Third District Level Steering Committee Meeting On WASCA

24 August 2020; Ramanathapuram

Steps in Presentation

- Approach of WASCA and Composite Water Resource Management
- Progress Report
- Model GP Presentation
- Climate Resilient Plans
- Proposed Action Plans
- Action Points for Discussion
- Photographs
- Coastal Watershed (independent presentation)

Water Security and Climate Adaptation in Rural India (2019-22)

In cooperation with
Ministry of Rural Development & Ministry of Jal Shakti, India

Module Objective
Water resource management is enhanced through an integrated approach at national, state and local level with regards to water security and climate adaptation in rural areas.

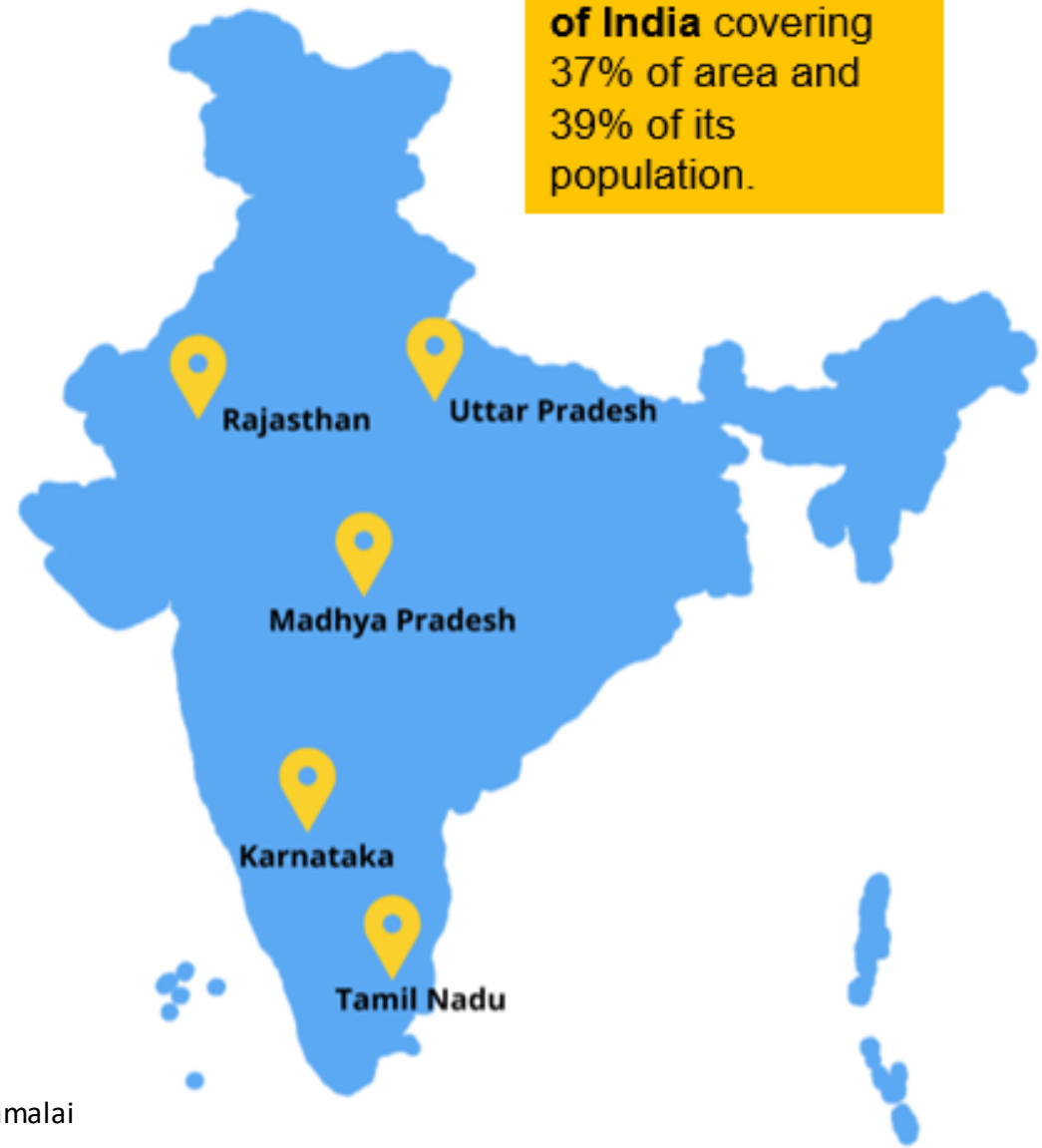
Output 1 Improving existing **planning and financing** mechanisms

Output 2 Developing **climate-resilient water management** measures

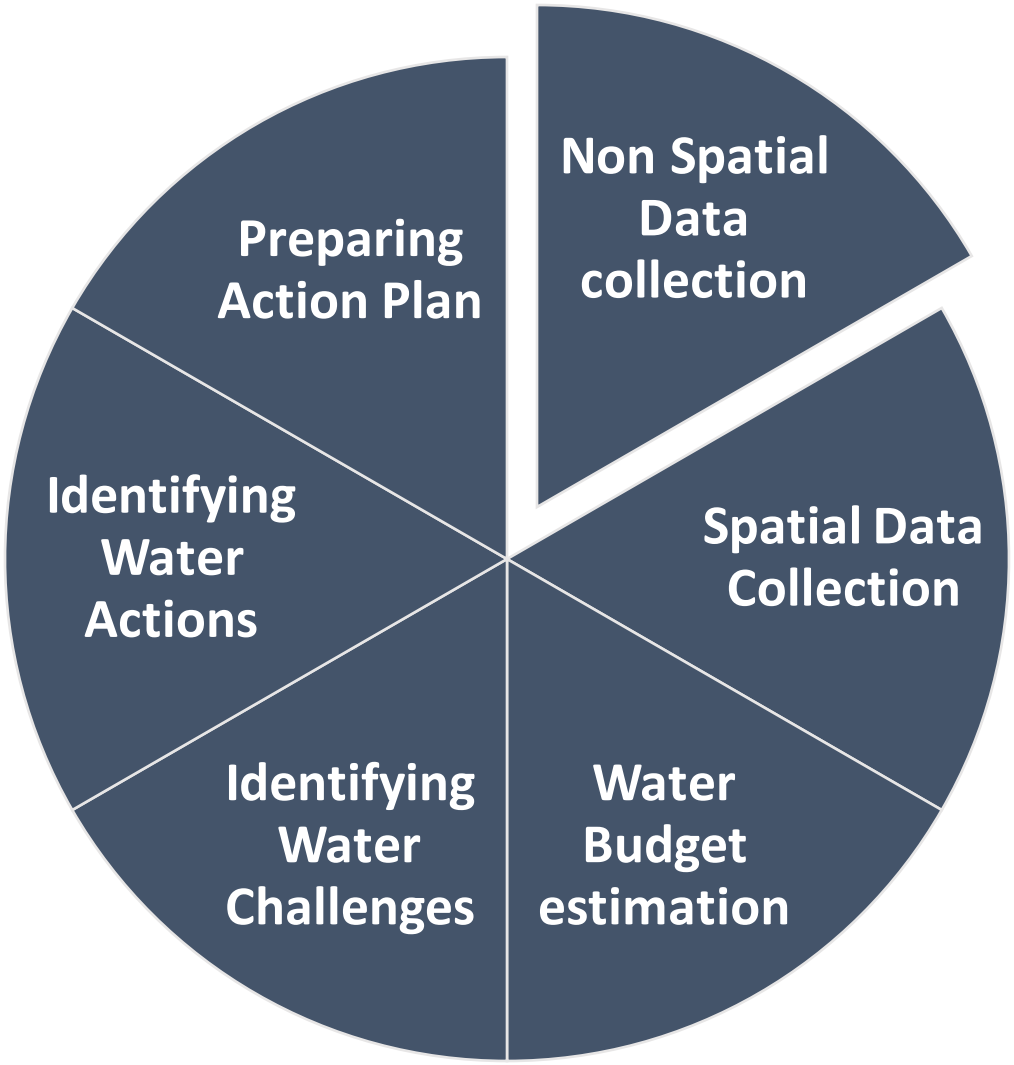
Output 3 Strengthening **cooperation with private sector**

Output 4 Increasing the **productivity and income of small farmers** through climate-resilient and water-efficient management models.

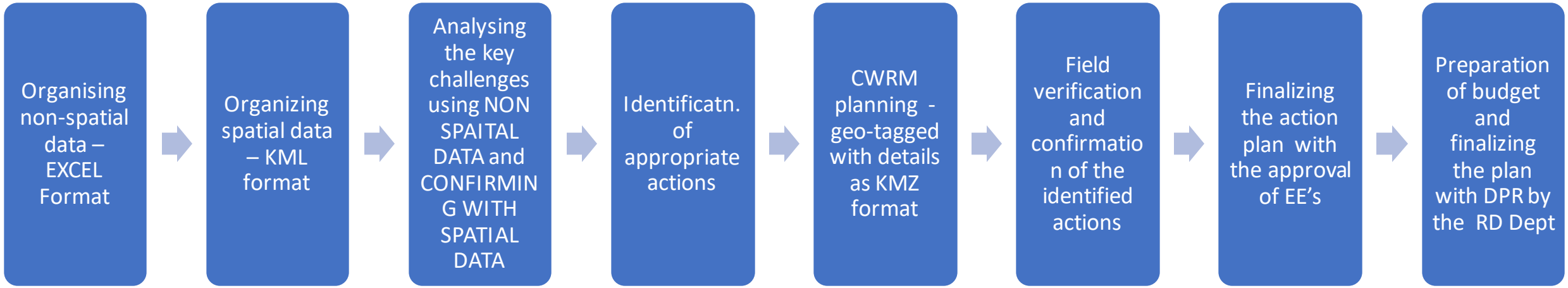
5 biggest states of India covering 37% of area and 39% of its population.



WASCA CWRMP: GP Plan Preparation: Steps



Key tasks in the process of CWRMP preparation



1.0 Non-Spatial Data collection

Village Data

Summary of Village Data

Socio Economic Profile

MGNREGS Profile

Climate Profile

Rainfall profile

Evapo-transmission

Soil Moisture

Land Details

- Land Classification
- Watershed and Micro Water Shed
- Soil Resources
- Micronutrients
- Soil Physical Parameters
- Soil Profile
- Forest Resources

2.0 Spatial Data Collection

Bhuvan 2 D:

- Location Map
- Satellite Map
- Water Resources Map
- Watershed Map
- Terrian Map

State Portal (Bhuvan)

- Erosion Map
- Salt Affected Map
- Geomorphology Map
- Liniments Map
- Ground Water Prospectus Map
- Land Use Land Cover Map
  - Waste Lands Map

Other Bhuvan Portals

- MGNREGA Assets

3.0 Non-Spatial Data collection: Water Budget

Water Resources-Supply	Water Uses	Water Quality	Water Demand	Water Balance
• Catchment Classification • Existing Water Harvesting Structures • Natural Drainage Lines / Systems • Canal Net Work	• Drinking Water Sources • Irrigation Facilities – Surface Water • Extraction of Water for irrigation • Water use practices in Irrigation	• Chemical Contamination • Bacterial Contamination • Grey Water Generation	• Agriculture Water Demand • Livestock Water Demand • Drinking Water Demand • Industry Water Demand	• Water Demand • Water Budget

4.1 WASCA CWRMP: Parameters analysed to identify key water challenges

S NO.	Parameter	S NO.	Parameter
1	Socio Economic Profile	11	Existing Drainage Networks (First order / second order drains etc)
2	Rainfall	12	Canal Network
3	Temperature	13	Drinking water
4	Evapotranspiration	14	Irrigation
5	Soil Moisture	15	Means of Water Extraction
6	Land Use	16	Water Application practices for Irrigation
7	Forest Resources and Vegetative Cover	17	Chemical Contaminants
8	Soil Profile and Soil Resources	18	Bacterial and Other Contaminants
9	Surface Water Run-Off	19	Assessment of Grey Water Generation
10	Existing Water Harvesting Structures	20	Water Demand and Water Budget

4.2 Nine-Fold Classification: Run-Off linkage & GIS

Nine Fold Classification	Type of Run-off	Reason for type of Run Off	Thematic Area
Forest	Good (HR)	Degraded forests, slopes	LULC
Area under Non Agri Use	Good (HR)	No area for infiltration (built up area, road, drainage lines, water bodies)	LULC
Barren un-cultivable land	Good (HR)	Poor Infiltration, slopes, degraded	Waste land, salt affected area
Grazing Lands	Ave (AR)	Middle slopes, medium infiltration	LULC, Geo GW prospects
Tree Crops	Ave (AR)	Low infiltration	LULC, Geo Morphology
Culturable Waste Lands	Ave (AR)	Low infiltration	LULC, Geo Morphology
Fallow Lands	BR (LR)	low infiltration, gentle slopes	LULC, Geo Morphology / GW
Current Fallow Lands	BR (LR)	Medium infiltration, gentle slopes	LULC, GM/ GW Prospects
Unirrigated area (NSA)	BR(LR)	Soil moisture low, gentle slopes	LULC/GM/GW P
Irrigated Area (NSA)	BR (LR)	Good infiltration, gentle and low slopes	LULC/GM/GW P

5. WASCA -CWRMP: Water Actions: MGNREGS & Convergence

DEVELOPMENT OF DEGRADED, PUBLIC LANDS

PRODUCTION SYSTEMS ENHANCEMENT

DOMESTIC WATER MANAGEMENT :

WATER MANAGEMENT IN RURAL AREAS

CLIMATE RESILIENCE & ADAPTATION

CWRM Progress

Name of the Block	Total No. of GPs	CWRM Plan Completed June to 15 Aug 2020	CWRM plan Work in Progress	CWRM plan Work not started	No of GPs – Final plan submitted as on 17 Aug 2020
Bogalur	26	4	10	12	4
Kadaladi	60	4	30	26	4
Kamuthi	53	4	25	24	4
Mandapam	28	3	10	15	4
Mudukulathur	46	5	8	33	4
Nainarkoil	37	4	27	6	4
Paramakudi	39	4	17	18	4
R.S. Mangalam	35	4	18	13	4
Ramanathapuram	25	6	17	2	4
Thiruppullani	33	4	18	11	4
Thiruvadanai	47	6	16	25	4
Total	**429**	48	196	185	44

Model GP Composite Water Resource Management Plan

Palankulam Gram Panchyat

Thiruvadanai Block

Ramanathapuram

Tamil Nadu

Climate Parameters: WASCA - CWRMP: Ramanathapuram

Months	Minimum (°C)	Maximum (°C)	Difference in Day / Night Temp (oC)	Evapo Transpiration in mm	ET in mts	Water Loss due to ET in HaM	% of ET losses to total ET losses	Vol. Soil Moisture in %	Normal Rainfall (mm)	% Normal Rainfall (mm)	Normal Rainy days (No.)	Normal Rainy days (No.)	Average Intensity
1	2	3	4	5	6	7	8	9	10	11	12	13	14
June-18	27.3	34.8	7.50	74.00	0.07	47.67	14%	21.00	121.7	15%	9	8%	13.52
July-18	27.5	36.3	8.80	52.00	0.05	33.50	10%	19.00					
August-18	26.3	35.3	9.00	52.00	0.05	33.50	10%	25.00					
September-18	26.2	35.2	9.00	34.00	0.03	21.90	7%	38.00					
October-18	25	31.9	6.90	83.00	0.08	53.46	16%	37.00	507.4	63%	84	79%	6.04
November-18	23.5	30.9	7.40	71.00	0.07	45.73	14%	19.00					
December-18	23.1	31.2	8.10	51.00	0.05	32.85	10%	14.00					
January-19	20.9	31.1	10.20	34.00	0.03	21.90	7%	13.00	82.2	10%	4	4%	20.55
February-19	24.8	33.5	8.70	32.00	0.03	20.61	6%	1.00					
March-19	26.6	35.6	9.00	17.00	0.02	10.95	3%	6.00					
April-19	28.1	36.9	8.80	9.00	0.01	5.80	2%	3.00	95.5	12%	10	9%	9.55
May-19	28.6	36.4	7.80	13.00	0.01	8.37	2%	7.00					
Total				522.00	0.52	336.24			806.8		107		
Av Per Month			8.43	43.50	0.04	28.02		16.92	67.23		9		

Climate Analysis (source: WRIS, CWC, MoJS)

1) Temperature

- Average difference between D/N Temperature is 8.4 degree C
- The difference between D/N temp is high during months of July-Sep; Jan-May

2) Evapotranspiration

- Annual ET is 522 mm
- Total ET Losses in the GP is estimated at 336.2 HaM
- ET losses is observed more during the months of June, Oct, Nov

3) Volumetric Soil Moisture

- Average volumetric SM percentage is 16.92%

4) Rainfall

- N.R is 806.8 mm annually
- 15% of Rainfall during June-Sep
- 63% of Rainfall during Oct-Dec
- 10% Winter Rainfall
- 12% Summer Rainfall
- 107 Rainy days, of which 79% is during Oct-Dec

Potential Works Under WASCA : CWRMP Land Classification Analysis

S NO	Land Classification	Total Area	% of Classification	Logic for Treatment	Factor	Estimated Treatment Area under WASCA CWRMP Ha	Treatment Area under WASCA for Plantation activity	Estimated No of Plantations (Block, Comm & Indv)	Estimated No of Linear Community Plantations	Total Estimated Plantations Numbers	Potentail No of Vunerable familes Supported	Soil Moisture Conservation Work (No of Trenches)	Drinage Line Treatment Works in RMT	Proposed Number of Farm Ponds (Comm & Indv)	Propsoed No of Farm Bund with boundary trench	Proposed Farmers for Land Development	Proposed Farmers for Composting
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Forest Area	0	0%	40% of Area	0.40	0.00	0.00	-		-	0	0	0	0	0	0	0
2	Area under Non-Agricultural Uses	226.96	26%	Additional Area above 15 or 20%	0.85	11.61	11.61	9,290	1,240	10,530	53	2323	8818.37	2	0	0	0
3	Barren & Un-cultivable Land Area	0	0%	85% of Area	0.85	0.00	0.00	-		-	0	0		0	0	0	0
4	Permanent Pastures and Other Grazing Land Area	0	0%	85% of Area	0.85	0.00	0.00	-		-	0	0		0	0	0	0
5	Land Under Miscellaneous Tree Crops etc. Area	0	0%	85% of Area	0.85	0.00	0.00	-		-	0	0		0	0	0	0
6	Culturable Waste Land Area	1.16	0%	85% of Area	0.85	0.99	0.99	1,578		1,578	8	197		0		0	0
7	Fallows Land other than Current Fallows Area	0	0%	Percentage of Vulnerable HH (SECC)	0.18	0.00	0.00	-		-	0	0		0	0	1	0
8	Current Fallows Area	21.06	2%	Percentage of Vulnerable HH (SECC)	0.18	3.89	1.95	389		389	2	0		2	2	4	2
9	Total Unirrigated Land Area	500.58	57%	Percentage of Vulnerable HH (SECC)	0.18	92.55	46.27	9,255		9,255	37	0		37	37	0	52
10	Area Irrigated by Source	122.5	14%	Percentage of Vulnerable HH (SECC)	0.15	0.00	0.00	-	-	-	0	0	0	0	0	0	0
	Total	872.26						20,512	1,240	21,752	99	2520	8818.37	41	39	5	54

Micro Watershed Analysis

Palanakulam CWMRP - WASCA : WATERSHED ANALYSIS																			
Micro W/s No.	Area (Ha)	Extent WS area in GP in Ha	WS Location	% Area of WS to Total GP Area	% of WS in GP	No of Drinage lines in the WS	Order of Drinage lines	No of Tank/Ooran i in the Area	Extent of Tank in WS	Build up Area in Ha	Barren Land	Waste Land	Erosion land	Salt affected area	Pasture Land	Tree Crop land	Fallow Land	Run Off Catchmen t Area	Priorit y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A09B	128.91																		
A09A	243.7																		
A08B	574.35	47	Upper Boundar y	5%	19%	1	Higher Order	1	Partial	4	0	1	0	0	0	0	5	Good, bad	4
A08C	718.75	144	Upper Boundar y	17%	20%	0	0	2	Partial	8	0	0	0	0	0	0	0	Good, bad	3
A04D	1009.75	455	Upper Boundar y	52%	45%	1	Higher Order	4	Complet e 3; one partial	17	0	0	0	0	0	0	0	good, bad	1
C04A	1013.16	198	Upper Boundar y	23%	20%	0	0	0	0	6	0	0		0	0	0	0	good, bad	2

Soil Classification

Type of Soil	Presence	Pc of Type of Soil		
FINE LOAMY	794	91%	Soil Texture: Silty clay loam with a proportion of 0-20% sand; 40-73% silt; 27-40% Clay Permeability - 0.8 -1.3 cm/hr which is Moderatively slow	
VERY FINE	14	2%		
NONE (Sand)	61	7%		
Total	**869**			
Actions: Considering the medium to low permeability rate – actions to increase the permeability such as composting, silt application, agroforestry (by adding more leaf residues and reduce the direct impact on the soil) which improves soil structure and measures like farm buding with trenches reduce the runoff flow there by soil erosion in this saline/alkaline soil conditions				

Catchment Area Analysis
and Estimated Run Off Treated in the Current Planning

	Run Off Treated under current Plan							13%
	Area	% of Runoff	RO HaM	% RO HaM	Proposed Treatment Area	% of Treatment area to Catchment	Estimated HaM area Treated	RO Recharge or stored
Good Catchment	226.96	28.5	50.35	41%	11.61	5%	9.53	2.72
Average Catchment	1.16	21.3	0.20	0%	0.99	85%	0.81	0.17
Bad Catchment	644.14	14.2	73.17	59%	96.44	15%	79.18	13.69
Total	872.26		123.72		109.04	13%	89.52	16.58

Surface Water: Existing Water Bodies

S.N.	Name of Structure	Existing Structures Surface Water Bodies			
		No.	Area in Ha	Storage Capacity (Ha.M)	Key Issues
1	Pond or Tank				
2	Oorani	23	8.65	12.98	Out of 23, 13 ooranis have been renovated previously, Renovation of 10 ooranis need to be done - desiltation and strengthening of bunds; reduce the silting through inlet silt traps and sluice and surplus weir repairs:
3	Farm Pond	9	0.25	0.375	Need desiltation and strengthening the bunds and planting horticulture/forage crops
4	MI Tanks and PWD tank	8	62.36	93.54	Out of eight tanks, two has been covered under *Kudimaramathu* including one PWD tank; so six tanks has to be renovated with works such as desiltation and strengthening of bunds
	Total	40		106.89	

Surface Water: Canal and Field Channels

S.N.	Type	Length in Village (m)	Type of Use	Key Issues
1	Main Canal (Virusuliyar river)	1000	Agriculture	The village has 1000 m main canal and a PWD tank has 4800 mts length of Field Channels; which needs renovation such as lining, desiliting of field channels and strengthening the bunds with vegetation
2	Minor	0	Nil	
3	Distributaries	0	Nil	
4	Water Courses (Field Channels)	4883	Irrigation	
	Total	5883		

Drinking Water Status

Availability of Drinking Water				
Source Type	Functional in No.	Households dependent	% GW Sources	% SW Sources
Tap Supply FHTC	0	0	0%	0%
Tap Supply Public	0	0	0%	0%
RTRWHS / Tanka	0	0	0%	0%
Handpump	0	0	0%	0%
Openwell	3	258	9%	0%
Borewell	8		24%	0%
Tank/ Pond/ Oorani	23	210	0%	68%
Springs	0	0	0%	0%
River/ Streams	0	0	0%	0%
Total	34			

Irrigation Status

Status of Irrigation Facilities-Surface Water (Source: Census 2011)			
Type	Area Irrigated (Ha)	Available (Months)	Key Issues
Canals Area (in Hectares)	0	Nil	the village is depending completely on surface water and the ground water is not used for irrigation; water use efficiency have to be looked in
Wells/Tube Wells Area (in Hectares)	0	Nil	
Tanks/Lakes Area (in Hectares)	122.5	6 to 8 months	
Waterfall Area (in Hectares)	0	Nil	
Other Source (specify) Area (in Hectares)	0	Nil	

Assessment of Greywater Generation

Assessment of Grey Water Generation					
S.N	Waste water generation Source	Per day/unit wastewater generation in L	Daily volume of Grey water in L	Annual Grey water in CuM	Key Observations
1	Bathing	15	19050	6953.25	Grey Water Generation need measures to recycle and safe disposal using horizontal and individual soakpits
2	Washing	10	12700	4635.5	
3	Toilet	10	12700	4635.5	
4	Cleaning	5	6350	2317.75	
5	Cooking and cleaning Utensils	5	6350	2317.75	
6	Others	5	6350	2317.75	
	Total	50	63500	23177.5	
	Annual Grey water generated in HaM			2.32	

Water Demand

Water Demand Estimation (Primary Information)						
Water Users	Total Annual Requirement (HaM)	Requirement met by Gr. Water	Requirement met by S.Water	% Requirement met by Gr. Water	% Requirement met by S.Water	Key Observations
Human	3.48	1.12	2.35	32%	68%	Highly dependent on the surface water sources for irrigation
Animals	1.55	1.27	0.28	82%	18%	
Agriculture	627.15	0.00	627.15	0%	100%	
Industry	0.00	0.00	0.00	0%	0%	
Total	632.2	2.4	629.8			

Village Water Budget

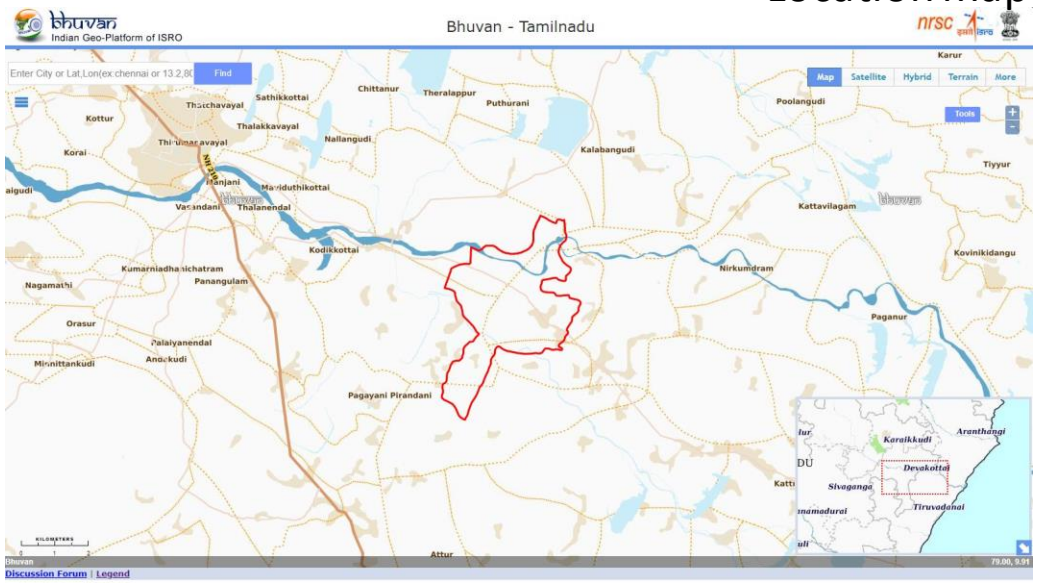
Village Wise Water Budgeting (Ha.M)			
S.N.	Component	Required Volume (Ha.M)	Key Observation
1	Water for Human	3.48	GP is water deficit by 608 HaM and available runoff for storage is 123.7 HaM. Agriculture is the main consumer of water- specifically for paddy cultivation both in rainfed and wetlands, need to improve the water use efficiency by suitable technologies
2	Water for Agriculture	627.15	
3	Water for Animal	1.55	
4	Water for Industry	0.00	
5	Water for Other Purposes	0.00	
6	Village wise water required (1 to 5)	632.18	
7	Available run-off from rain water	123.72	
8	Harvested Runoff from Water Harvesting Activities	106.89	
9	Potential Harvesting from proposed Interventions	16.58	
10	Total Water harvested	196.41	
11	Water deficiency/Surplus (10-6)	-435.76	

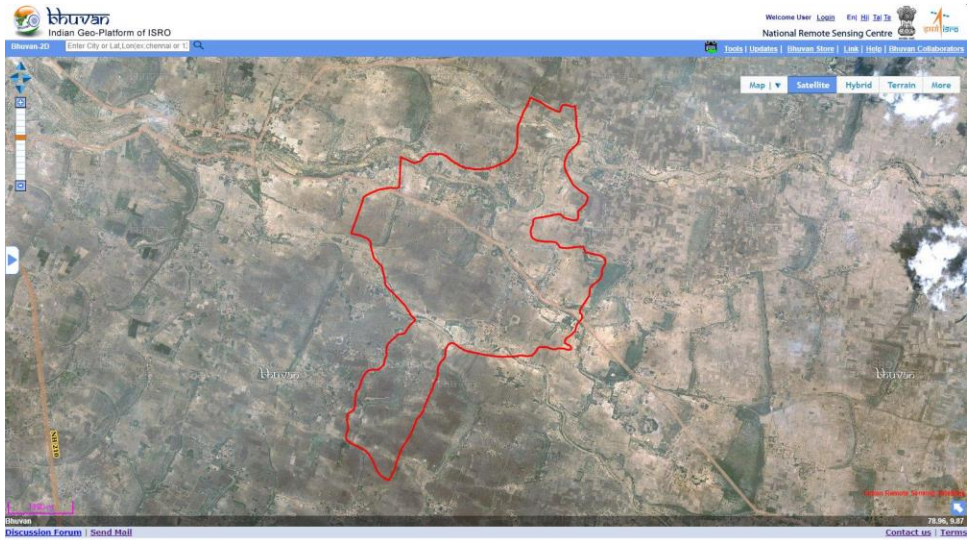
Works Proposed

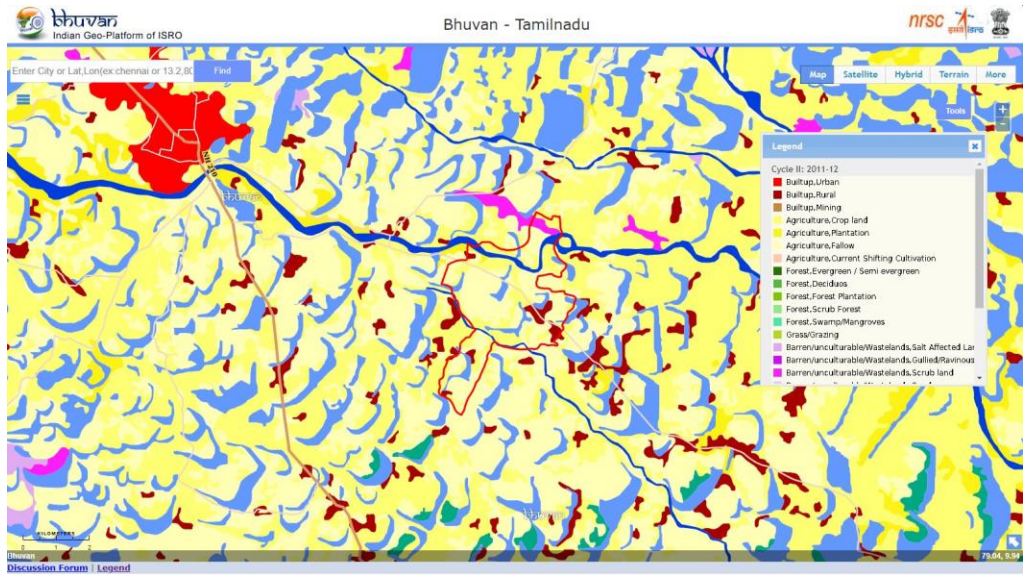
Consolidated Proposed Activities for Water Security		
Activity	Numbers	Area In Ha
Treatment measures of upper slopes		
Afforestation	Mini Forest - 1	1 Ha
Drainage Line Treatment (DLT)	3 drainage lines	3935 M
Treatment measures of middle slopes		
Avenue Plantation	951 saplings	3806 m
Treatment measures of gentle slopes		
Deepening of waterbodies	10	
Desiltation of waterbodies	6	
Waterbody Bund strengthening	16	
Plantation in the bunds	3585 saplings	10787 M
Inlet development with silt trap of Waterbodies	16	
Surplus/waste weir	6	
Treatment measures for canal network		
Irrigation channels	4883 M	
Canal side plantation	1627 saplings	
Treatment measures for farmlands		
Composting	31	31 farms
Farm Bunding with trenches	31	31 ha
Farm bunding with Agro forestry	31	3100 saplings
Construction of farm ponds	31	31 farms
dryland horticulture cum forage legumes	8000	20 Ha
Drinking water measures		
Rooftop Rainwater Harvesting cum storage	3	
Grey water management		
Nutri garden	450	90 Households
soak pits	90	

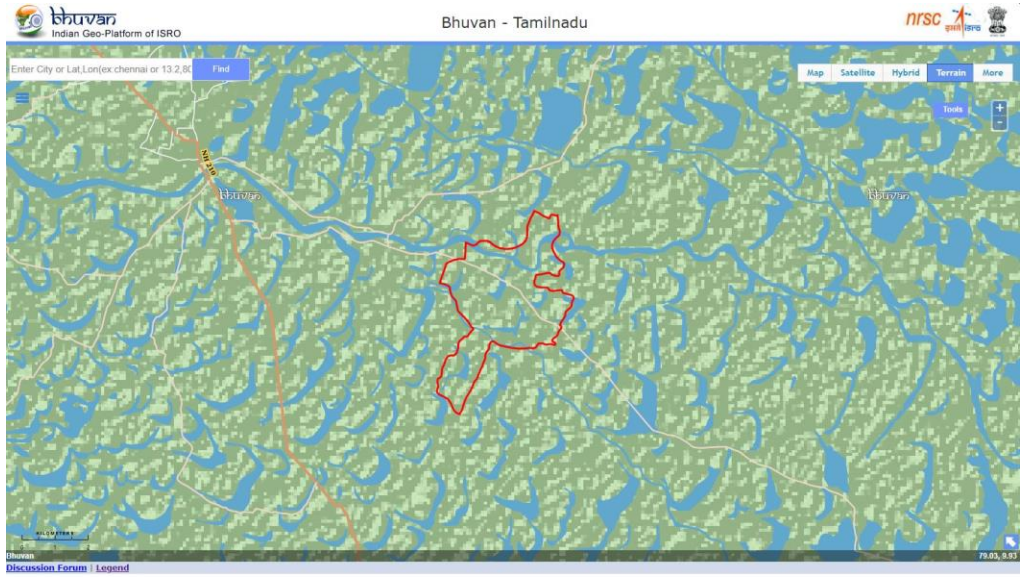
Thematic maps : GIS Layers - Bhuvan

Location map and satellite map





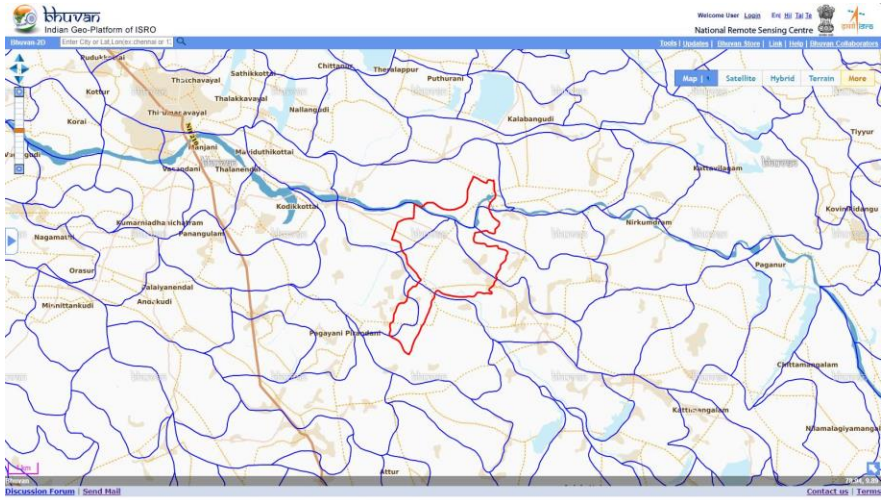




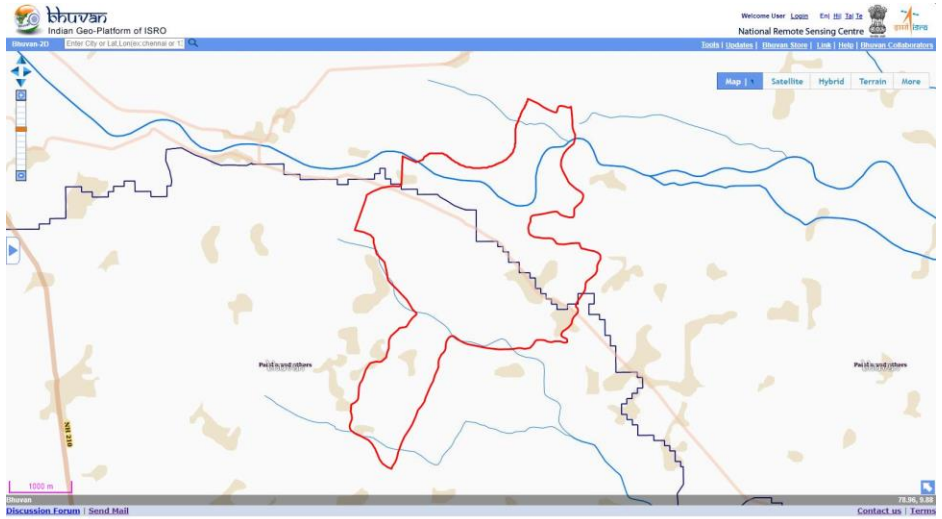
Land use and land cover Map

Terrain map

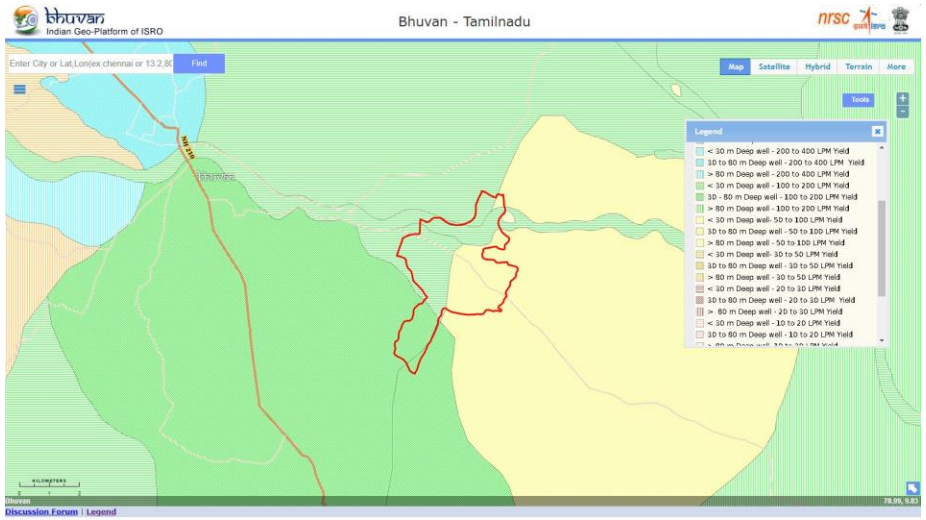
Thematic maps : GIS Layers - Bhuvan



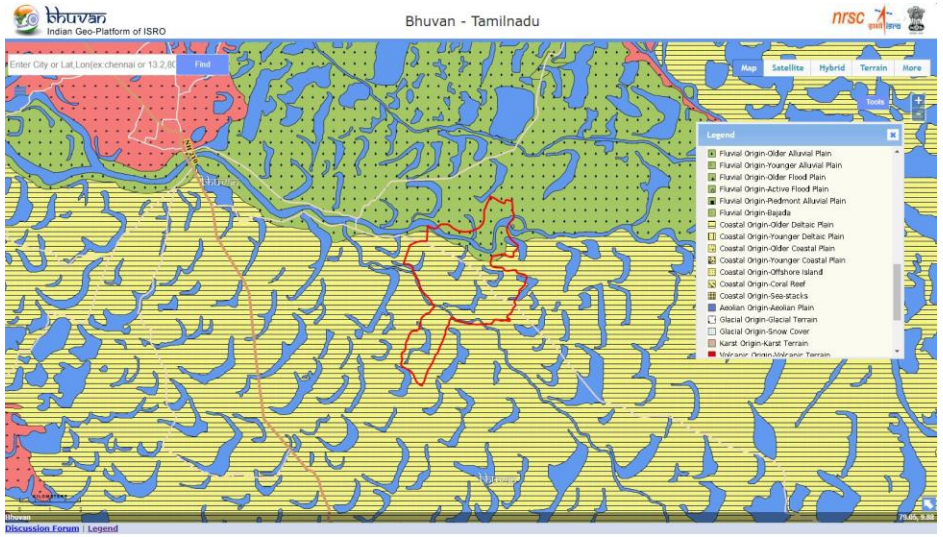
Watershed



Drainage and surface waterbodies

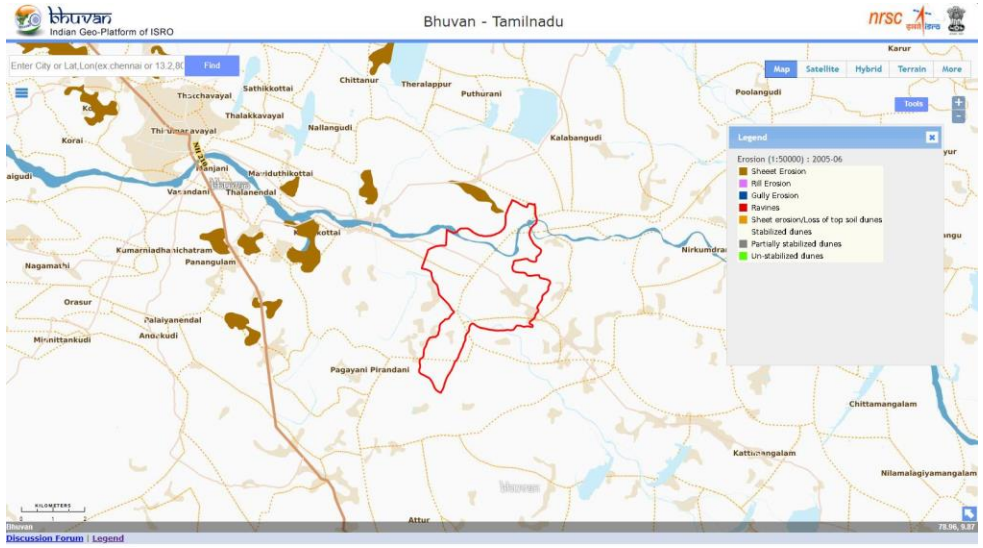


Ground water prospectus map

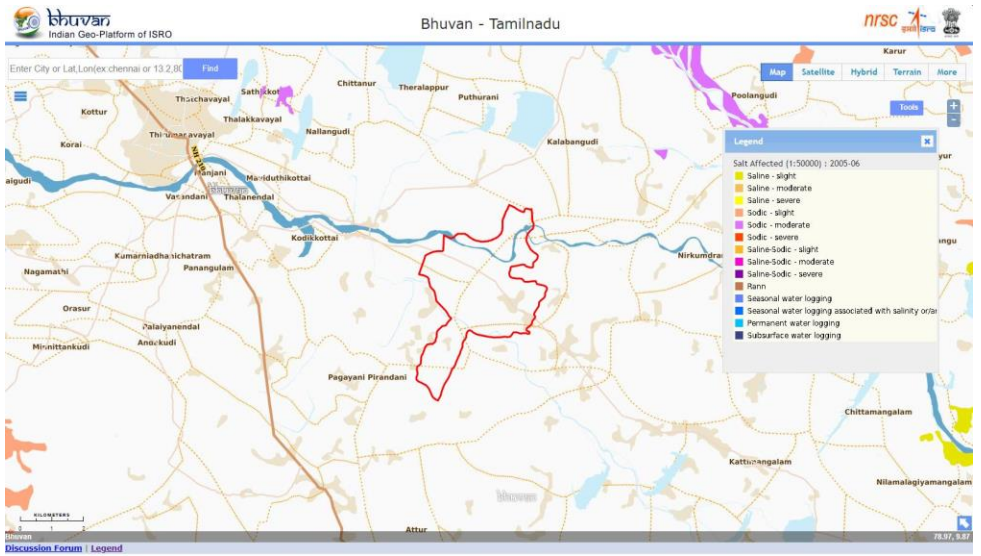


Geomorphology

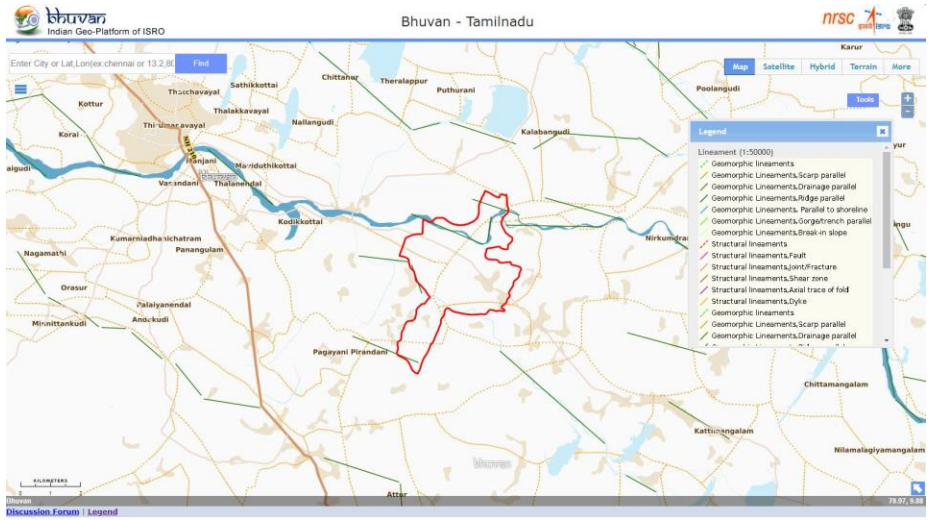
Thematic maps : GIS Layers - Bhuvan



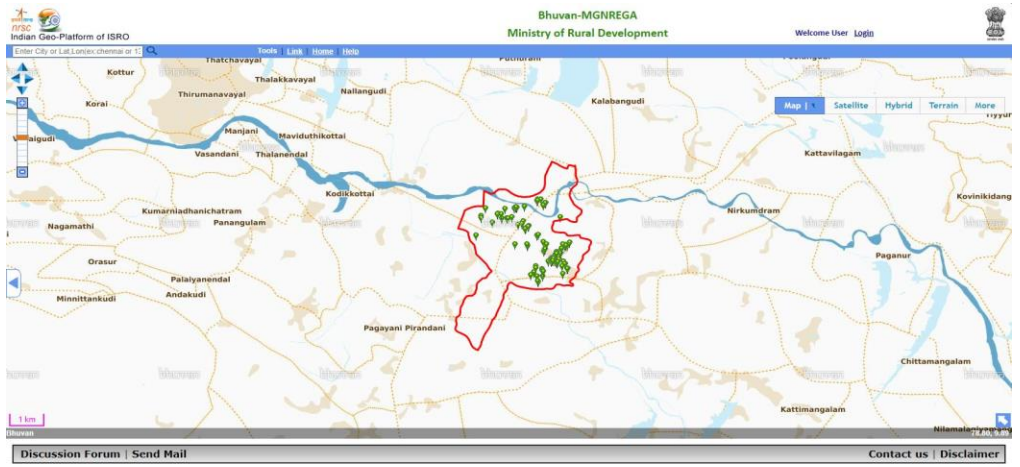
Erosion Map



Waste land

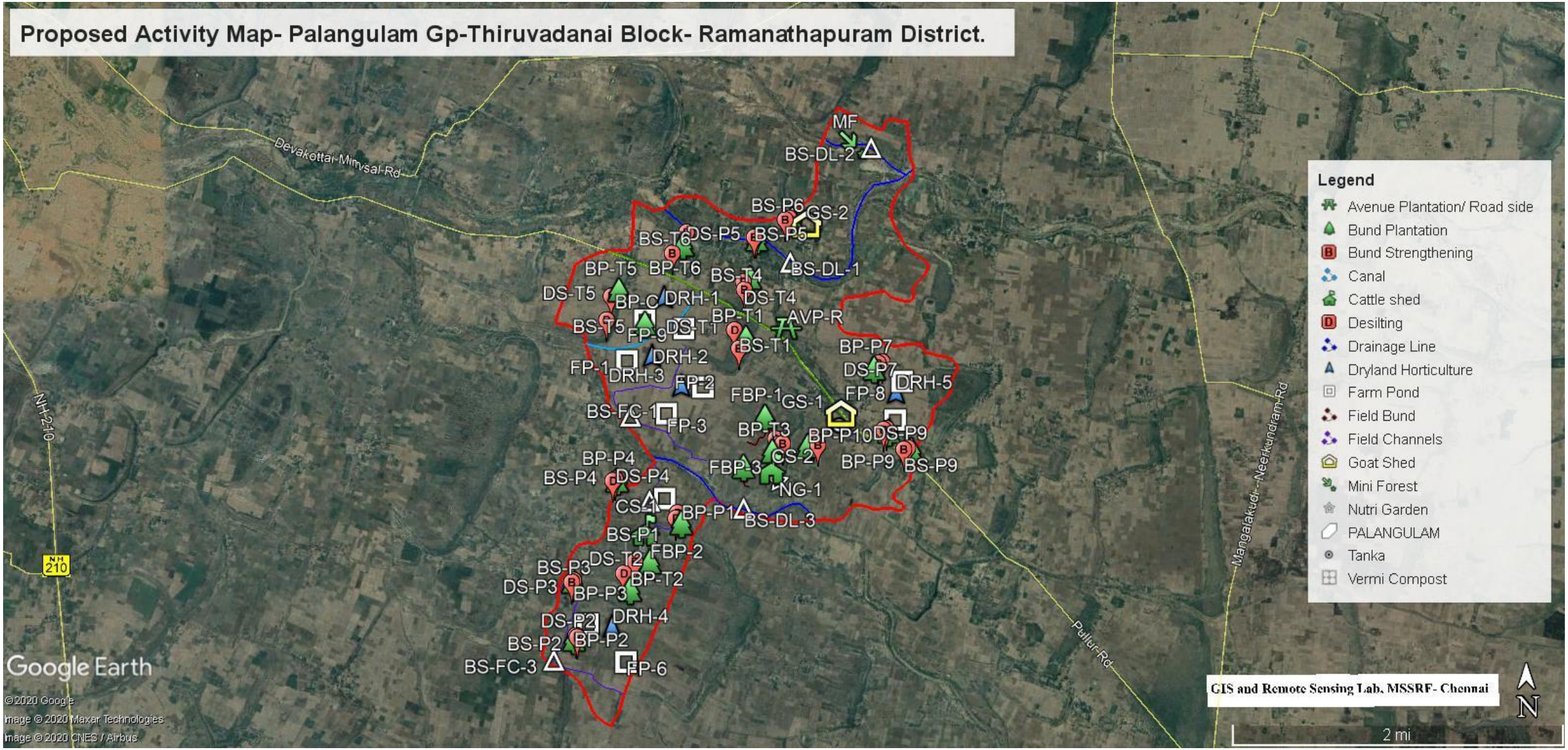


Lineament map



MGNREGA Assets Map

Proposed Works: CWRMP WASCA



Climate Resilient models - GPs

No.	Name of the Climate Resilient model	Name of the GP	Name of the block	Stauts of CWRM plan
1	Coastal watersheds	GP names given in the excel sheet	Kadaladi, Thirupulani, Thiruvadanai	
2	Tanka	Thillainendal – Type 3	Thirupulani	
		Chiturvadai – coastal village	RS Mangalam	Excel sheet completed and KMZ completed
3	River Bank Stabilization	Urapuli – type 5	Paramakudi	
4	Cascade of Tanks	To be identified	RS Mangalam	
5	Mini-forest - Nursery	Vendoni	Paramakudi	Completed
6	Restoration of Degraded lands			

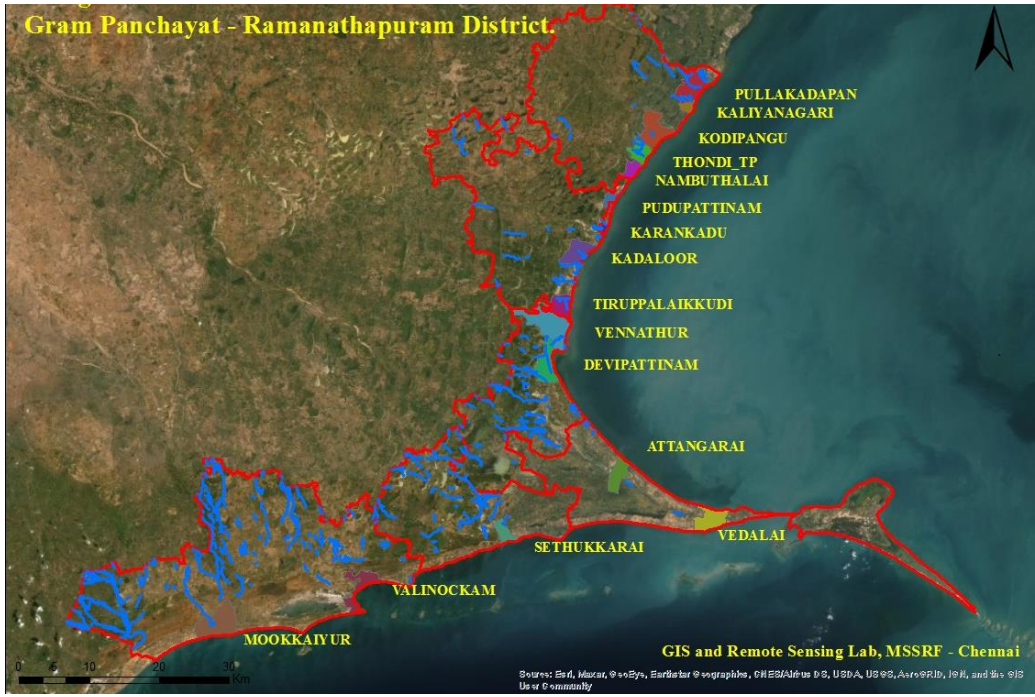
Coastal Watersheds of Ramanathapuram

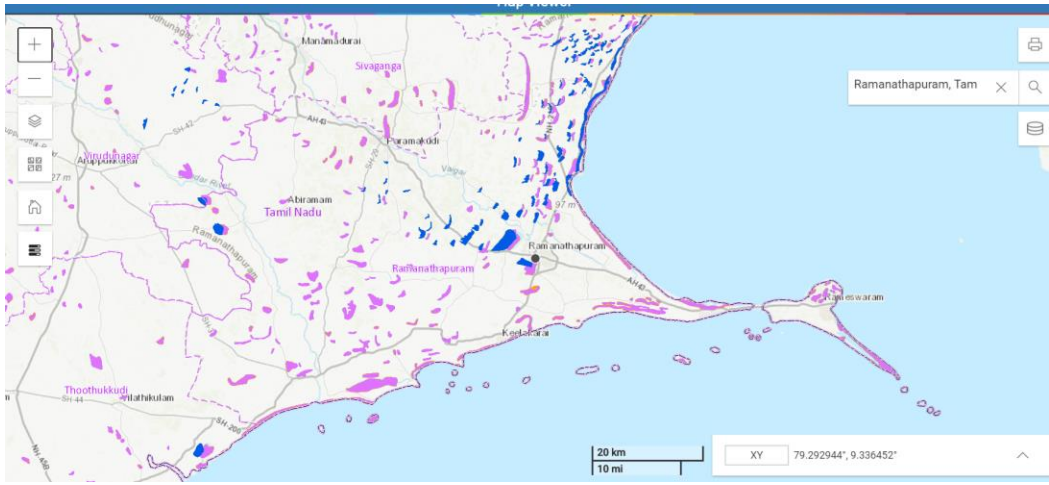
Coastal Watershed: Ramanathapuram District		
SNo	Description	Number
1	Total No of Blocks	11
2	Coastal Blocks	6
3	Coastal Gram Panchayats	45
4	Coastal Blocks Area in Ha	2,18,233
5	Coastal Population (2011 census)	5,70,012
6	Coastal Area No of Households	1,34,858
7	Coastal Micro Watersheds (Nos)	253
7a	Inner Coastal Watershed Systems (Nos)	189
7b	Outer Coastal Watershed Systems (Nos)	64
8	Total Area of Coastal Watershed in (Ha)	1,75,200
9	Average Rainfall Coastal Area (in mm)	821
10	Coastal GPs having Mud flats and Mangroves	16
11	Coast Line Length (in KMs)	271
12	Name of marine biosphere in ha	277.26

1. Coastal Watersheds:

Components of Coastal Watershed Management:

a) Restoration of Water Bodies
b) Development of Wetlands
c) Management of creeks
d) Restoration of Mangroves
e) Management of sand dunes
f) Reduction of salinity (sea water) intrusion
g) Development of Agriculture Land Productivity





Coastal Watersheds in Rural Areas (CWRA):
Activity Development Plan: MGNREGS Convergence

Sno	Coastal Resources	Water and Land Measures	Vegetative Measures	Fish &Aqua culture Measures
1	Water bodies	• Restoration of Tanks and Ooranis (System and non-system tanks)	• Plantation to prevent erosion	• Fish tanks/ ponds
2	Streams and Creaks	• Stream bank treatment for 3rd and 4th order streams, • check dams across graded stretches, • Check dams along graded stretches of streams • Protection and restoration of creeks	• Stream bank plantations (Palmyra; Neem; Pongamia) • Mangroves	•
3	Wetlands	• Bund Strengthening • Eco-parks • Mini Forest, Plantations • Inlets and Outlets management • Aquifer Mapping	• Water Lilly;	• Fish culture
4	lands under invasive species	• Land development • Mini Forest • Agroforestry and Plantations with local species	Neem; Pongamia	•
5	Farmlands	• Contour bunding, • Land development for water spreading over paddy fields	• Coconut and palmyra plantation, • Mango or horticulture plantation • Fodder development	
6	Drinking water & Sanitation	• Roof Water Harvesting for storage • Pucka drains for grey water • Re-cycle of Grey Water • IHHL models which are coastal eco system friendly	• Homestead • Nutri gardens	
7	Mud flats & Mangroves	• Fish bone technique for tidal and freshwater main canal and side canals for mangroves • Open shore planting	• protection of mangrove forest • Afforestation of mangroves on revenue land & reserve forest land wherever possible.	Improving fishing grounds
8	Coastline & Sea shore	Erosion Control Measure	Mangroves; Shelterbelts	

Three Pilot Areas: Coastal Watershed

Pilot 1: Coastal Watershed:
Creeks- Mangroves-Agriculture land- Coastline

Pilot 2-Coasttal Watershed:
Agriculture Land – Wetland Coastline

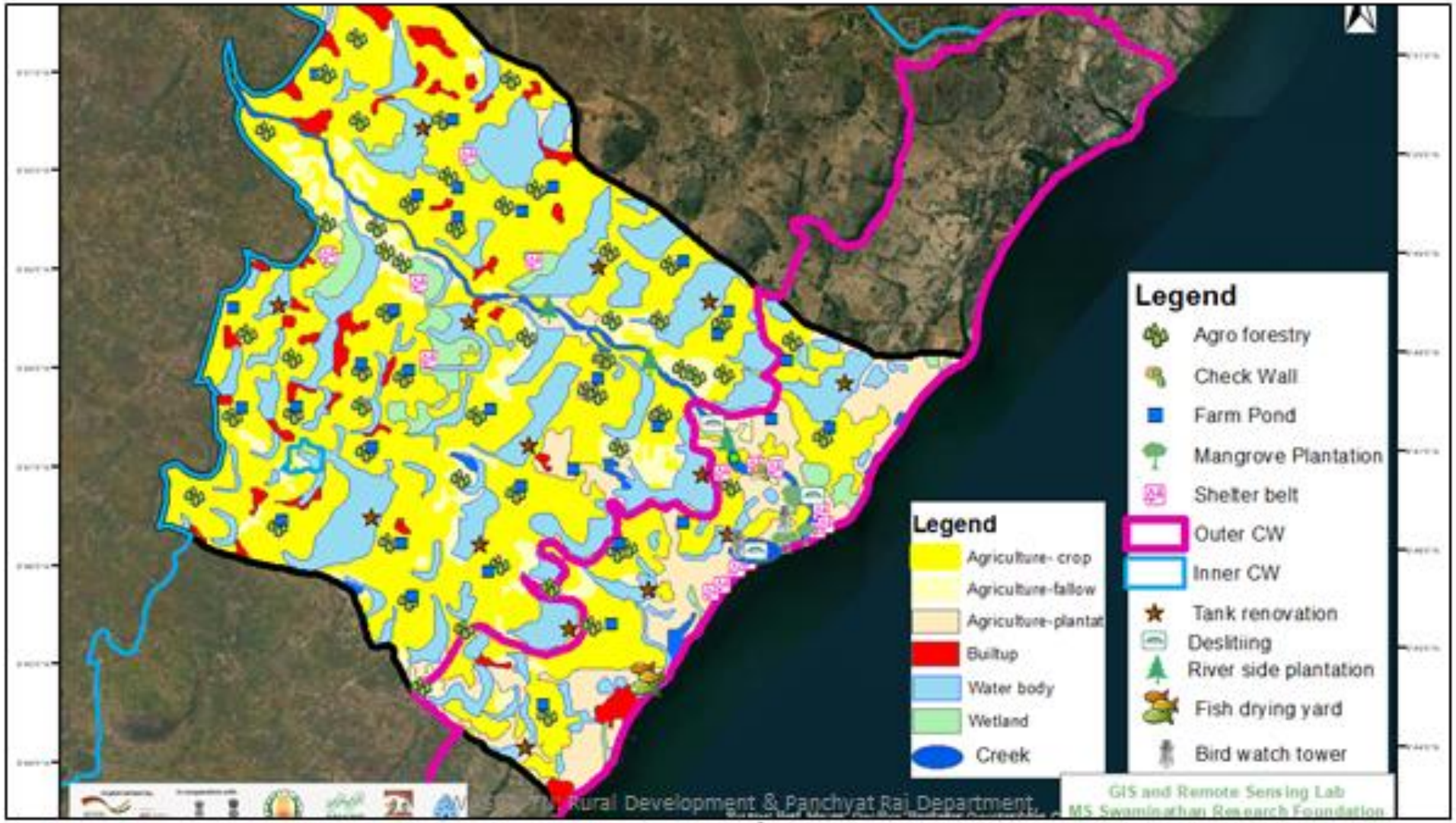
Pilot 3- Coastal Watershed:
Agriculture land – Coastline- sand-dunes

Coastal Watershed: Ramanathapuram: Pilot Area Description

Pilot Area	Total No of Blocks	Total No of GPs	Total No of Microwatersheds	Total Area
Pilot Area 1				
Pilot Area 2				
Pilot Area 3				

Draft Action Plan: Coastal Watershed

Category 1 : Agriculture land+ Creek –River +Mangrove+ Coast line

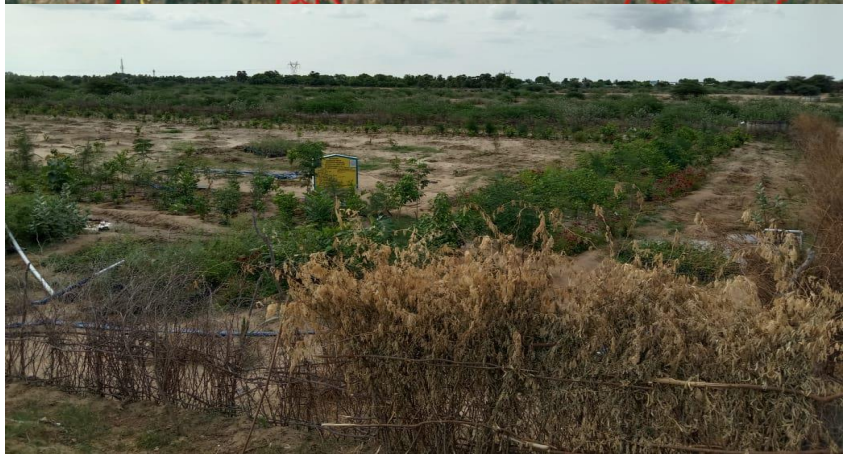


2) Ensuring Drinking Water – TANKA Model

Work in progress:

- Chithurvadi - RS Mangalam block and
- Thillainendal, Thirupulani block

3) Riverbank Stabilization and Ground Water Management



Site identified: Urapuli, Paramakudi block

- Riverbank Stabilization: helps to Flood Control, Control siltation through bank stabilization and conserve river ecosystem
- Approach – Development of Mini forest along the bank with diverse tree species control erosion
- Nursery for Mini Forest near to the site Helps developing native species and generate employment

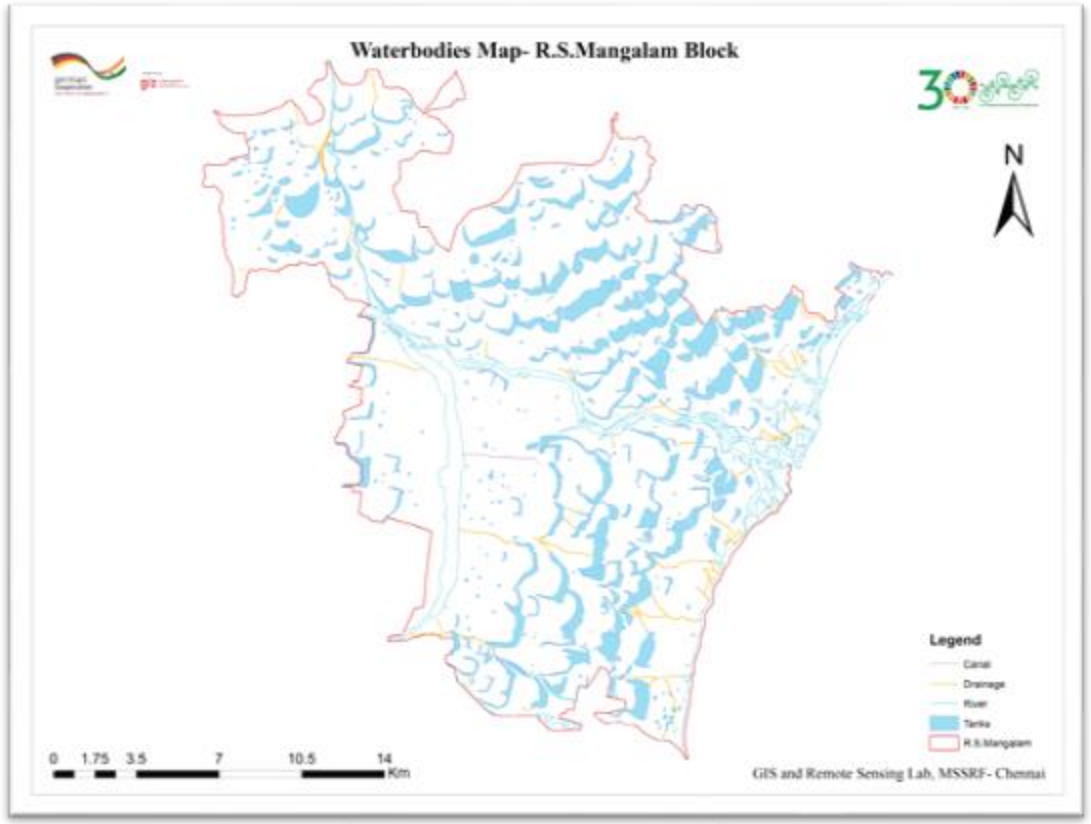
Tying up the maintenance and management of riverbanks through SHGs or Landless women groups helps to creating livelihoods through inter cropping of mini forest gap area with vegetables, fruits, flowers & medicinal plants

This initiates control encroachment

4) Cascade Tanks & Restoration of Ooranis

1	Mapping of System and Non-System Tanks
2	Mapping of Ooranis
3	Linking up of Systems tanks through desiliting of supply channels and ooranis
4	Strengthening bunds, sluices, surplus weir
5	Tank Bund and Foreshore Plantations
6	Non-System tanks: watershed approach of treatment to regulate inflows and silt traps

Cascade Tanks Map of RS Mangalam



5 Agro-Forestry Systems

- A sustainable intensification model which promotes environmental services, ensures food production and income generation, thus it builds the resilience of the people and ecosystems
- Better approach to restore the current fallow and degraded lands and Improves the micro -climate of the region and conserve soil and water resources
- *contributes to SDGs 1,2, 12, 13 & 15*

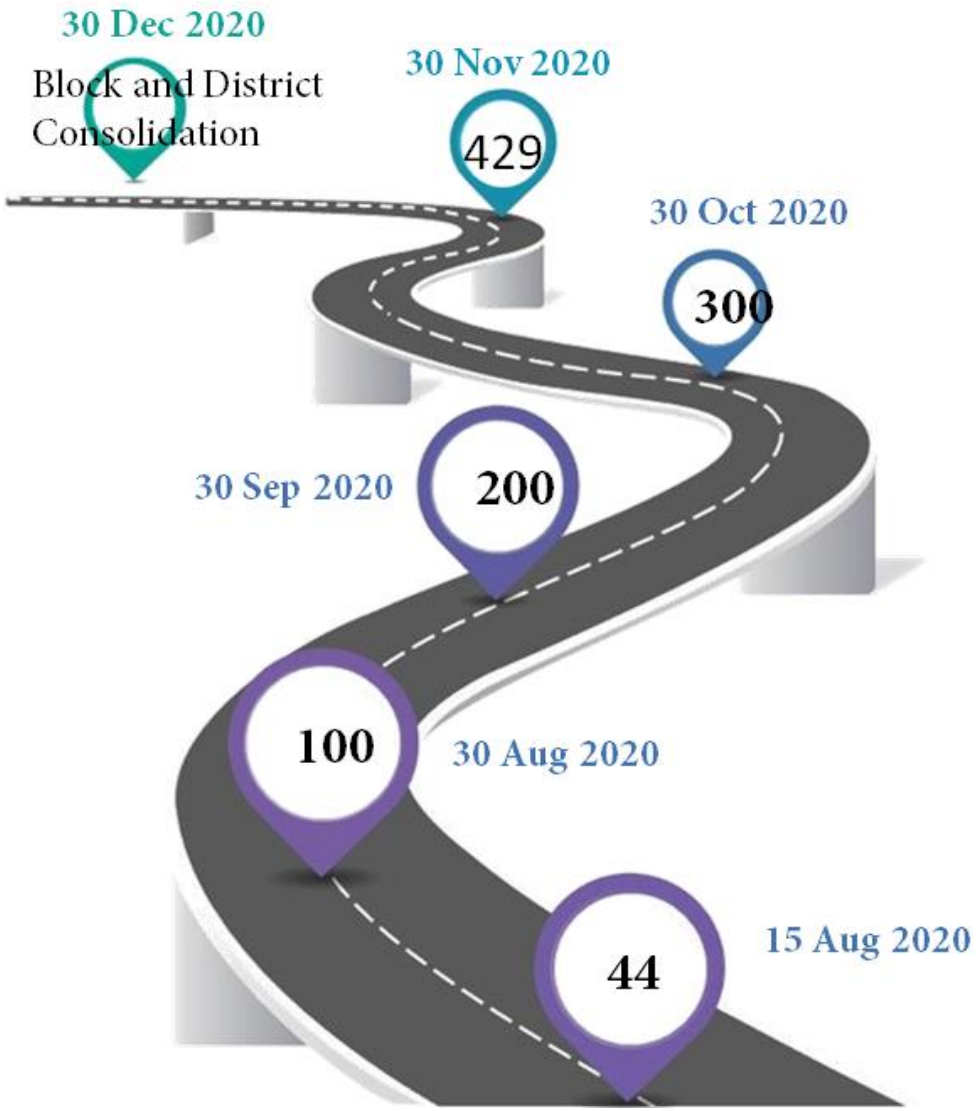
Components are identifying systems for

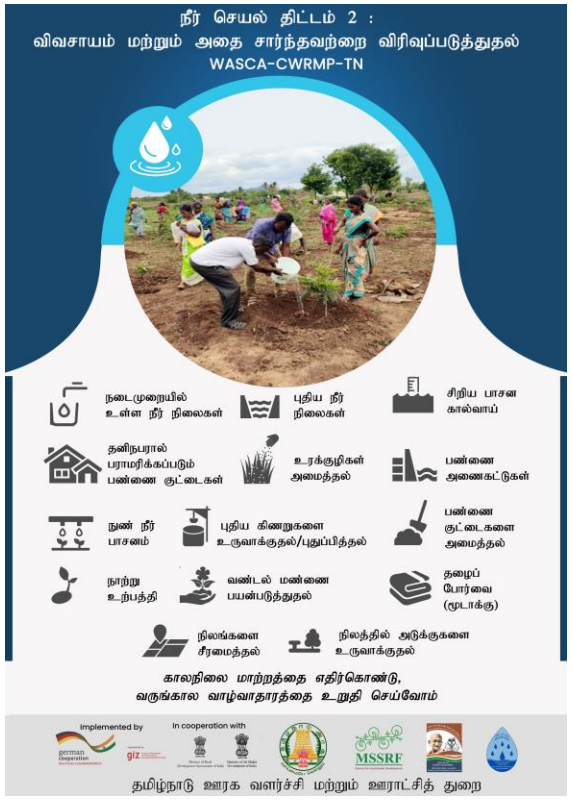
- Agrisilviculture systems
- Silvi-pasture systems
- Agro-silvi-pasture systems
- Agri-horticultre systems
- Agrihortisilviculture etc

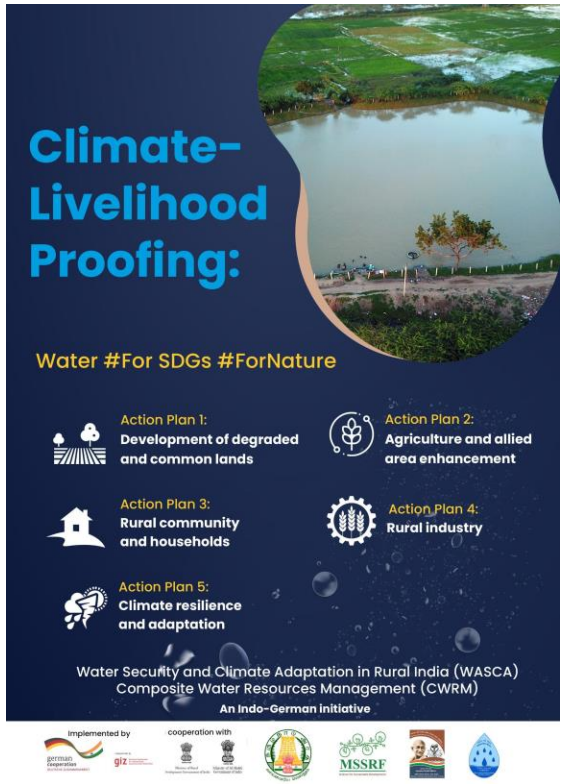
6. Restoration of Degraded lands

SNo	Name of the block	Name of the GPs	Themes
1	Bogalur	Bogalur	fruit park
2	Ramanathapuram	Sakkarakottai	livelihood farm
3	Mandapam	Valanthiravai	horticulture park
4	Thiruvadanai	N. M. Mangalam	integrated farming
5	R.S.Mangalam	Govindamangalam	Agro food park
6	Nainarkoil	Pagaivendri	horticulture park
7	Paramagudi	Nelmadur	community farm
8	Mudukulathur	Theriruveli	food park
9	Kamuthi	Natham	permaculture farm
10	Kadaladi	Mookaiyur	agroforestry park
11	Thiruppullani	Thathanendhal	horticulture park

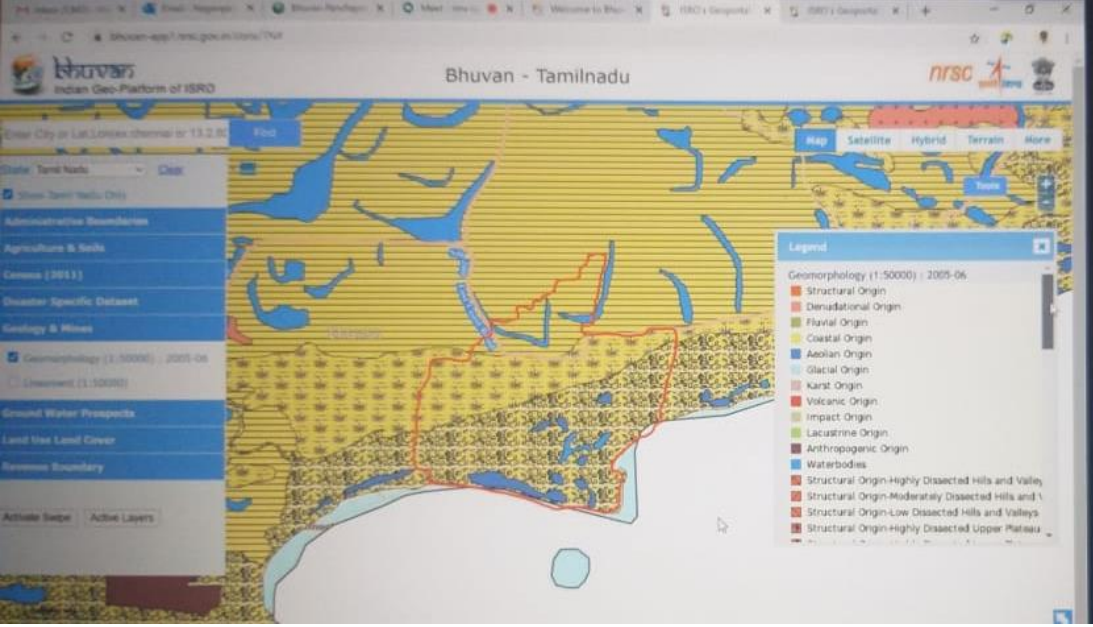
Proposed plan to complete the task as per NSC







IEC Campaign: CWRM: WASCA TN


Bhuvan
Indian Geo-Platform of ISRO
Bhuvan - Tamilnadu
nrsc
Legend
Geomorphology (1:50000) : 2005-06
Structural Origin
Denudational Origin
Fluvial Origin
Coastal Origin
Aeolian Origin
Glacial Origin
Karst Origin
Volcanic Origin
Impact Origin
Lacustrine Origin
Anthropogenic Origin
Waterbodies


Nagarajan Rajendiran
Gokilaraj M Gokila
palani palani

TWAD BOARD
CHENNAI-5
TAMILNADU


RAMANATHAPURAM DISTRICT
Ramanathapuram-Tamil Nadu
krishi bhawan
Raghvendra P Singh Director
Suneel Arora
Ankita Sharma

Action points for Discussion

- Approval of 4 GPs per block plans submitted for implementation during the season
- Formation of Coastal watershed committee and approvals of three pilot plans
- Convergence with line departments – Agriculture, AH, Forestry, CGWB, WRO - eg
    - Agriculture Engineering dept – Farm ponds schemes
    - Animal husbandry – silvi-pasture systems
    - Agriculture – Micro irrigation, Integrated Farming Systems, Agro forestry and dry land Horticulture schemes
    - WRO – for PWD tanks in the cascade tank systems renovation, Coastal Works
    - TNAU – WUE and Alternate farming systems
    - Forest Department: Wetlands, Mangroves, Coastal Watershed
- Climate Resilient models – Field level support – planning and capacity building on selected GPs

Partners

- MSSRF – Lead Technical Partner
- SDMRI – Sea Water Intrusion
- Prime Meridian – Ground Water Assessment
- Line Departments
- Special Advisors (From Sep- March)
  - ✓ Tank Cascades
  - ✓ Soil Conservation
  - ✓ Wetalnds
  - ✓ Coastal Ecosystem

Thank you &

Looking forward for your inputs and suggestions