

The background features abstract, overlapping green geometric shapes in various shades, including light lime green, medium green, and dark forest green, creating a modern and dynamic feel.

Mahatma Gandhi NREGS GIS Based Planning

THE CONTEXT AND REQUIREMENT

- Govt. of India has instructed to prepare GIS Based plans in 2 GPs each in every Block
- So we need to prepare GIS Based Plans in 304 GPs in a phased manner
- All the permissible works under MGNREGA, which are suitable for the GP, shall be included in the GIS Based Plan

THE CONTEXT AND REQUIREMENT

- The GIS Based Plan is expected to be sufficient to saturate the GP
- The identified works must be phased out so that the GPs are saturated in the coming 3-5 years
- The works identified based on the GIS Based Plan must be included in the Shelf of Projects.

What is GIS...?

- ▶ Geographic Information System (GIS) is a computer system build to capture, store, manipulate, analyze, manage and display all kinds of spatial or geographical data.
- ▶ In simple way GIS can be defined as an image that is referenced to the earth or has x and y coordinate and it's attribute values are stored in the table

WHY GIS...?

- ▶ By relating seemingly unrelated data, GIS can help individuals and organizations better understand spatial patterns and relationships
- ▶ GIS is adopted as a tool for analyzing and integrating the spatial and non spatial data in the project.
- ▶ It is used as an information database, an analytical tool and as a decision support system.
- ▶ Besides, this tool is also being used for monitoring purposes.

HOW IT LOOKS LIKE AND THE PURPOSE

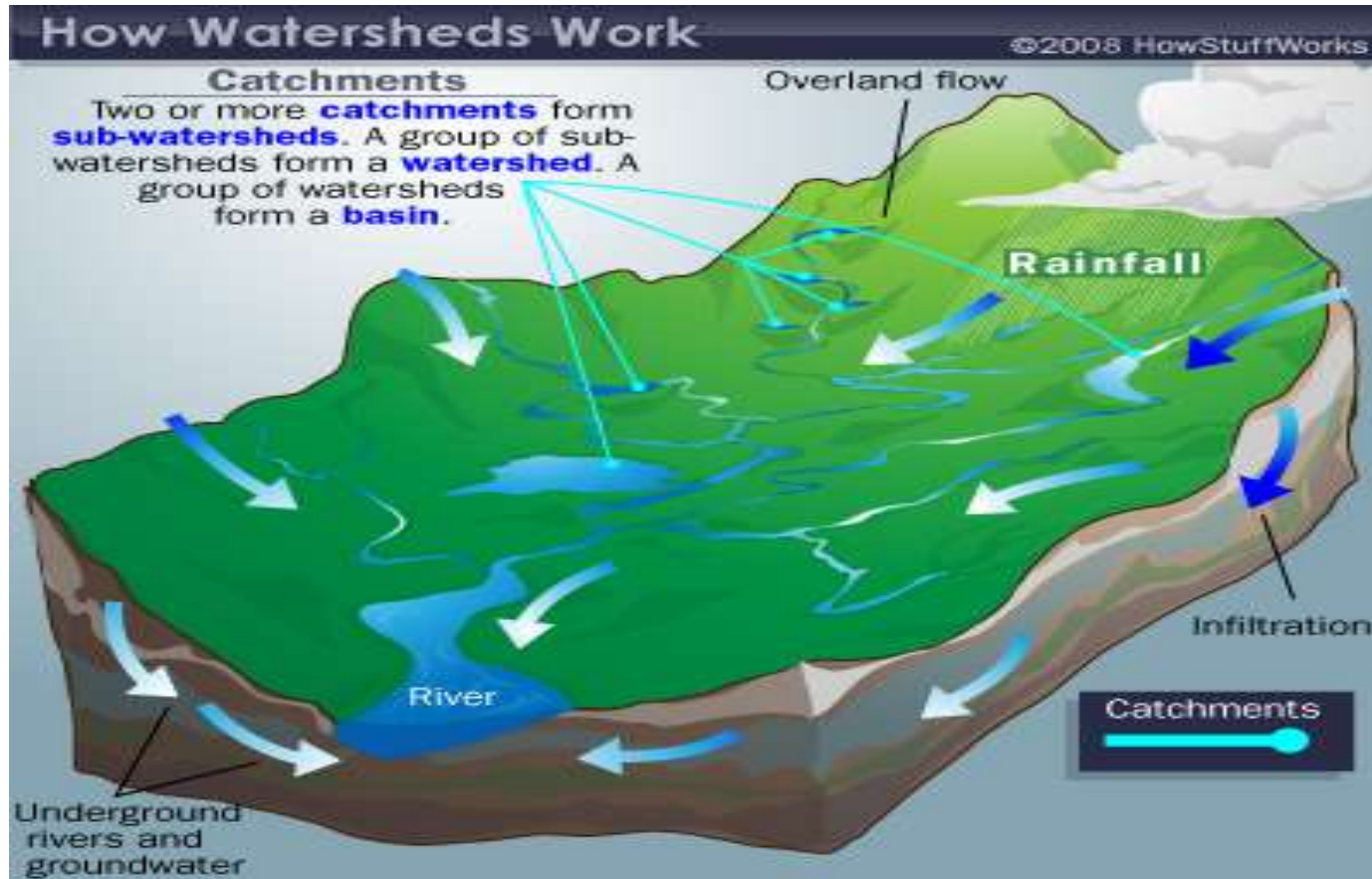
- ▶ Thematic information generated from satellites are integrated under GIS domain to generate locale specific action plan on micro-watershed basis.



How to Prepare a GIS Based Plan

- ▶ Preparation of maps - Topo sheet, Cadastral Map, Land use/Land cover map, Relief Map, Soil Map, Drainage Map, Administrative Map etc.
- ▶ Delineation of Watershed areas
- ▶ Non Spatial or Attribute Data Collection
 - Demographic data, socio-economic data, land records, literacy rate, health, village infra structure etc.
- ▶ Over laying of different thematic maps with attributes
- ▶ Marking suitable areas for different interventions

A Watershed.....



How to Prepare a GIS Based Plan

- ▶ Toposheet - depict landforms and terrain, drainage, forest cover, administrative areas, populated areas, transportation routes and facilities (including roads and railways), and other man-made features.
- ▶ Cadastral Map - Revenue Map
- ▶ Land use / Land Cover Map - buildings, vegetation, man made
- ▶ Relief Map - hills and valleys
- ▶ Soil Map - type of soil
- ▶ Drainage map - streams, rivers, etc

Cadastral Map



How to Prepare a GIS Based Plan...

- ▶ NET Planning - Identifying interventions in each single plot
- ▶ Baseline Data or Primary Data Collection
 - ✓ Details of each Household/Survey Number
 - ✓ Socio-Economic conditions
 - ✓ Soil and Land Use
 - ✓ Agriculture: crops, yields etc
 - ✓ Livestock and Fisheries
 - ✓ Agro-forestry
 - ✓ Livelihood Status/pattern
 - ✓ Water sources

How to Prepare a GIS Based Plan...

► Data Collection for Common Land/Water Bodies/Springs

- ✓ Identification of all traditional water bodies - Ponds, Springs, Quarries etc.
- ✓ Present Status
- ✓ Identification of interventions - Renovation, Desilting, Embankment protection etc.
- ✓ Identification of all available Common Lands
- ✓ Identification of Area interventions - Terracing, Contour Bunding/Trenching, Rain water harvesting pits, Afforestation etc.

How to Prepare a GIS Based Plan...

► Drainage Line Treatment

- ✓ Identification of all streams
- ✓ Intervention identification according to the nature of the stream - 1st 2nd 3rd order etc.
- ✓ Gully plugging, Gabions, Brushwood Check dam, Loose Boulder Check dam, Earthen Dam, Masonry Check dam etc
- ✓ Embankment protection - coir geo textiles, vetiver, bamboo etc

PROCESS FOR MAPPING

- ▶ Base Line Data collection through Mobile App
- ▶ Trained Mates shall be deputed for Data collection
- ▶ Mates will collect the Data by Household visit
- ▶ Engineers/Overseers shall offer technical support & guidance required for Data Collection
- ▶ Engineers/Overseers shall collect the data for Common Land/Water bodies/Streams etc.
- ▶ All the Data will be collated by Kerala State Land Use Board

PROCESS FOR MAPPING

- ▶ Draft DPR will be prepared and circulated to the GPs concerned
- ▶ Based on which Stake holder discussions/Focus group discussions need be conducted
- ▶ Grama Sabha approval
- ▶ Interventions need be phased out in next 3-5 years
- ▶ Inclusion in the AAP/Shelf of Project

E-Saksham

- ▶ E-Saksham is a digital learning platform for GIS Based Watershed Planning
- ▶ It contains different modules related to INRM, Watershed Planning, GIS maps, overlaying of thematic maps etc.
- ▶ All the Technical persons working in MGNREGS are expected to join and complete the on-line course
- ▶ So all AEs/Overseers should register and complete E-Saksham

Role & Responsibilities of AE/Overseer

- ▶ To acquire a thorough idea about GIS Based Planning
- ▶ To have a comprehensive knowledge about the watershed characteristics of the GP
- ▶ Technical support and monitoring of baseline data collection by Mates
- ▶ Data collection of Common Land, Water bodies, Streams etc.
- ▶ Secondary Data Collection, if necessary
- ▶ Liasoning with GP elected reps & officials
- ▶ Finding out suitable & scientific interventions
- ▶ Inclusion of Interventions in the AAP/Shelf of Projects
- ▶ Scientific implementation
- ▶ Documentation
- ▶ Bench marking & Output-Outcome analysis

CHUNGATHARA GRAMA PANCHAYATH

Malappuram District

KERALA STATE



Malappuram District

MALAPPURAM DISTRICT



Nilambur Block

NILAMBUR BLOCK



Chungathara

GP Profile

District	Malappuram
Block	Nilambur
Area	129.69 sq.km
Population	49026
Male	24305
Female	24721
SC Population	2334
ST Population	1579
Density of Population	223/sq.km
Registered Job Cards/Workers	6033/10083
Active Job Cards/Workers	4066/4707

MGNREGA Profile

Description	2018-19	2017-18	2016-17	2015-16
Approved Labour Budget	177000	78733	80500	147135
Person-days Generated	96775	88,395	1,16,636	1,21,372
% of Total LB	54.67	121.27	144.88	82.49
SC Person days % as of total person-days	13.41	13.67	14.1	12.81
ST Person days % as of total person-days	9.23	7.4	6.92	5.63
Women Person days out of Total (%)	90.66	90.51	89.96	91.13
Average days of employment provided per Household	39.83	37.84	41.01	43.96

MGNREGA Profile

Description	2018-19	2017-18	2016-17	2015-16
Total No of HHs completed 100 days of Employment	171	204	242	500
Total Households Worked	2430	2,336	2,844	2,761
Total Individuals Worked	2682	2,492	3,142	3,020
Number of Ongoing Works	397	222	33	227
Number of Completed Works	210	38	405	229

Major Issues

- **Water scarcity in summer months**
- **Soil erosion**
- **Conversion of paddy land for other purposes**
- **Decline in agriculture production**
- **Deforestation**
- **Non-availability of fodder**
- **Disposal of Solid & Liquid Waste**

Watersheds in the GP

Sl. No.	Name of Watershed	Area (Ha)	Wards
1	Manjachal	455.8	10,11,12
2	Padinjariyampadam	173.43	8,9
3	Perumbilad 2- Karimpuzha	296.33	9,11
4	Punnappuzha	475.2	12,17
5	Chaliyar	421.6	18,19
6	Kaithathode	316.25	15,16
7	Nedumpuzhayithode	529.82	6,7,13,14,17
8	Pandippuzha	417.33	4,5,6,3
9	Ponmari	189.35	3,4
10	Kallamthode1 -Chaliyar	198	4
11	Mathathode	571.5	2,19
12	Mundappadam	329.4	18,19
13	Izhukathode	347.2	1,20
14	Njettiyamthode	399.7	1,20

WATERSHEDS

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT

Scale 1:35,000



- Places
- Roads
- Drains
- Waterbodies
- Watersheds**
- CHALIYAR
- EZHUKATHODE 3
- KATHATHODE
- KALLANTHODE - 1 CHALIYAR - PART C
- KATTIKKALLUTHODE
- MANJACHAL
- MATHATHODE
- MUNDAPADAM
- NEDUMPUZHAYTHODE
- NJETTIVANTHODE
- PADINJATTIAMPADAM
- PANDIPUZHA
- PERUMPLAD
- PONNAPART B
- PUNNAPUZHA

Land Use Pattern

Sl. No.	Item	Area in Ha.
1	Paddy	77.12
2	Mixed Farming in converted paddy fields	271.27
3	Mixed Farming	1448.89
4	Rubber	2623.46
5	Built up area	396.6
7	Rocky Barren Lands	46.4
8	River/rivulets	218.8
9	Road	38.33
10	Forest	7848.09
	Total	12969

LAND USE/LAND COVER

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT



Scale 1:35,000

Legend

- Places
- Roads
- Drains
- Waterbodies
- Watershed boundary
- Land use category**
- Built up Land
- Paddy
- Paddy Converted
- Paddy Current Fallow
- Seasonal Crops
- Mixed Crops
- Plantation Crops
- Current Fallow
- Forest
- Waterbody



MGNREGA State Mission

25 March
2019

27

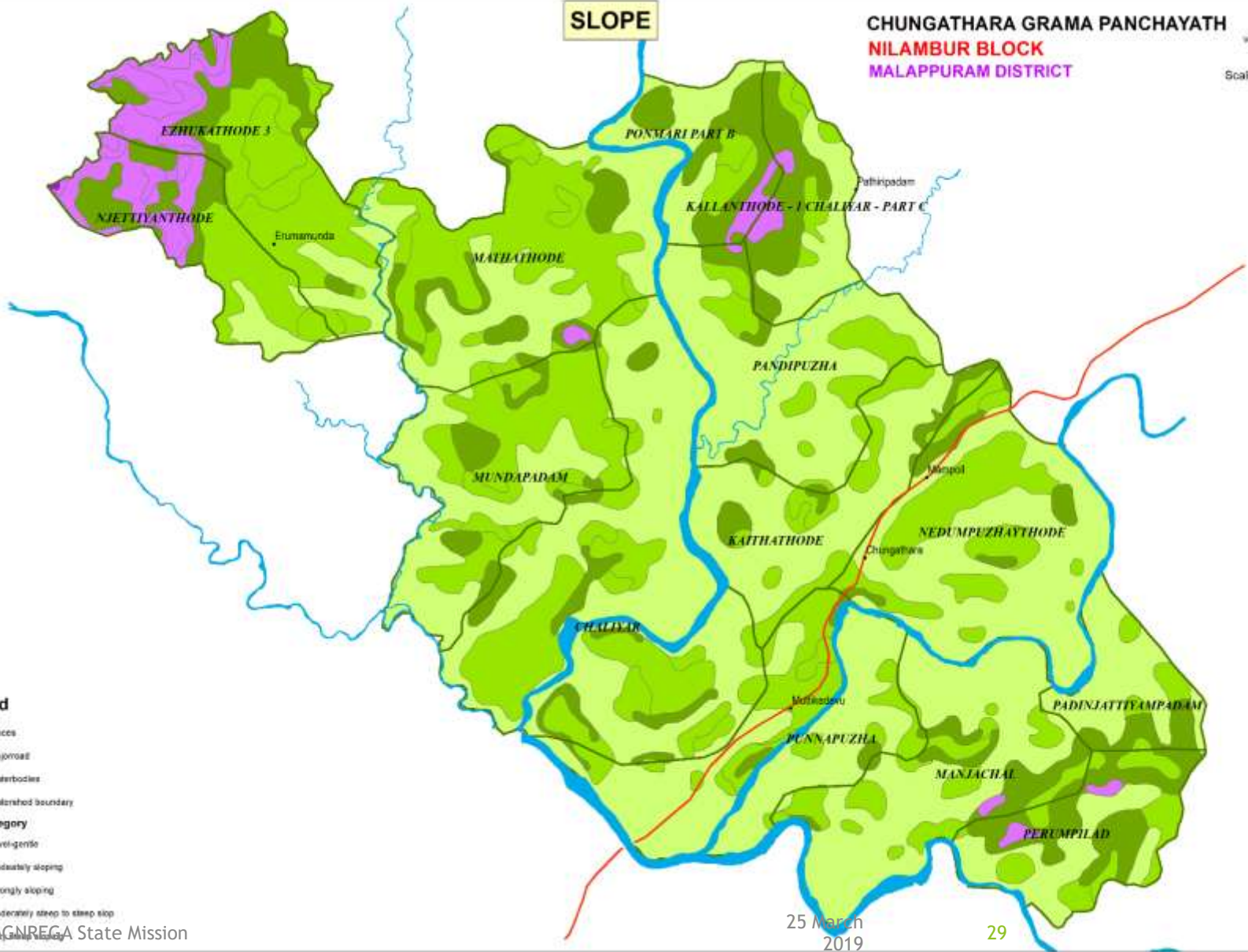
Slope

Sl. No.	Nature of Slope	Area (Ha)	Percentage (%)
1	Valley	1007.86	19.68
2	Slight slope	2416.97	47.19
3	Medium Slope	635.1	12.40
4	Steep Slope	387.14	7.55
5	Very Steep Slope	389.68	7.60
6	Top of the hills	44.3	0.865
7	River/Rivulets	218.8	4.715
MGNREGA State Mission	Total	5120.9	100

25 March
2019

SLOPE

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT



Legend

- Places
- Major road
- Waterbodies
- Watershed boundary
- Slope category**
- Level-gentle
- Moderately sloping
- Strongly sloping
- Moderately steep to steep slope
- Very steep slope

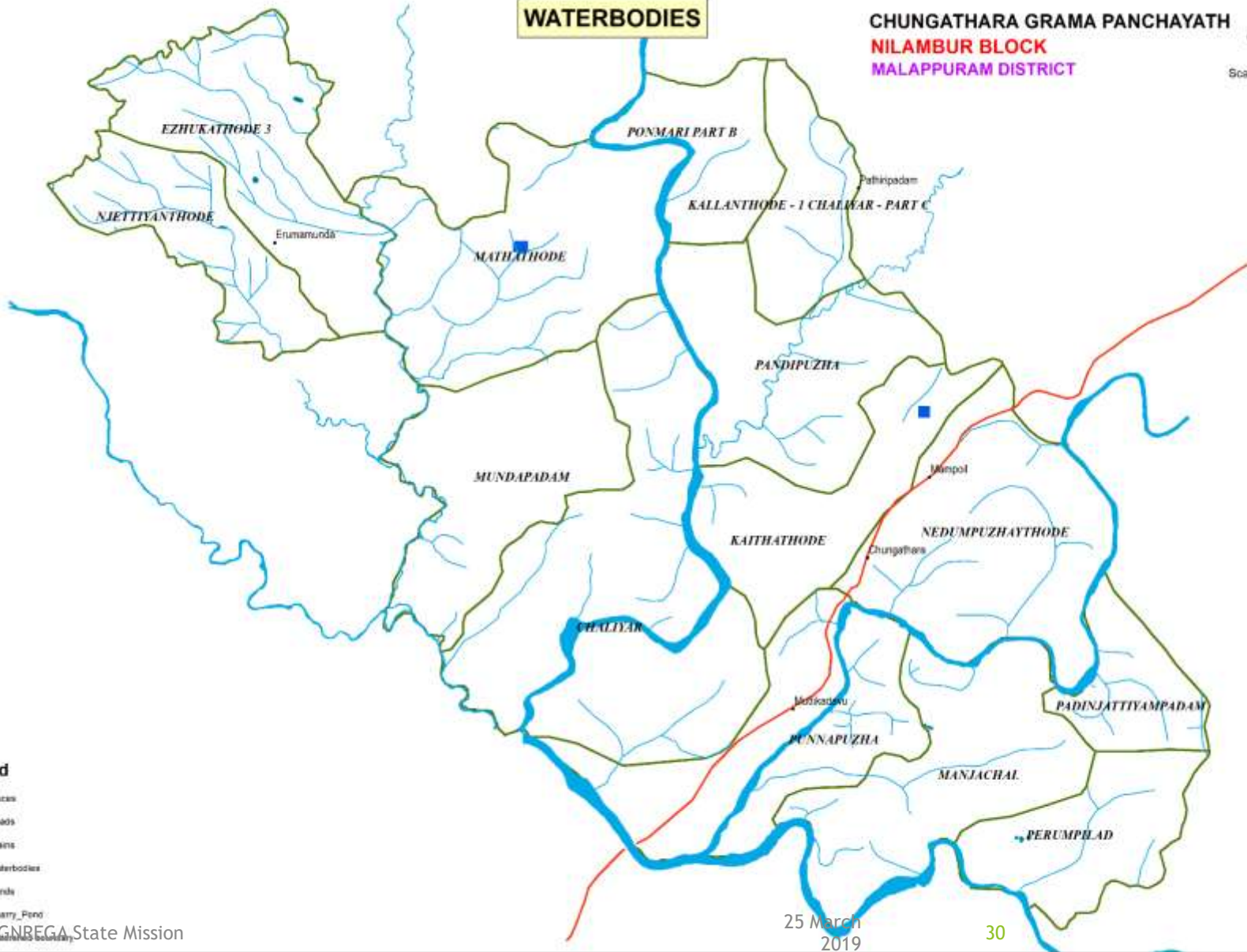
MGNREGA State Mission

25 March 2019

29

WATERBODIES

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT



Legend

- Places
- Roads
- Drains
- Waterbodies
- Ponds
- Quarry_Pond
- Watershed boundary

MGNREGS State Mission

25 March
2019

30

Soil & Water Conservation

Sl. No.	Name of Work	Unit	No. of Units	Unit Rate	Total Estimated Amount
1	Fish Rearing Ponds	Number	160	73000	1,16,80,000
2	Well Recharging	Number	2150	13000	2,79,50,000
3	Well Construction	Number	1020	143000	14,58,60,000
4	Drainage Line Construction	Meter	11365	30.186	3,43,064
5	Rain-water harvesting pits	Number	61916	92.73	57,41,471
6	Centripetal	Number	45454	106.65	48,47,669

Soil & Water Conservation

Sl. No.	Name of Work	Unit	No. of Units	Unit Rate	Total Estimated Amount
7	Earthern Bunds	Meter	96068	89	85,50,052
8	Stone Bunds	Meter	34288.5	190	65,14,815
9	Contour Trenches	Meter	1053	36.22	38,140
Total					21,15,25,2
MGNREGA State Mission					25 March 2019
					32
					11

Interventions in Public Land

Sl. No.	Name of Work	Unit	No. of Units	Unit Rate	Total Estimated Amount
1	Public Well Renovation	Number	70	29,500	20,65,036
2	Renovation of Public Ponds	Number	5	124000	6,22,500
3	Stream bank Protection	Number	48	5,60,000	2,68,80,000
4	Gully Plugging	Number	4	22000	88,000
5	Afforestation	Number	494	132	65,208
	MGNREGA State Mission Total			25 March 2019 33	2,97,20,564

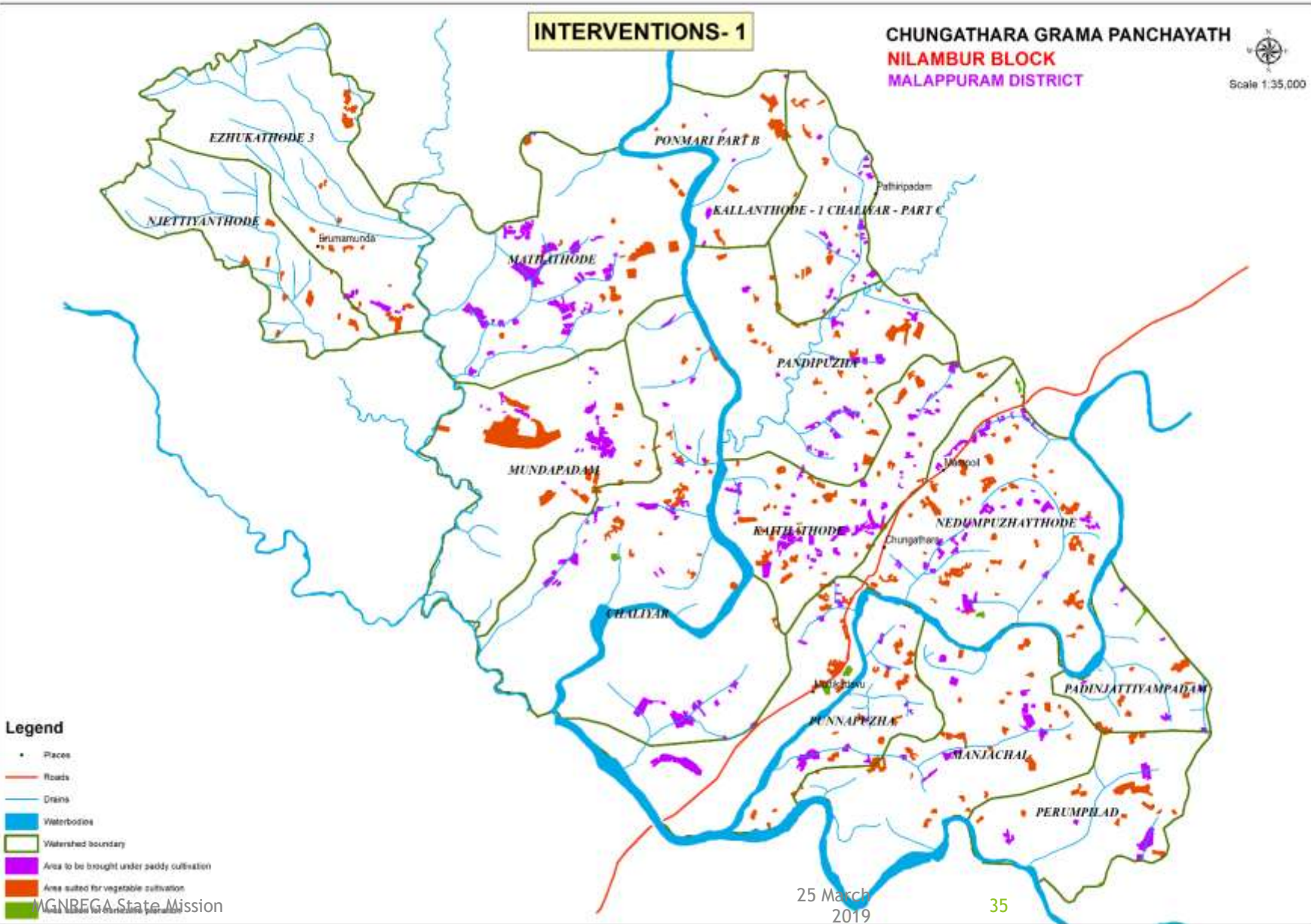
Solid & Liquid Waste Management

Sl. No.	Name of Work	Unit	No. of Units	Unit Rate	Total Estimated Amount
1	Soak Pit	Number	2779	4000	1,11,16,000
2	Compost Pit	Number	3447	200	6,89,400
3	Biogas	Number	284	15000	42,60,000
4	Vermi Compost	Number	284	35000	99,40,000
5	IHHL	Number	811	83750	6,79,21,250
	MGNREGA State Mission Total			25 March 2019 34	9,39,26,650

INTERVENTIONS- 1

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT

Scale 1:35,000



Legend

- Places
- Roads
- Drains
- Waterbodies
- Watershed boundary
- Area to be brought under paddy cultivation
- Area suited for vegetable cultivation

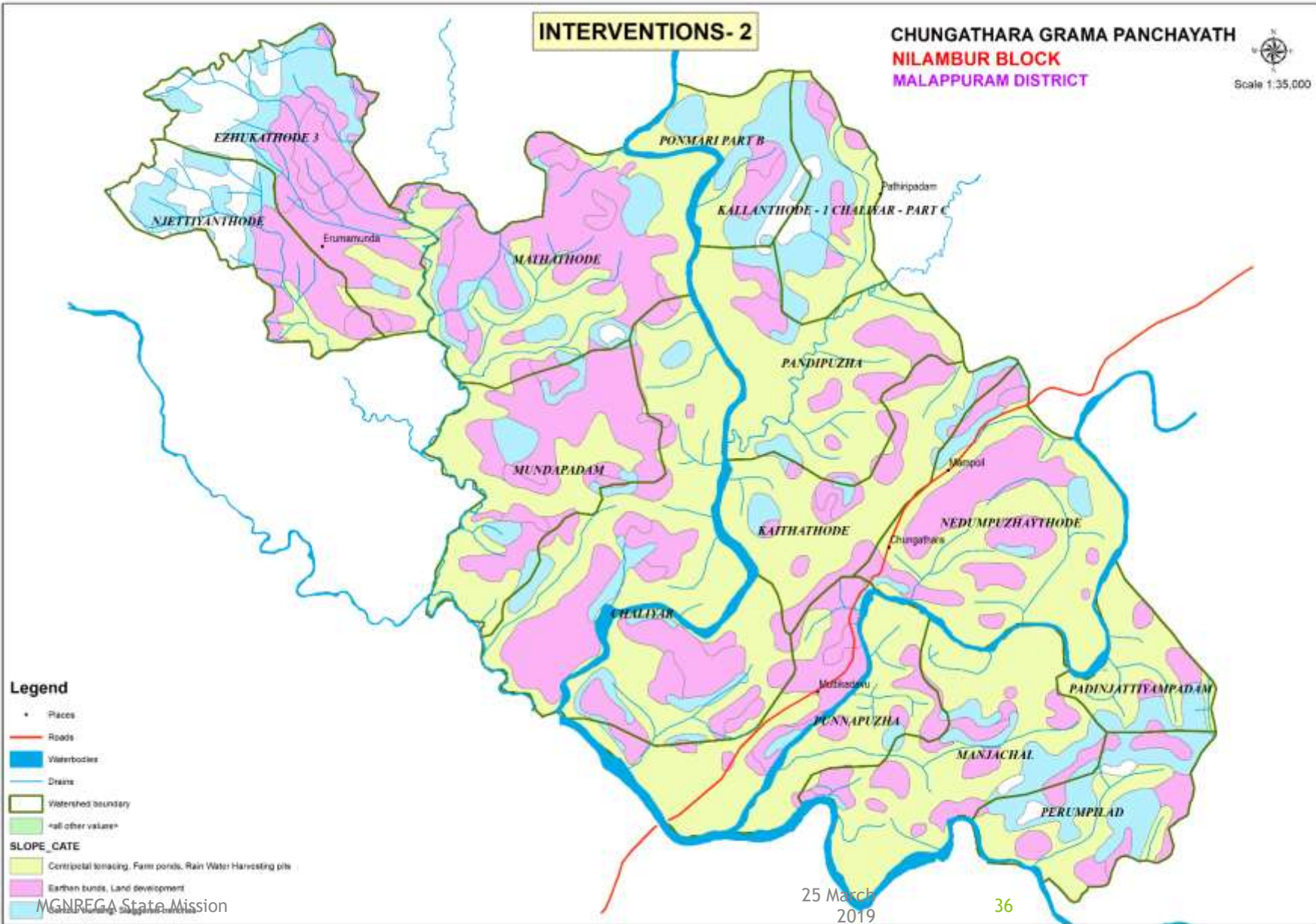
MGNREGS State Mission

25 March 2019

INTERVENTIONS- 2

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT

Scale 1:35,000



Legend

- Places
- Roads
- Waterbodies
- Drains
- Watershed boundary
- all other values
- SLOPE_CATE**
 - Centrifugal farming, Farm ponds, Rain Water Harvesting site
 - Earthen bunds, Land development
 - Silt control, siltation control

INTERVENTIONS (DRAINAGE LINE)

CHUNGATHARA GRAMA PANCHAYATH
NILAMBUR BLOCK
MALAPPURAM DISTRICT



Legend

- Places
- Roads
- Drains
- Waterbodies
- Watershed boundary
- call other values

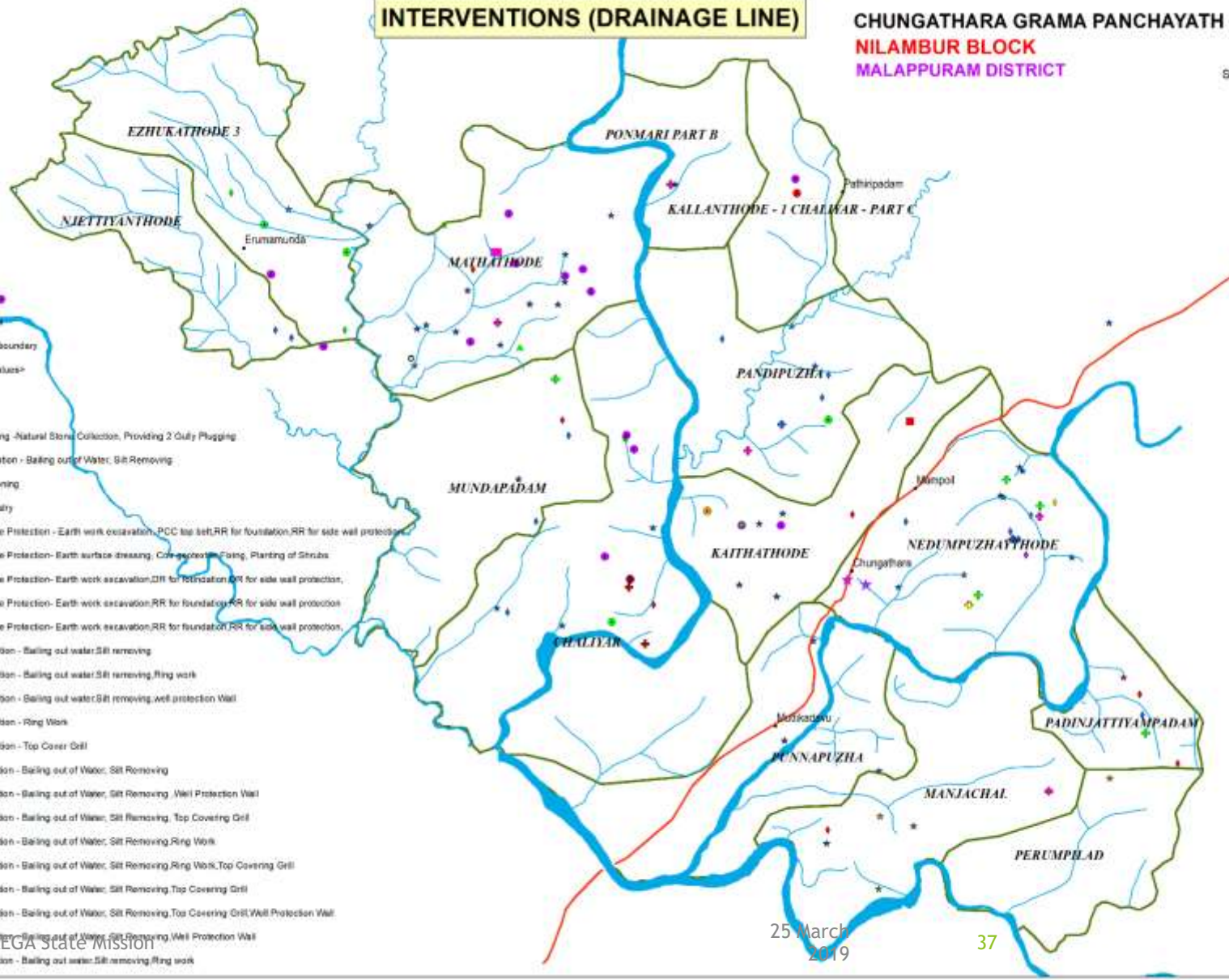
Interventions

-
- ★ Gully slugging - Natural Stone Collection, Providing 2 Gully Plugging
- Pond de-siltation - Bailing out of Water, Silt Removing
- Pond deepening
- ▲ Social Forestry
- ★ Thodu - Side Protection - Earth work excavation, PCC top left, RR for foundation, RR for side wall protection
- ★ Thodu - Side Protection - Earth surface dressing, Concrete apron, Fencing, Planting of Shrubs
- ★ Thodu - Side Protection - Earth work excavation, GI for foundation, GI for side wall protection
- ★ Thodu - Side Protection - Earth work excavation, RR for foundation, RR for side wall protection
- ★ Thodu - Side Protection - Earth work excavation, RR for foundation, RR for side wall protection
- Well Decantation - Bailing out water, Silt removing
- Well Decantation - Bailing out water, Silt removing, Ring work
- Well Decantation - Bailing out water, Silt removing, Well protection Wall
- Well Decantation - Ring Work
- Well Decantation - Top Cover Grill
- Well decantation - Bailing out of Water, Silt Removing
- Well decantation - Bailing out of Water, Silt Removing, Well Protection Wall
- Well decantation - Bailing out of Water, Silt Removing, Top Covering Grill
- Well decantation - Bailing out of Water, Silt Removing, Ring Work
- Well decantation - Bailing out of Water, Silt Removing, Ring Work, Top Covering Grill
- Well decantation - Bailing out of Water, Silt Removing, Top Covering Grill
- Well decantation - Bailing out of Water, Silt Removing, Top Covering Grill, Well Protection Wall
- Well Decantation - Bailing out of Water, Silt Removing, Well Protection Wall
- Well Decantation - Bailing out water, Silt removing, Ring work

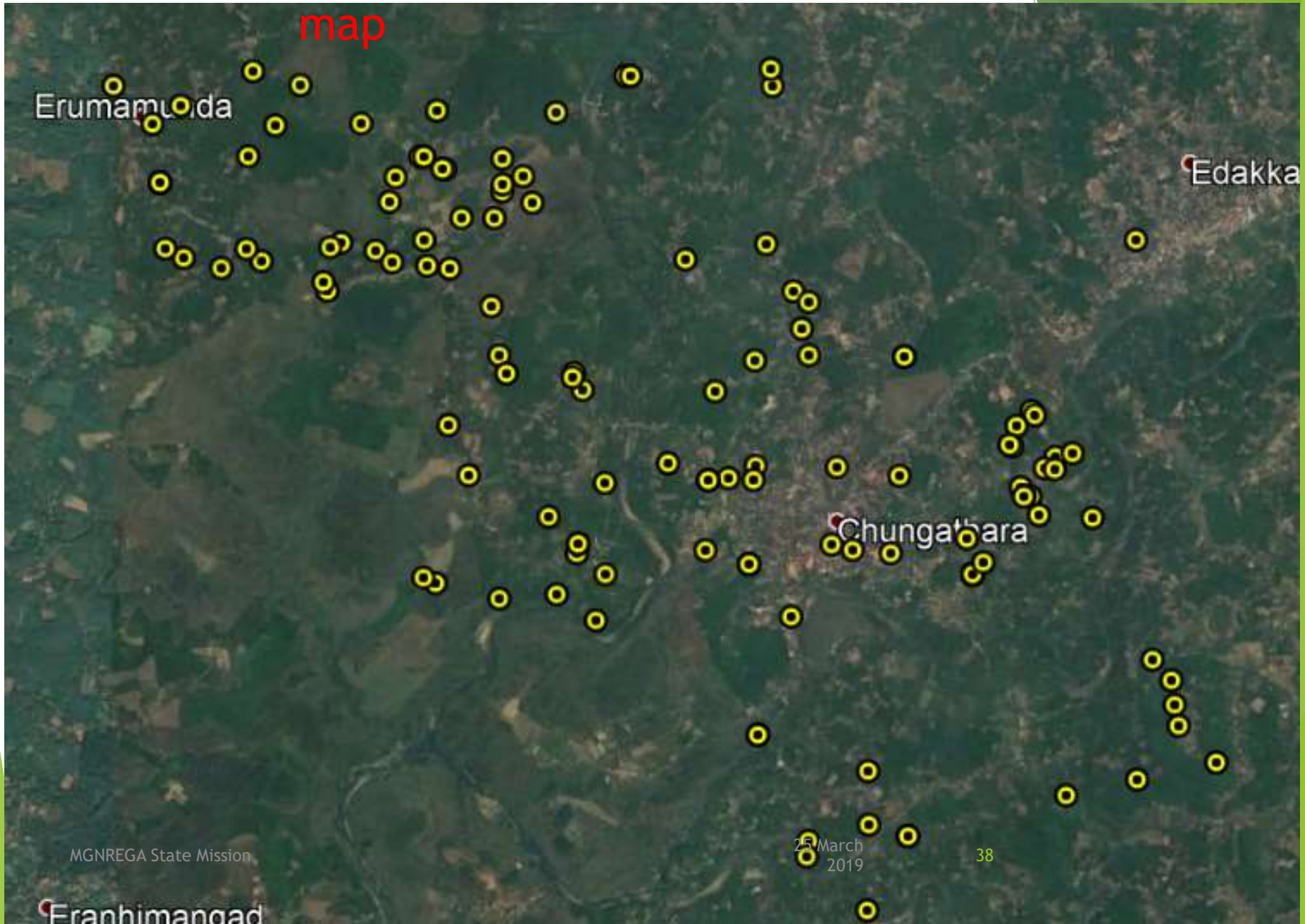
MGNREGA State Mission

25 March
2019

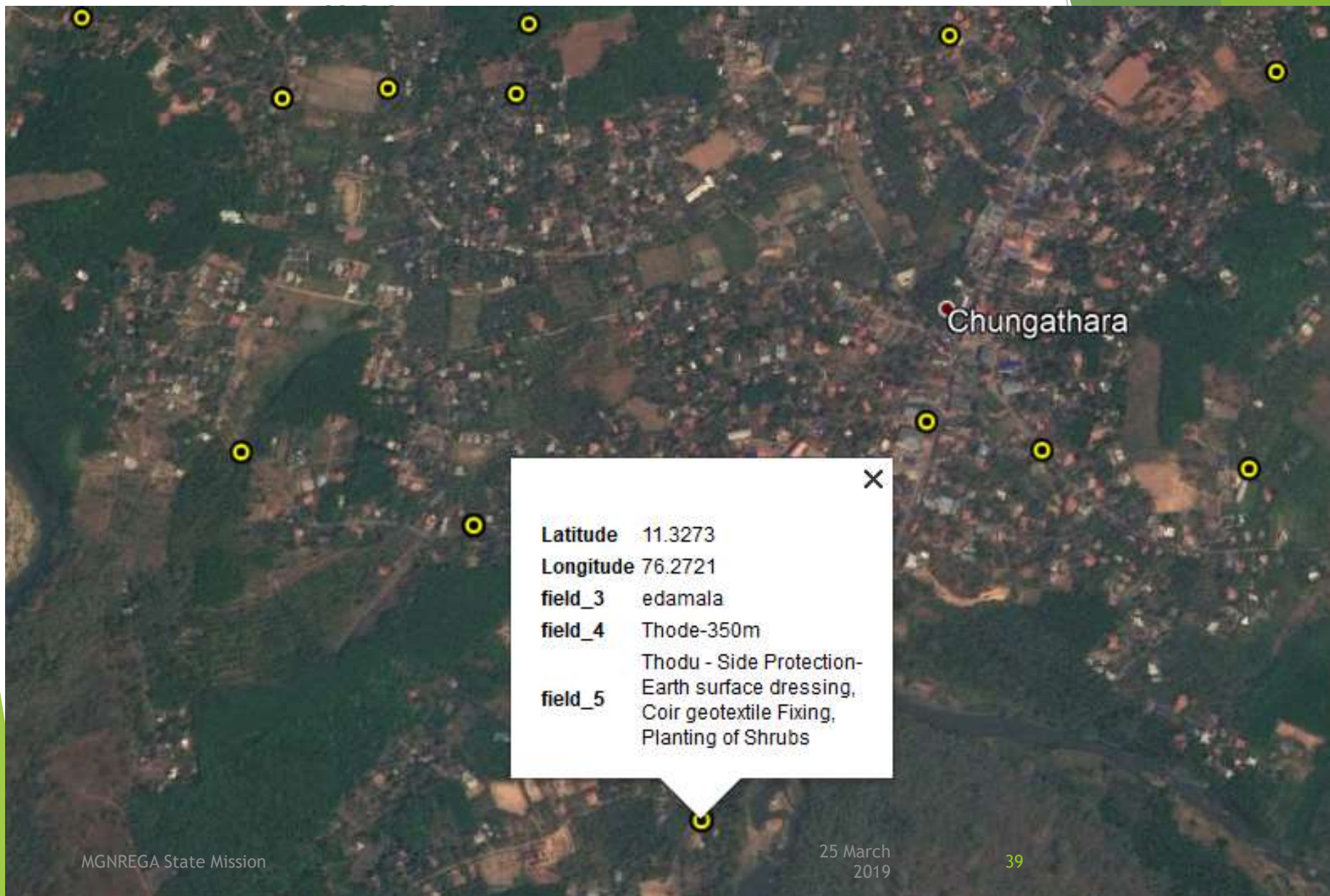
37



Interventions overlaid on Google map



Interventions overlaid on Google



THANKS