply of Poultry	7.6	1000	Each	1.9	2.66	3.04	3.42	0.38	3.8	
3	Pisciculture	17.6	20000	Unit	4.4	6.16	7.04	5.92	0.88	8.8	2
4	Mushroom cultivaion	5.35	30000	Unit	1.3375	1.8725	2.14	2.4075	0.2675	2.675	
5	Vegetable cultivaion	13.32	30272	Unit	3.33	4.662	5.328		0.666	6.66	6

6	Api culture	4.44	500	Unit	1.11	1.554	1.776		0.222	2.22	2
7	Flower farming	3.2	2000	Unit	0.8	1.12	1.28	1.44	0.16	1.6	
	Total	71.51			17.878	25.029	28.604	22.1875	3.5755	35.755	10
	Grand Total									71.518	

Production System

One important component in the Common Guidelines for Watershed Development Projects (2008) is to support production/farming system based livelihood activities and enterprises. 10% of the total project cost is assigned to support the production system and micro enterprises for land owning households. This component aims to diversify and to maximize the production and productivity of agriculture system as a whole and target the land holders with cascading benefits to landless agriculture labour, leased farmers and share croppers. Objectives: (a).To promote diversified production/farming system based livelihood activities/interventions (b).To encourage farmers to adopt and upscale successful experiences of proven technologies, integrated farming systems and improved farming practices for livelihood augmentation.

The activities / interventions related to Production System and Microenterprises planned for the project area are as follows:

Action plan for Production system and Microenterprises

Sl No	Particulars	Total project cost(In lakhs)	Unit Cost (In lakhs)	Year 1		Year 2		Year 3		Year 4	
				IWMP	WDF	IWMP	WDF	IWMP	WDF	IWMP	WDF
1	Food processing unit (chips, pickles, jam, catering units)	19.08	1.5	4.11	0.12	3.28	0.33	6.55	0.66	3.68	0.37
2	Animal Husbandry & Allied Activities	34.30	0.5	4.1	0.41	4.84	0.66	9.82	0.98	12.27	1.23

3	Vegetable seed production, planting material production and medicinal plant unit etc	16.19	0.25	1.23	0.12	3.28	0.33	6.55	0.66	3.68	0.37
4	Fish processing unit	6.33	2	0.42	0.04	0.83	0.08	3.28	0.33	1.23	0.12
5	Eco friendly products making units (Bamboo products, paper and cloth bags, handicraft products, clay works, herbal products etc)	6.33	0.50	0.42	0.04	0.83	0.08	3.28	0.33	1.23	0.12
6	Small scale products like agarbathi, candles, camphor unit etc	3.03	0.25	0.41	0.04	0.82	0.08	0.16	0.16	1.24	0.12
7	Horticulture , material assistance for horticulture, poly houses etc	3.03	1.5	0.41	0.04	0.82	0.08	0.16	0.16	1.24	0.12
Total				11.09	0.82	14.68	1.63	29.78	3.27	24.56	2.46
Grand Total											88.3

Scope of Convergence

The various activities of IWMP can be converged with various other departments. The following are the departments with which the works can be converged.

Sl. No.	Type of intervention	Department/Schemes which can be converged with IWMP
1	Promotion of cultivation	1. Department of Agriculture 2. LSGD 3. MGNREGA
2	Drainage, Irrigation Bund creation	1. Department of Major Irrigation 2. Department of Minor Irrigation 3. MGNREGA 4. LSGD 5. MPLAD / MLA LAD
3	Afforestation	1. MGNREGA 2. LSGD 3. Department of Social Forestry
4	Horticulture	1. Department of Agriculture 2. MGNREGA 3. LSGD
5	Fish Culture	1. Department of Fisheries

Project at a Glance

Name of the Project	IWMP- II/2011-12
District	Alappuzha
Blocks Covered	Chengannur, Mavelikkara
No. of micro-watersheds	8
Name & Code of micro-watersheds	Mazhukkir (10P12a), Piralassery (10P60c), Thulakuzhichal - Kodanchira (10P61a), Kurattikad- Mannar (10P62a), Kurattisseri (10P63a), Thiruvandoor (11M55a), Kollakadavu-Ilanjimal (9A7a) and Kodukulanji-Cheruvallur (9A7c).
No. of grama panchayats	10
Grama Panchayats covered	Ala, Budhanoor, Chennithala, Cheriyanadu, Mannar, Mulakuzha, Pandanadu, Puliyoor, Thiruvandoor, Venmoney
Total Population	94,200
Name of the PIA	Chengannur Block Panchayat
Project Area (in Ha.)	6819
Project Cost (Rs. In Lakhs)	6818.28

Outcomes

IWMP project aims for sustainable utilization of soil, water and other natural resources. Expected Outcomes of the IWMP project are:

Sl no	Name of the watershed	Total Area	Area under cultivation Present (Ha)		Augmented cultivation (Ha)		Water logged area(Ha)	Proposed Reduction in water logged area(Ha)	Area under water scarcity(Ha)	Proposed reduction of water scarcity area (Ha)
			Mixed cultivation	Paddy cultivation	Mixed cultivation	paddy cultivation				
1	Thulakuzhichal-Kodanchira	2522	1497	950	35	38	210	180	25	23
2	Kollakadavu-Illanjimel	646	405	140	33	66	18	13	-	-
3	Kodukulanji-Cheruvallur	1643	1280	280	15	48	51	40	35	33
4	Thiruvanvandoor	272	134	110	12	11	45	27	15	10
5	Mazhukkir	143	120	12	10	8	5	4	-	-
6	Pirlassery	180	110	50	9	5	25	20	28	25
7	Kurattissery	245	130	85	14	7	34	34	-	-
8	Kurattikad-Mannar	1168	915	180	30	25	45	30	-	-

a) Safe and sustained drinking water

Most of the area in the cluster watershed is lying in low land region and some part is lying in high elevation. During summer season water shortage is the major problem in high land. Intervention plans adopted in the low land areas will definitely enhance the water availability of these areas during summer season.

b) Bund strengthening prevent of rainwater runoff and thereby allowing rainwater to percolate into the soil and to prevent soil erosion.

As discussed earlier, a major portion of the area under this watershed project is low land paddy fields. Water flow management in these areas is crucial for paddy cultivation. This directly enhances the paddy cultivation area and hence it provides agriculture as a source of income.

c) Renovation of wells- This would help in providing a reliable water source which can be used by the people for all activities.

Renovation of wells is an important requirement of the locality.

d) Cleaning of canals and ponds – This would help in providing a source of water for irrigation and other purpose.

Ponds and canals are the direct water source areas for paddy cultivation in this area. Cleaning rejuvenating ponds and canals could directly benefit the farmers by enhancing the cultivation area and hence the income.

e) Management of surface water resources

All surface water resources will be managed in the watershed area and through this project; it will enhance the agriculture productivity of the area.

f) Livelihood activities

Plans and proposal are made for enhancing the livelihood activities of this area.

g) Production system

All these activities will help in a sustained development of the natural resources and thus overall improvement of the community along with improved livelihood opportunities.

Exit protocol and watershed development fund

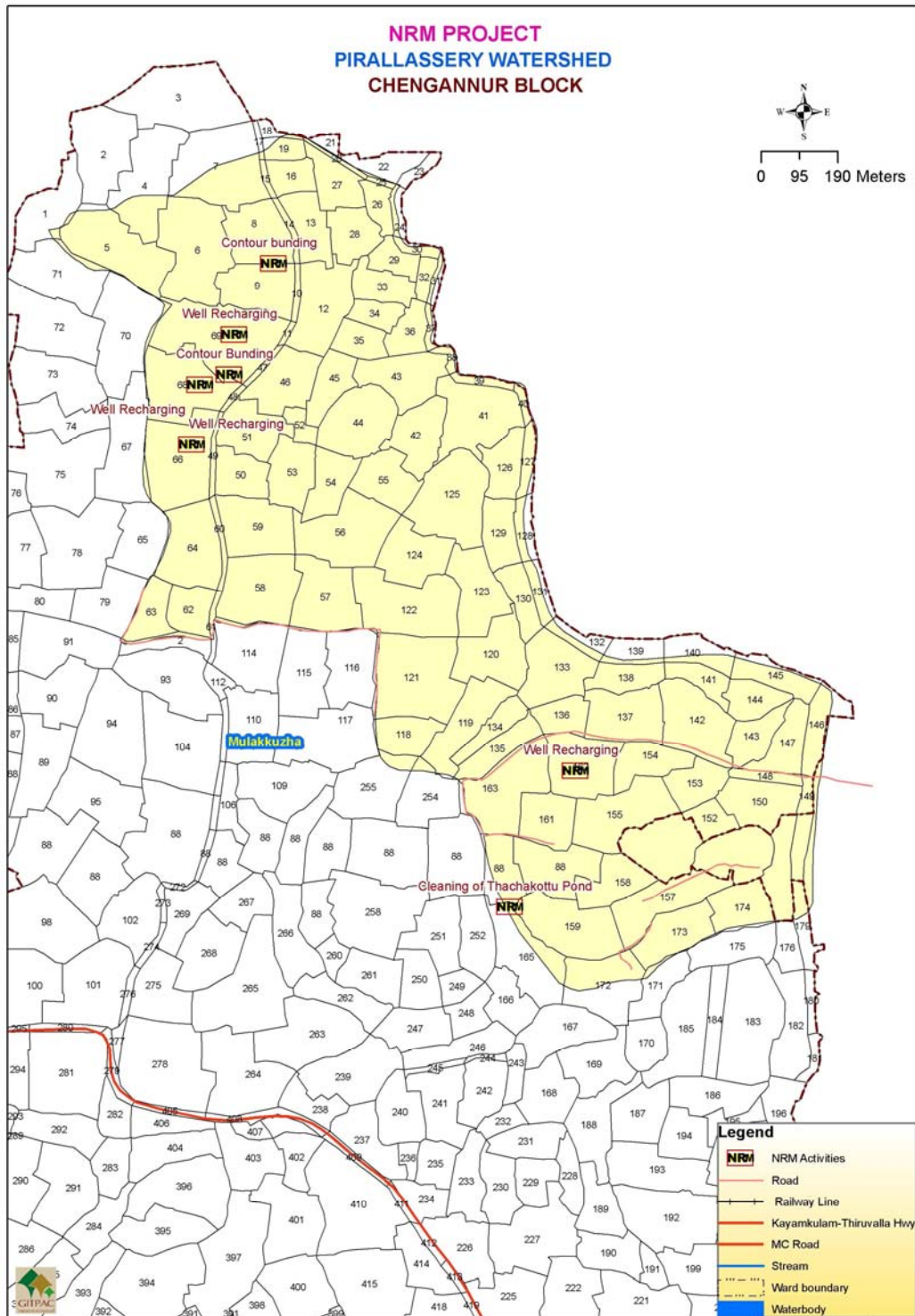
Local-level institutions are expected to reach maturity and then exit protocols become operative for the PIA. The Watershed Committees (WCs) may use the Watershed

Development Fund for repair and maintenance of structures created in Phase II.

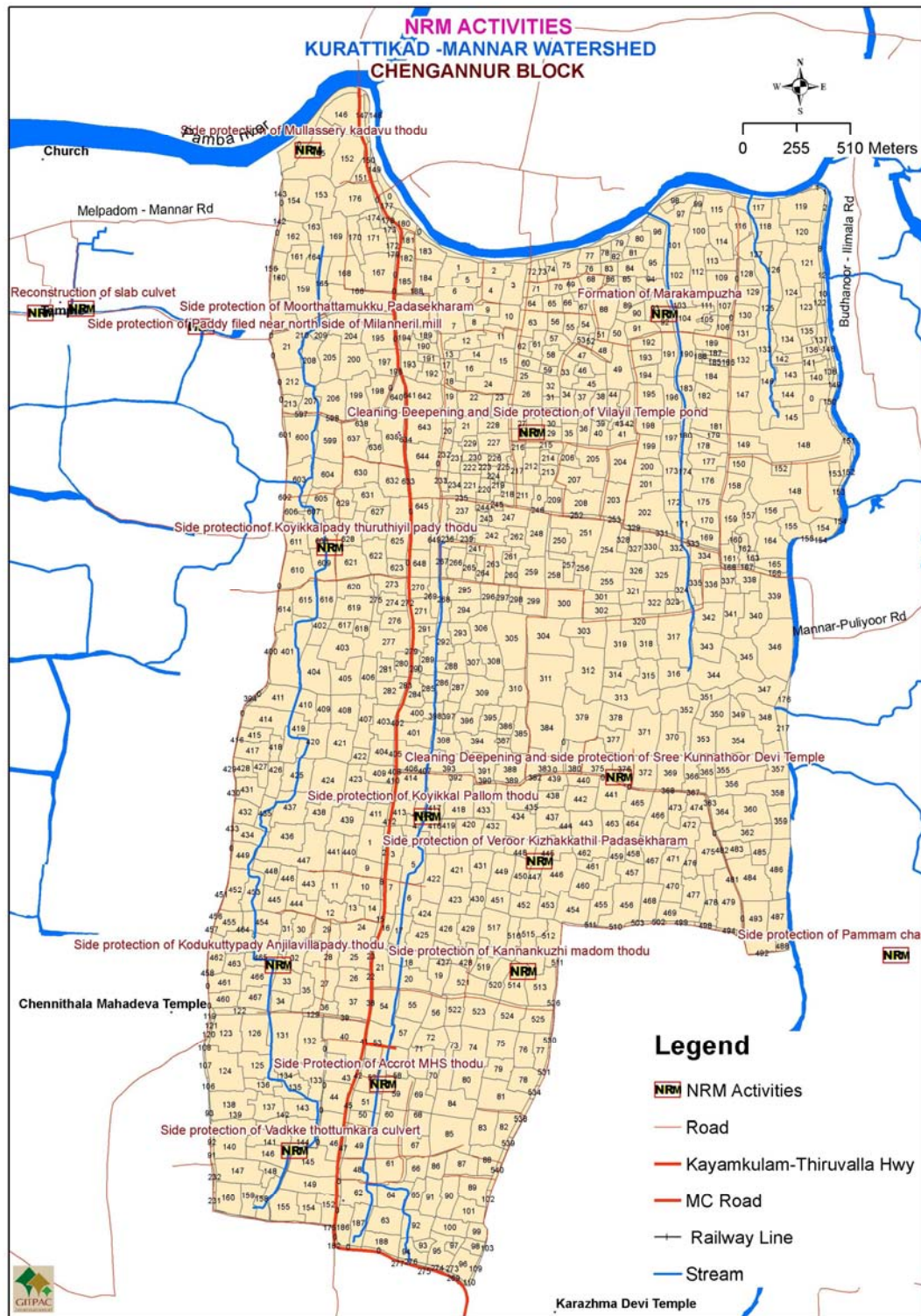
The main source of financial assistance for the post implementation period is Watershed Development Fund (WDF). One of the mandatory conditions for the selection of villages for watershed projects is people's contribution towards WDF. The Contribution to WDF shall be a minimum 10 % of the cost of NRM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

The Secretary, Watershed Committee (WC) shall maintain a completely separate account of the income and expenditure of the WDF. Rules for operation of the fund should be prepared by the Watershed Committee (WC) and ratified by the Grama Sabha. The WDF bank account should be operated by the President of the Grama Panchayat and any member from the SHG

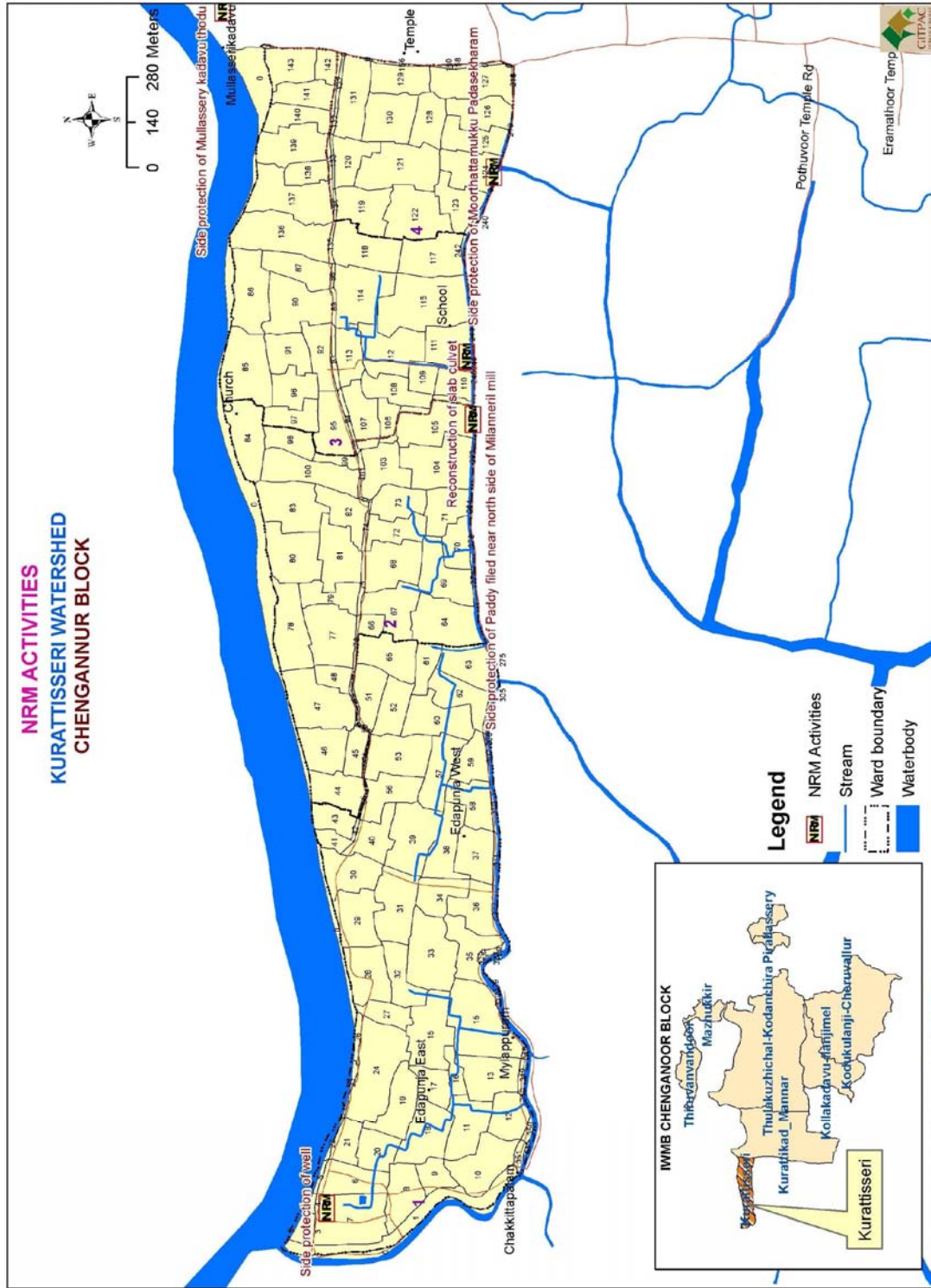
Pirlassery



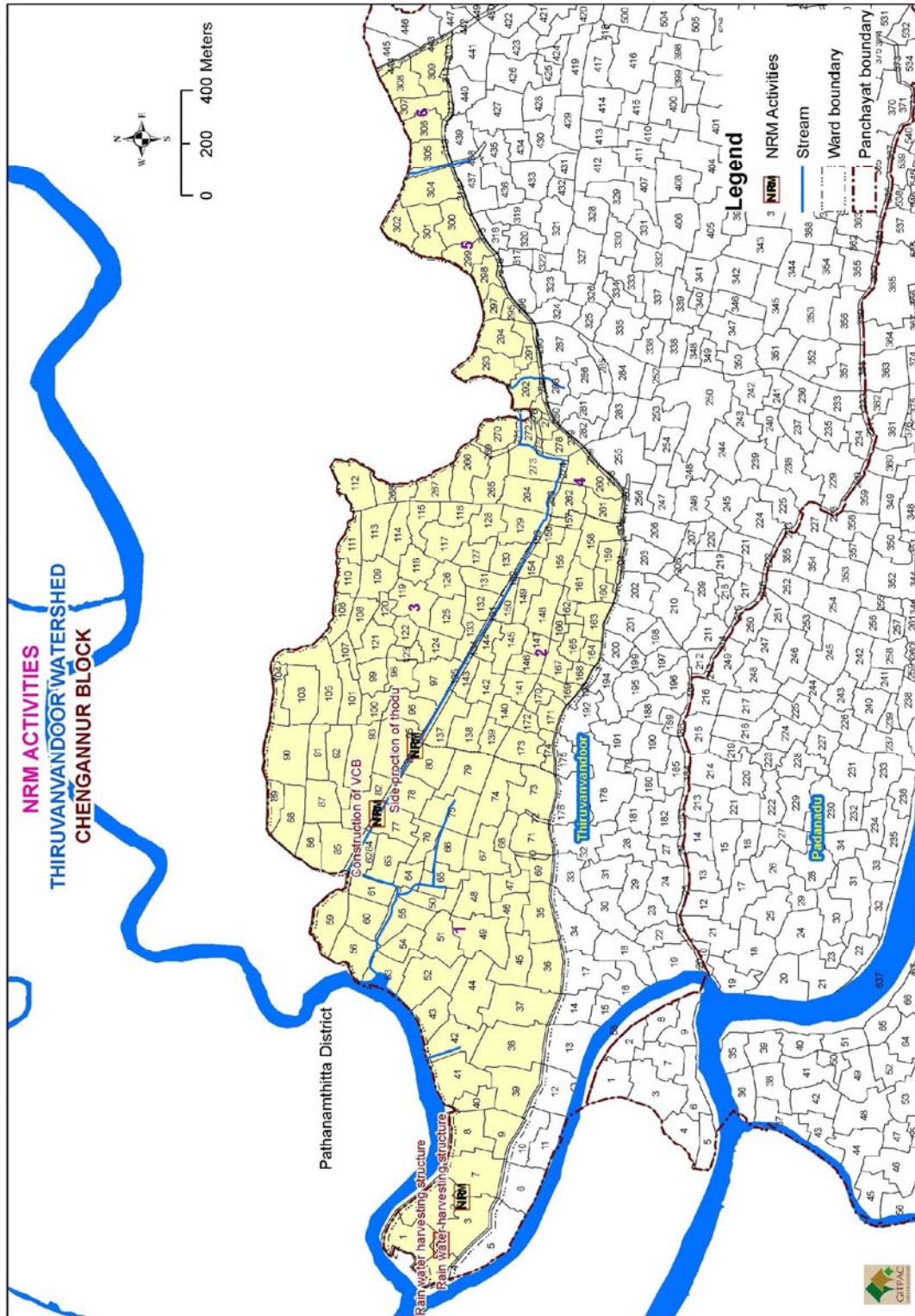
Kurattikad Mannar



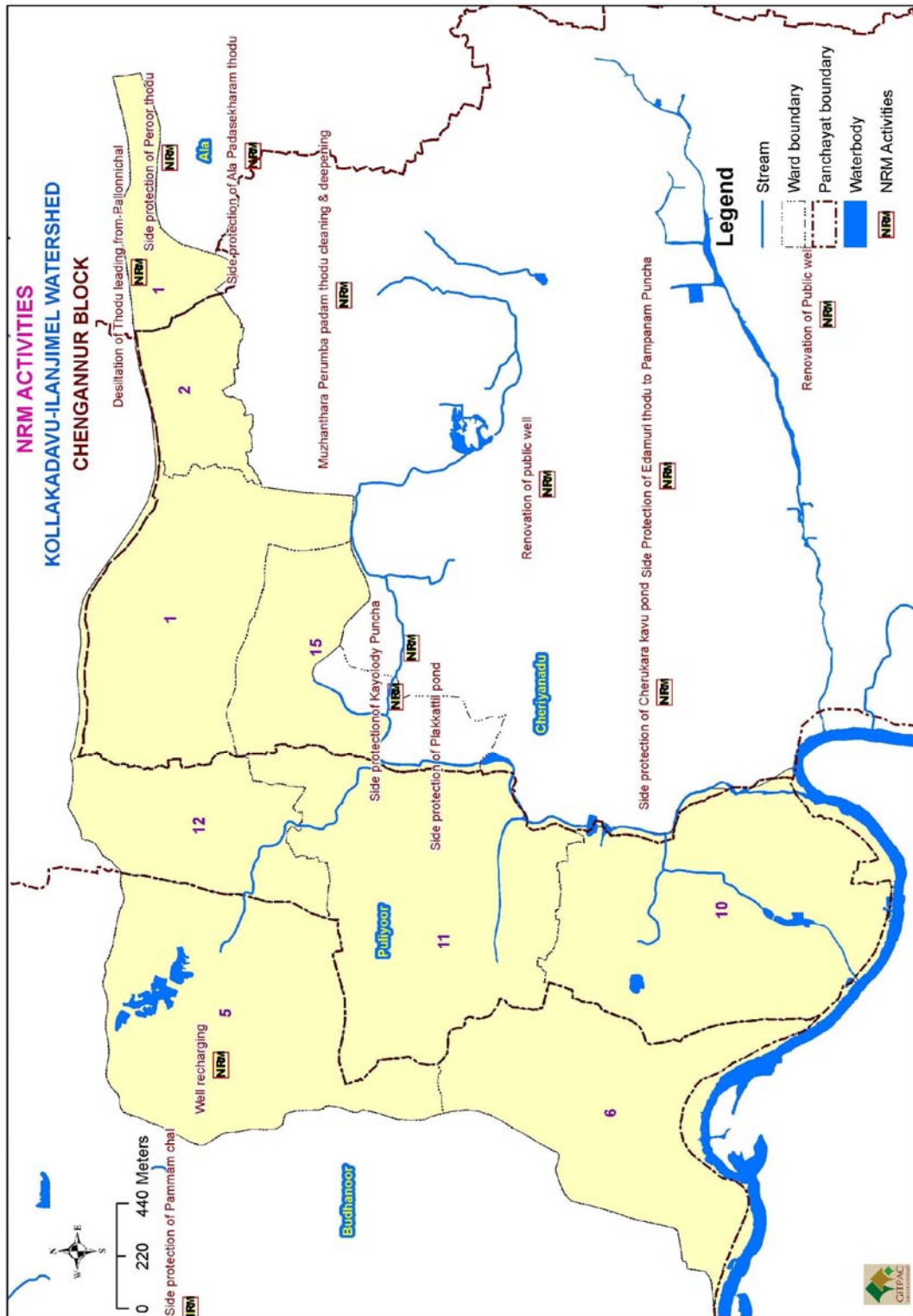
Kurattissery



Thiruvandoor



Kollakadavu Illanjimel



Kodukulanji Cheruvallur

