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GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
CENTRAL GROUND WATER BOARD

PLAN ON
ARTIFICIAL RECHARGE TO GROUNDWATER AND
WATER CONSERVATION IN
PARIGI MANDAL, ANANTAPUR DISTRICT,
ANDHRA PRADESH

SOUTHERN REGION
HYDERABAD
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PLAN ON
ARTIFICIAL RECHARGE TO GROUNDWATER AND
WATER CONSERVATION IN
PARIGI MANDAL, ANANTAPUR DISTRICT,
ANDHRA PRADESH

CONTENTS

S.NO	TOPIC
1	INTRODUCTION
2	LOCATION
3	PHYSIOGRAPHY AND DRAINAGE
4	RAINFALL
5	LAND USE PATTERN
6	HYDROGEOLOGY
7	GROUND WATER LEVEL SCENARIO
8	DYNAMIC GROUND WATER RESOURCES
9	NEED FOR ARTIFICIAL RECHARGE AND CONSERVATION METHODS
10	JUSTIFICATION OF THE ARTIFICIAL RECHARGE PROJECT
11	AVAILABILITY OF SURPLUS, SURFACE WATER FOR ARTIFICIAL RECAHRGE OR CONSERVATION
12	FEASIBLE ARTIFICIAL RECHARGE STRUCTURES
13	TENTATIVE COST ESTIMATES
14	TIME SCHEDULE

AT A GLANCE

Name of the Mandal	PARGI
District	ANANTAPUR
State	ANDHRA PRADESH
Total Area (Sq.kms)	154
Area suitable for Artificial Recharge (Sq.kms)	154
Latitude and Longitude	13.795400 to 13.975560 and 77.413240 to 77.542950
Average Annual Rainfall (mm)	608
Geology	Granites, Gneisses
Average Depth To Water Level (Decadal) (Pre Monsoon)	23.00
Average Depth To Water Level (Decadal) (Post Monsoon)	16.00
Ground Water Resources (2011)	
Annual Replenishable Ground Water Resources (MCM/yr)	16.94
Net Annual Ground Water Availability(MCM)/yr	15.25
Net Annual Ground Water Draft(MCM)/yr	20.30
Projected Demand for Domestic and Industrial Use(MCM)/yr	2.05
Stage of Ground Water Development (%)	133
Surface runoff available (MCM)/yr	13.94
Total Storage Created in the Mandal by Various Agencies (MCM)/yr	1.21
Artificial Recharge/Conservation Measures	
Recharge Structures Proposed (No.s)	Percolation Tanks: 0, Check Dams: 10 Farm ponds: 320, Recharge Shafts: 86
Improving Water use Efficiency	Micro Irrigation System: 1600 ha
Tentative Total Cost in Lakhs (Rs.)	1203.93
Expected Recharge/Savings (MCM)/yr	5.997

1. INTRODUCTION

Pargi Mandal is one of the over-exploited mandal in Anantapur district, Andhra Pradesh State, which is economically backward and chronically drought affected. The mandal has 16 inhabited villages and with 14 gram panchayats.

2. LOCATION

The mandal lies between north latitudes 13.795400 to 13.975560 and between east longitudes 77.413240 to 77.542950. The mandal occupies the Southern part of the Anantapur district and is bounded on the north by Somandepalle Mandal, on the east by Somandepalle mandal, on the south by Hindupur mandal and west by Madakasira mandal. (Fig.1). The geographical area of the mandal is 154 sq.km.

3. PHYSIOGRAPHY AND DRAINAGE:

The area is drained by streams which are tributaries of Pennar River. The streams are mostly ephemeral in nature. The drainage pattern is dendritic, rectangular to sub rectangular due to the influence of geological structures. (Fig.2)

4. RAINFALL

The average rainfall in the mandal is 608 mm. The rainfall during the South-west monsoon season i.e., June-September accounts for about 85% of the total rainfall.

5. LAND USE PATTERN

Out of the total geographical area of 154 sq.km, the net area sown is 45.09 sq.km. Barren and uncultivable land is 0.89 sq.km. The land for non agricultural use accounts for 28.84 sq.km. (Fig.3)

6. HYDROGEOLOGY

The area is underlain by granites and granitic gneisses of Archaean age (Fig.4). Ground water occurs in weathered and fractured zones under water table and semi- confined conditions. The weathered zone thickness as per the GEC report is 12 m. The weathered zone has been extensively tapped by dug and dug cum bore wells upto 20 m depth. Ground water occurs in fractured granites down to a depth of 200 m bgl. However, the potential fractures are encountered between 50-100 m bgl. The cumulative yield varies from 2-5 lps.

7. GROUND WATER LEVEL SCENARIO

The depth to water level during pre and post-monsoon varies from 5 to 10 m bgl. The average depth to water level (decadal) during pre and post monsoon is 23 and 16 m bgl respectively. The Decadal mean water level trend during post monsoon is depicted in the Fig.7.

8. DYNAMIC GROUND WATER RESOURCES

The Ground water availability, Utilization and stage of Development in Parigi Mandal, Anantapur District is given in Table-1.

Table-1: Ground water resources of Parigi Mandal, Anantapur District.

Annual Replenishable Ground water resources (MCM)	16.94
Net Annual Ground water Availability. (MCM)	15.25
Net Annual Ground Water Draft(MCM)/yr	20.30
Projected Demand for Domestic and Industrial use up to 2025. (MCM)	2.05
Stage of Ground water development (%).	133
Whether notified or not with year of notification.	No

9. NEED FOR ARTIFICIAL RECHARGE AND CONSERVATION METHODS

The ground water withdrawal is more than the recharge with a stage of development above hundred percent. The long term water level trend mostly shows a declining trend and the water levels are very deep ranging up to 25 m bgl. The sustainability of bore wells has become questionable as many bore wells are either drying up or have recorded reduced yields. There is no surface water irrigation facility in the area. All these factors indicate that there is an urgent need for artificial recharge and water conservation.

10. JUSTIFICATION OF THE ARTIFICIAL RECHARGE PROJECT

Parigi Mandal falls under high stage of ground water development i.e., 133 % and with sufficient amount of uncommitted surface runoff. The area is completely dependent on ground water for domestic, industrial and irrigation purposes. During the monsoons runoff quickly flows out of the area without natural recharge to ground water. It is necessary to apply artificial recharge techniques to allow more and more recharge through check dams, PTs, MPTs, farm ponds, recharge shafts to cope up with the withdrawal pattern and also to improve ground water situation through various interventions including on farm activities and micro irrigation systems (Sprinkler-Drip-HDPE).

11. AVAILABILITY OF SURPLUS, SURFACE WATER FOR ARTIFICIAL RECAHRGE OR CONSERVATION

The runoff was calculated by taking into account of normal rainfall of the mandal and corresponding runoff yield from Strangers table. The existing storage created by various artificial recharge structures constructed by the State Government, if any, was deducted for calculating the runoff yield to recommend new AR structures.

Total Geographical area (Sq.kms)	154
Hilly Area (Sq.kms)	0
Area suitable for Artificial Recharge (sq.km.)	154
Runoff Yield in MCM/yr	13.94
Existing No. of Check Dams	156
Storage created MCM/yr	1.11
Existing No. of Percolation Tanks	15
Storage created MCM/yr	0.11
Total Existing Storage Created	1.21

12. FEASIBLE ARTIFICIAL RECHARGE STRUCTURES

Since the mandal is categorized as over exploited, there is an immediate need for improving ground water scenario and to ensure sustainability of ground water sources. It is also suggested to create additional storage capacity of surface water bodies which would result in supplementing irrigation thereby reducing the ground water draft. The runoff available in the mandal has been assessed as 12.73 MCM/yr, which could be considered for further planning of artificial recharge. However, the number of artificial recharge structures feasible has been recommended in areas, by considering the utilizable yield, number of existing structures, land use, drainage pattern and also where the post monsoon water levels (decadal mean) are more than 5 m bgl, and or decadal trends are either falling or showing insignificant raising trend.

A) Check dams and Percolation Tanks

The area is covered by seasonal nalas – drains, which carry discharge during monsoon period along with silt load and debauched into the water bodies within a short duration. It is proposed to identify such nalas for construction of check dams/Percolation tank with recharge shafts, so as to harness ground water and to increase soil moisture content.

- The site selected for check dam/Percolation Tank should have sufficient thickness of permeable soils or weathered material to facilitate recharge of stored water within a short span of time. The water stored in these structures is mostly confined to the stream course and height is normally less than 2m.
- These are designed based on stream width and excess water is allowed to flow over the crest wall. In order to avoid scouring from excess runoff water cushions are provided on the downstream side. To harness maximum runoff in the stream, a series of such check dams can be constructed to have recharge on a regional scale.
- Considering the annual monsoon rainfall of 608 mm, sufficient rain water can be harnessed. This will improve ground water regime as well as delaying the instant flow into the main river.
- The flow in these seasonal rivers can be sustained up to about 2 to 3 months after monsoon.

- Recharge trenches can also be constructed along upstream side of the check dam/Percolation Tank in the impoundment area for enhancing the ground water recharge rate.

Thus, a total of **10 Check dams** are recommended.

B). Recharge Shafts

The existing check dams and percolation tanks lose their storage capacity as well as recharge capacity due to siltation. Hence, Recharge shafts are recommended in the existing Check dams and Percolation tanks to enhance the ground water recharge. During the heavy downpours, there will be sufficient accumulation of runoff, which can also effectively be utilized for recharge by constructing recharge shafts. Hence, it is proposed to construct 78 and 8 recharge shafts of 165 mm dia with 30 m depth in the existing check dams and percolation tanks respectively.

C). Farm Ponds

A farm pond is a large dug out in the earth, usually square or rectangular in shape, which harvests rain water and stores it for future use. It has an inlet to regulate inflow and an outlet to discharge excess water. The pond is surrounded by a small bund, which prevents erosion on the banks of the pond. The size and depth depend on the amount of land available; the type of soil water from the farm pond is conveyed to the fields manually, by pumping, or by both methods.

Advantages of Farm Ponds

- They provide water to start growing crops, without waiting for rain to fall.
- They provide irrigation water during dry spells between rainfalls. This increases the yield, the number of crops in one year, and the diversity of crops that can be grown.
- Bunds can be used to raise vegetables and fruit trees, thus supplying the farm household with an additional source of income and of nutritious food.
- Farmers are able to apply adequate farm inputs and perform farming operations at the appropriate time, thus increasing their productivity and their confidence in farming.
- They check soil erosion and minimize siltation of waterways and reservoirs.
- They supplies water for domestic purposes and livestock.
- They promote fish rearing.
- They recharge the ground water.
- They improve drainage.

- The excavated earth has a very high value and can be used to enrich soil in the fields, levelling land, and constructing farm roads.

As per the Land use classification, majority of the area is covered by the agricultural field. Hence, it is proposed to construct 320 farm ponds in 16 villages of the Mandal @ 20 farm ponds in each village

D).Micro Irrigation System (Sprinkler /drip/HDPE pipes)

Micro irrigation is defined as the frequent application of small quantities of water directly above and below the soil surface; usually as discrete drops, continuous drops or tiny streams through emitters placed along a water delivery line. In flood/furrow irrigation method more than 50% of applied water is wasted through seepage to deeper level, localized inundation causes loss through evaporation and it leaches out the nutrients from the plant. While through drip & sprinkler irrigation wastages of irrigational water could be minimized. The studies on different crops, has revealed that irrigation water is saved drastically. The conveyance losses (mainly seepage & evaporation) can be saved up to 25 to 40% through utilization of HDPE pipes. Initially the scheme is proposed to be implemented in worst affected areas showing deepest water levels and significant declining trends. It is proposed to take up micro irrigation system in 1600 ha @ 100 ha per village.

13. TENTATIVE COST ESTIMATES (PARIGI MANDAL)

S.No.	Feasible Artificial Recharge & Water Conservation structures/	No. of Structures/ Quantity	Total Volume (MCM)	Tentative unit cost (in Rs lakh)	Total tentative cost (in Rs Lakh)	Expected Annual GW recharge/savings (MCM)
1	Proposed Masonry Check dams Crest Length -10-15 m, Height-1-2 m) (0.007 MCM*4 fillings)	10	0.28	5	50	0.21
2	Recharge shaft in Check dam (50% of the existing Check dams)	78	0.858	0.5	39	0.858
3	Proposed Percolation Tanks (100*100*2.5)* 4 fillings)	0	0	15	0	0
4	Renovation Desilting, Repairs and installation of Recharge Shafts in existing PTS (50% of the existing PTS)	8	0.088	1	8	0.088
5	Proposed Farm Pond (6 filling) 5*5*1.5 dimension @ 20 farm ponds per each village	320	0.04608	0.25	80	0.041472
6	Proposed Sprinkler/drip/HDPE pipes for 100 ha in each village	1600	9.6	0.6	960	4.8
7	Proposed Piezometers up to 50 mbgl @ one PZ per Village	16	0	0.6	9.6	0
8 (i)	Total (No. of AR Structures)	432	1.27		186.6	1.197
8 (ii)	Total (ha)	1600			960	4.8
	Total (8(i) + 8 (ii))				1146.6	5.997
9	Impact Assessment & O & M -5 % of Total cost of the Scheme				57.33	
	Grand Total				1203.93	

*(Expected annual GW Recharge/Savings MCM - CDS& PTS: 75%, Farm ponds - 90%, Sprinklers-50%, Recharge shafts in existing CDS and PTS-100%)

Note: The type, number and cost of structure may vary according to site, after the ground truth verification.

14. TIME SCHEDULE

Steps	Quarters							
	1st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Identification of line department/implementing agency and preparation of DPR								
Approval of Scheme and releases of sanction of funds								
Implementation of ARS								

Phase = one quarter or 3 months or equivalent to financial quarter

A). Operation and Maintenance

In all projects impact assessment has to be carried out to ensure that project is economically viable, socially equitable and environmentally sustainable by inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse. Accordingly it is proposed to have impact assessment as well as operation & Maintenance at the rate of 5% of the total cost of the project for 5 years from the completion of artificial recharge project.

B). Expected Benefits

The benefits of the project are:

1. The implementation of the project would result in additional recharge/Ground water savings to the tune of 5.997 MCM.
2. Ground water recharge will help in arresting the rapid decline in ground water resources and will also ensure improvement in quality of ground water by dilution.
3. Proposed structures and measures will also enhance the ground water potential and would ensure sustainability of ground water resources. It is estimated that the stage of ground water development may likely to be reduced from the present 133% to 95% (38%)
4. It will also help in controlling soil erosion.

Acknowledgements

The data received from the Director Ground Water Department Andhra Pradesh in respect of the basic inputs is duly acknowledged. The information on existing Artificial Recharge Structures have been taken from the EMUSTER, Department of Rural Development, Government of AP.

EXISTING ARTIFICIAL RECHARGE STRUCTURES
PARIGI MANDAL, ANANTAPUR DISTRICT, AP

S.no	Gram Panchayat	Habitation	Structure Type	Longitude	Latitude	Scheme
1	Pydeti	Pydeti	Check Dam	77.4637	13.9192	NREGS
2	Pydeti	Pydeti	Check Dam	77.4637	13.9201	NREGS
3	Pydeti	Pydeti	Check Dam	77.4624	13.9196	NREGS
4	Pydeti	Pydeti	Check Dam	77.4584	13.9471	NREGS
5	Pydeti	Pydeti	Check Dam	77.4601	13.9485	NREGS
6	Vittapalle	Vittapalle	Check Dam	77.4662	13.9266	NREGS
7	Vittapalle	Vittapalle	Check Dam	77.4623	13.9310	NREGS
8	Vittapalle	Vittapalle	Check Dam	77.4639	13.9302	NREGS
9	Vittapalle	Vittapalle	Check Dam	77.4676	13.9315	NREGS
10	Vittapalle	Vittapalle	Check Dam	77.4669	13.9277	NREGS
11	Vittapalle	Vittapalle	Check Dam	77.4653	13.9273	NREGS
12	Sasanakota	Sasanakota	Check Dam	77.4947	13.8767	NREGS
13	Sasanakota	Sasanakota	Check Dam	77.4999	13.8735	NREGS
14	Sasanakota	Sasanakota	Check Dam	77.5017	13.8722	NREGS
15	Sasanakota	Sasanakota	Check Dam	77.4901	13.8711	NREGS
16	Sasanakota	Sasanakota	Check Dam	77.4886	13.8734	NREGS
17	Seegipalle	Ganapathipalle	Check Dam	77.4716	13.9593	NREGS
18	Seegipalle	Seegipalle	Check Dam	77.4921	13.9571	NREGS
19	Seegipalle	Seegipalle	Check Dam	77.4845	13.9558	NREGS
20	Seegipalle	Seegipalle	Check Dam	77.4825	13.9599	NREGS
21	Seegipalle	Seegipalle	Check Dam	77.4811	13.9546	NREGS
22	Seegipalle	Seegipalle	Check Dam	77.4971	13.9505	NREGS
23	Seegipalle	Seegipalle	Check Dam	77.4964	13.9478	NREGS
24	Seegipalle	Seegipalle	Check Dam	77.4999	13.9463	NREGS
25	Seegipalle	Seegipalle	Check Dam	77.4797	13.9492	NREGS
26	Honnampalli	Jangalapalli	Check Dam	77.4121	13.8781	NREGS
27	Honnampalli	Jangalapalli	Check Dam	77.4165	13.8829	NREGS
28	Honnampalli	K.Narasapuram	Check Dam	77.4153	13.8868	NREGS
29	Honnampalli	K.Narasapuram	Check Dam	77.4127	13.8903	NREGS
30	Honnampalli	Vonnampalli	Check Dam	77.4204	13.8974	NREGS
31	Honnampalli	Vonnampalli	Check Dam	77.4223	13.8995	NREGS
32	Honnampalli	Vonnampalli	Check Dam	77.4232	13.9005	NREGS
33	Honnampalli	Vonnampalli	Check Dam	77.4258	13.9001	NREGS
34	Honnampalli	Vonnampalli	Check Dam	77.4209	13.8883	NREGS
35	Honnampalli	Vonnampalli	Check Dam	77.4213	13.8980	NREGS
36	Honnampalli	Vonnampalli	Check Dam	77.4195	13.8958	NREGS
37	Honnampalli	Vonnampalli	Check Dam	77.4195	13.8958	NREGS
38	Yerragunta	Nethulapalli	Check Dam	77.4858	13.9003	NREGS
39	Yerragunta	TirumaladevaraPalli	Check Dam	77.4755	13.9239	NREGS
40	Yerragunta	TirumaladevaraPalli	Check Dam	77.4778	13.9188	NREGS
41	Yerragunta	Yerragunta	Check Dam	77.4663	13.9099	NREGS
42	Yerragunta	Yerragunta	Check Dam	77.4701	13.9129	NREGS
43	Yerragunta	Yerragunta	Check Dam	77.4681	13.9201	NREGS
44	Yerragunta	Yerragunta	Check Dam	77.4681	13.9232	NREGS

45	Yerragunta	Yerragunta	Check Dam	77.4675	13.9116	NREGS
46	Yerragunta	Yerragunta	Check Dam	77.4868	13.9070	NREGS
47	Yerragunta	Yerragunta	Check Dam	77.4877	13.9078	NREGS
48	S.rangarajulapally	Papireddipally	Check Dam	77.4299	13.8684	NREGS
49	S.rangarajulapally	Papireddipally	Check Dam	77.4289	13.8653	NREGS
50	S.rangarajulapally	Papireddipally	Check Dam	77.4249	13.8659	NREGS
51	S.rangarajulapally	Papireddipally	Check Dam	77.4318	13.8667	NREGS
52	S.rangarajulapally	Papireddipally	Check Dam	77.4326	13.8679	NREGS
53	S.rangarajulapally	Papireddipally	Check Dam	77.4294	13.8648	NREGS
54	S.rangarajulapally	Papireddipally	Check Dam	77.4256	13.8623	NREGS
55	S.rangarajulapally	Srirangarajupally	Check Dam	77.4295	13.8572	NREGS
56	S.rangarajulapally	Srirangarajupally	Check Dam	77.4325	13.8589	NREGS
57	S.rangarajulapally	Srirangarajupally	Check Dam	77.4334	13.8585	NREGS
58	S.rangarajulapally	Srirangarajupally	Check Dam	77.4330	13.8579	NREGS
59	S.rangarajulapally	Srirangarajupally	Check Dam	77.4508	13.8532	NREGS
60	S.rangarajulapally	Srirangarajupally	Check Dam	77.4418	13.8487	NREGS
61	S.rangarajulapally	Srirangarajupally	Check Dam	77.4272	13.8611	NREGS
62	Beechiganipalle	Beechiganipalle	Check Dam	77.5258	13.9215	NREGS
63	Beechiganipalle	Beechiganipalle	Check Dam	77.5303	13.9254	NREGS
64	Beechiganipalle	Beechiganipalle	Check Dam	77.5340	13.9286	NREGS
65	Beechiganipalle	Beechiganipalle	Check Dam	77.5347	13.9316	NREGS
66	Beechiganipalle	Beechiganipalle	Check Dam	77.5301	13.9354	NREGS
67	Beechiganipalle	Beechiganipalle	Check Dam	77.5250	13.9381	NREGS
68	Beechiganipalle	Beechiganipalle	Check Dam	77.5103	13.9271	NREGS
69	Beechiganipalle	Beechiganipalle	Check Dam	77.5208	13.9267	NREGS
70	Beechiganipalle	Beechiganipalle	Check Dam	77.5291	13.9342	NREGS
71	Beechiganipalle	Beechiganipalle	Check Dam	77.5213	13.9355	NREGS
72	Beechiganipalle	Beechiganipalle	Check Dam	77.5196	13.9352	NREGS
73	Beechiganipalle	Beechiganipalle	Check Dam	77.5190	13.9361	NREGS
74	Beechiganipalle	Beechiganipalle	Check Dam	77.5148	13.9308	NREGS
75	Beechiganipalle	Gollapalli	Check Dam	77.5286	13.9145	NREGS
76	Beechiganipalle	Gollapalli	Check Dam	77.5251	13.9154	NREGS
77	Beechiganipalle	Gollapalli	Check Dam	77.5251	13.9133	NREGS
78	Beechiganipalle	Gollapalli	Check Dam	77.5266	13.9137	NREGS
79	Beechiganipalle	Gollapalli	Check Dam	77.5310	13.9163	NREGS
80	Beechiganipalle	Gollapalli	Check Dam	77.5336	13.9167	NREGS
81	Beechiganipalle	Gollapalli	Check Dam	77.5352	13.8996	NREGS
82	Beechiganipalle	Gollapalli	Check Dam	77.5351	13.9141	NREGS
83	Beechiganipalle	Gollapalli	Check Dam	77.5224	13.9106	NREGS
84	Beechiganipalle	Gollapalli	Check Dam	77.5427	13.9141	NREGS
85	Beechiganipalle	Gollapalli	Check Dam	77.5244	13.8986	NREGS
86	Beechiganipalle	Gollapalli	Check Dam	77.5302	13.8985	NREGS
87	Beechiganipalle	Gollapalli	Check Dam	77.5264	13.8987	NREGS
88	Beechiganipalle	Gollapalli	Check Dam	77.5329	13.8993	NREGS
89	Kodigenahalli	Kaluvapalli	Check Dam	77.4684	13.8644	NREGS
90	Kodigenahalli	Kodigenahalli	Check Dam	77.4812	13.8516	NREGS
91	Kodigenahalli	Kodigenahalli	Check Dam	77.4864	13.8540	NREGS

92	Kodigenahalli	Kodigenahalli	Check Dam	77.4851	13.8536	NREGS
93	Kodigenahalli	Peddareddypalli	Check Dam	77.4614	13.8482	NREGS
94	P.narasapuram	Kothapalli	Check Dam	77.4252	13.9417	NREGS
95	P.narasapuram	Kothapalli	Check Dam	77.4253	13.9419	NREGS
96	P.narasapuram	Kothapalli	Check Dam	77.4269	13.9434	NREGS
97	P.narasapuram	Kothapalli	Check Dam	77.4270	13.9451	NREGS
98	P.narasapuram	P.Narasapuram	Check Dam	77.4218	13.9269	NREGS
99	P.narasapuram	P.Narasapuram	Check Dam	77.4218	13.9265	NREGS
100	P.narasapuram	P.Narasapuram	Check Dam	77.4167	13.9277	NREGS
101	P.narasapuram	P.Narasapuram	Check Dam	77.4185	13.9310	NREGS
102	P.narasapuram	P.Narasapuram	Check Dam	77.4236	13.9398	NREGS
103	P.narasapuram	P.Narasapuram	Check Dam	77.4225	13.9335	NREGS
104	P.narasapuram	P.Narasapuram	Check Dam	77.4161	13.9329	NREGS
105	P.narasapuram	P.Narasapuram	Check Dam	77.4192	13.9364	NREGS
106	P.narasapuram	P.Narasapuram	Check Dam	77.4219	13.9387	NREGS
107	P.narasapuram	P.Narasapuram	Check Dam	77.4227	13.9395	NREGS
108	Parigi	Chinnapalli	Check Dam	77.4580	13.9067	NREGS
109	Parigi	Chinnapalli	Check Dam	77.4562	13.9154	NREGS
110	Parigi	Chinnapalli	Check Dam	77.4588	13.9048	NREGS
111	Parigi	Chinnapalli	Check Dam	77.4573	13.9155	NREGS
112	Parigi	Chinnapalli	Check Dam	77.4600	13.9154	NREGS
113	Parigi	Chinnapalli	Check Dam	77.4611	13.9151	NREGS
114	Parigi	Chinnapalli	Check Dam	77.4556	13.9217	NREGS
115	Parigi	Chinnapalli	Check Dam	77.4537	13.9233	NREGS
116	Parigi	Chinnapalli	Check Dam	77.4550	13.9236	NREGS
117	Parigi	Parigi	Check Dam	77.4663	13.9024	NREGS
118	Parigi	Parigi	Check Dam	77.4699	13.9011	NREGS
119	Utakur	Utakur	Check Dam	77.4985	13.9114	NREGS
120	Utakur	V.Basavanipalli	Check Dam	77.5080	13.8991	NREGS
121	Utakur	V.Basavanipalli	Check Dam	77.5123	13.8948	NREGS
122	Utakur	V.Basavanipalli	Check Dam	77.5201	13.8835	NREGS
123	Utakur	V.Basavanipalli	Check Dam	77.5159	13.8831	NREGS
124	Utakur	V.Basavanipalli	Check Dam	77.5181	13.8769	NREGS
125	Utakur	V.Basavanipalli	Check Dam	77.5195	13.8767	NREGS
126	Utakur	V.Basavanipalli	Check Dam	77.5063	13.8894	NREGS
127	Utakur	V.Basavanipalli	Check Dam	77.5093	13.8840	NREGS
128	Utakur	V.Basavanipalli	Check Dam	77.5105	13.8821	NREGS
129	Moda	Goravanahally	Check Dam	77.4570	13.8409	NREGS
130	Moda	Goravanahally	Check Dam	77.4578	13.8429	NREGS
131	Moda	Goravanahally	Check Dam	77.4529	13.8540	NREGS
132	Moda	Goravanahally	Check Dam	77.4496	13.8515	NREGS
133	Moda	Konapuram	Check Dam	77.4567	13.8264	NREGS
134	Moda	Moda	Check Dam	77.4475	13.8132	NREGS
135	Moda	Moda	Check Dam	77.4463	13.8110	NREGS
136	Moda	Moda	Check Dam	77.4416	13.8063	NREGS
137	Moda	Moda	Check Dam	77.4395	13.8028	NREGS
138	Moda	Puttagurlapalli	Check Dam	77.4589	13.8129	NREGS

139	Moda	Puttagurlapalli	Check Dam	77.4588	13.8215	NREGS
140	Pydeti	Pydeti	Check Wall	77.4628	13.9206	NREGS
141	Honnampalli	Jangalapalli	Check Wall	77.4089	13.8788	NREGS
142	Honnampalli	Jangalapalli	Check Wall	77.4069	13.8785	NREGS
143	Honnampalli	Jangalapalli	Check Wall	77.4158	13.8832	NREGS
144	Honnampalli	K.Narasapuram	Check Wall	77.4147	13.8880	NREGS
145	Honnampalli	Vonnampalli	Check Wall	77.4222	13.8876	NREGS
146	Yerragunta	Yerragunta	Check Wall	77.4824	13.9045	NREGS
147	S.rangarajulapally	Srirangarajupally	Check Wall	77.4338	13.8630	NREGS
148	S.rangarajulapally	Srirangarajupally	Check Wall	77.4348	13.8599	NREGS
149	S.rangarajulapally	Srirangarajupally	Check Wall	77.4330	13.8627	NREGS
150	Beechiganipalle	Beechiganipalle	Check Wall	77.5270	13.9388	NREGS
151	Kodigenahalli	Kaluvapalli	Check Wall	77.4762	13.8747	NREGS
152	Parigi	Chinnapalli	Check Wall	77.4568	13.9001	NREGS
153	Utakur	V.Basavanipalli	Check Wall	77.5064	13.8975	NREGS
154	Moda	Goravanahally	Check Wall	77.4603	13.8464	NREGS
155	Moda	Konapuram	Check Wall	77.4588	13.8265	NREGS
156	Moda	Puttagurlapalli	Check Wall	77.4532	13.8149	NREGS
157	Yerragunta	Yerragunta	MPT	77.4845	13.9066	NREGS
158	S.rangarajulapally	Papireddipally	MPT	77.4261	13.8612	NREGS
159	S.rangarajulapally	Srirangarajupally	MPT	77.4280	13.8579	NREGS
160	S.rangarajulapally	Srirangarajupally	MPT	77.4255	13.8585	NREGS
161	S.rangarajulapally	Srirangarajupally	MPT	77.4272	13.8624	NREGS
162	Seegipalle	Seegipalle	PT	77.4826	13.9626	NREGS
163	Seegipalle	Seegipalle	PT	77.4869	13.9485	NREGS
164	Yerragunta	Yerragunta	PT	77.4865	13.9085	NREGS
165	Beechiganipalle	Gollapalli	PT	77.5292	13.9119	NREGS
166	P.narasapuram	P.Narasapuram	PT	77.4212	13.9235	NREGS
167	P.narasapuram	P.Narasapuram	PT	77.4187	13.9311	NREGS
168	P.narasapuram	P.Narasapuram	PT	77.4169	13.9351	NREGS
169	P.narasapuram	P.Narasapuram	PT	77.4193	13.9364	NREGS
170	Parigi	Boreddipalli	PT	77.4817	13.8971	NREGS
171	Parigi	Parigi	PT	77.4721	13.9031	NREGS

PROPOSED ARTIFICIAL RECHARGE STRUCTURES
PARIGI MANDAL, ANANTAPUR DISTRICT, AP

S.No.	Mandal	Lattitude	Longitude	Structure_Type
1	Parigi	13.9629	77.5179	CheckDam
2	Parigi	13.9704	77.4669	CheckDam
3	Parigi	13.9532	77.4679	CheckDam
4	Parigi	13.9206	77.4857	CheckDam
5	Parigi	13.8993	77.5008	CheckDam
6	Parigi	13.8313	77.4744	CheckDam
7	Parigi	13.9137	77.4389	CheckDam
8	Parigi	13.9481	77.4434	CheckDam
9	Parigi	13.9679	77.4395	CheckDam
10	Parigi	13.8811	77.5021	CheckDam

Fig.1

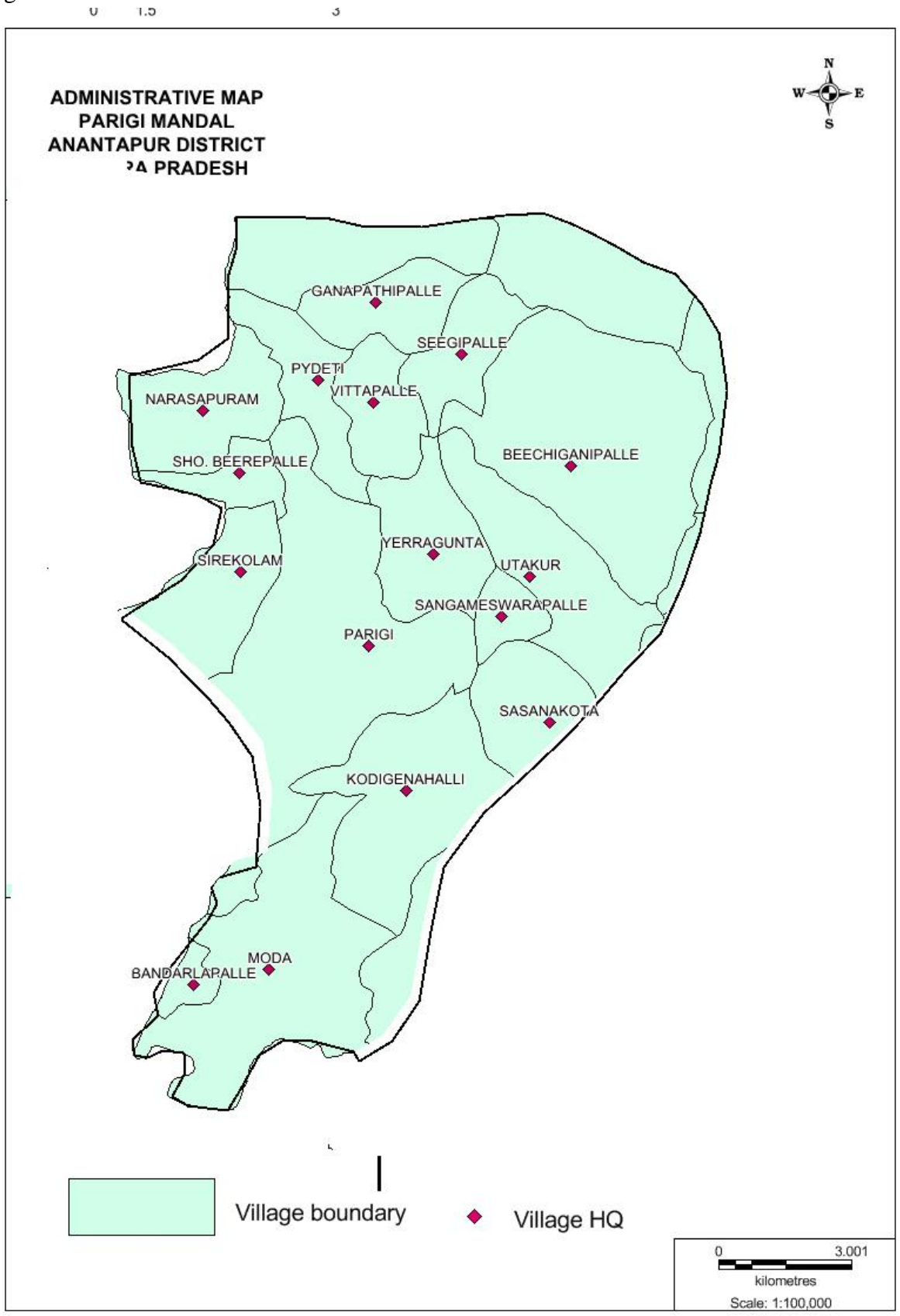


Fig.2

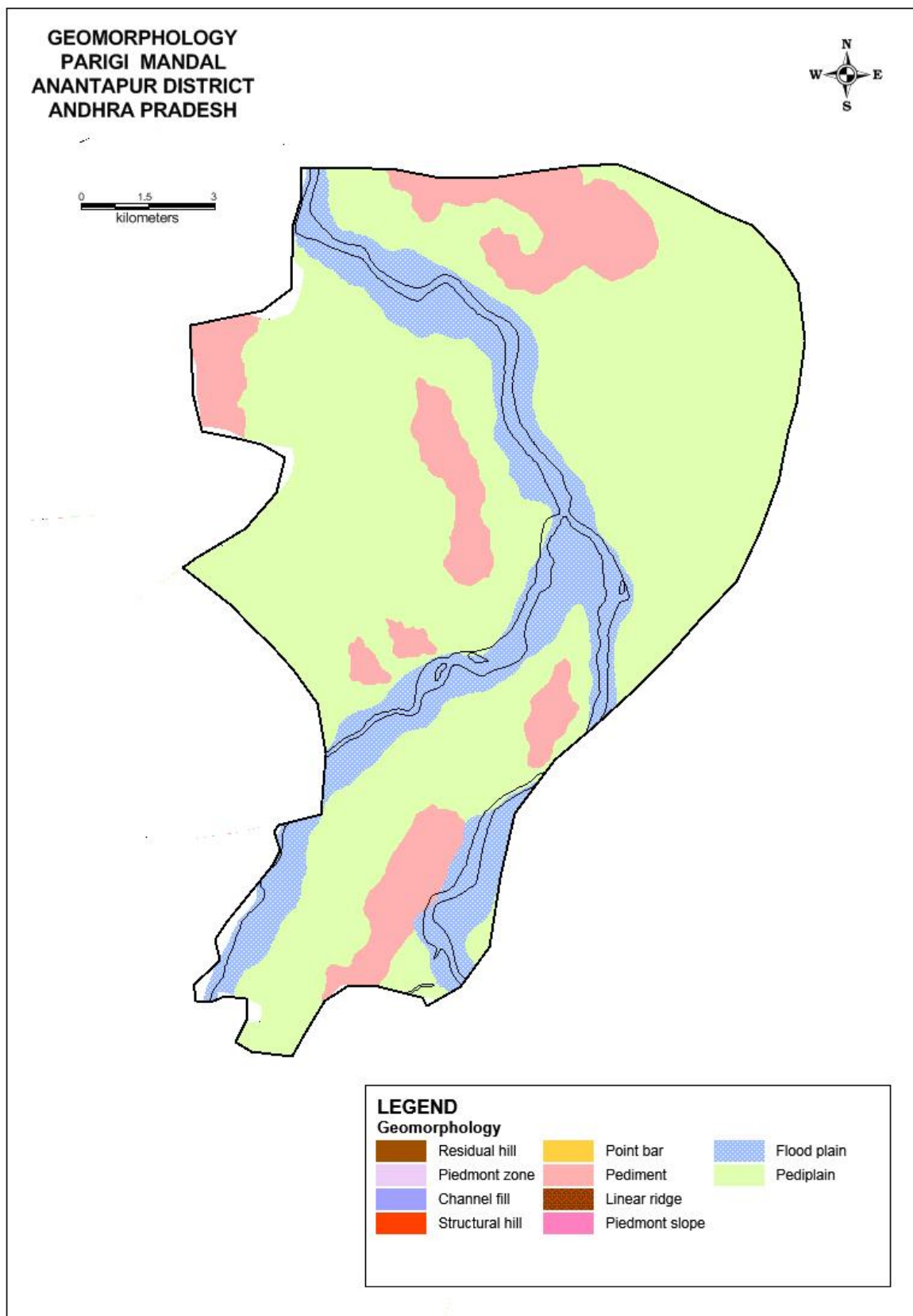


Fig.3

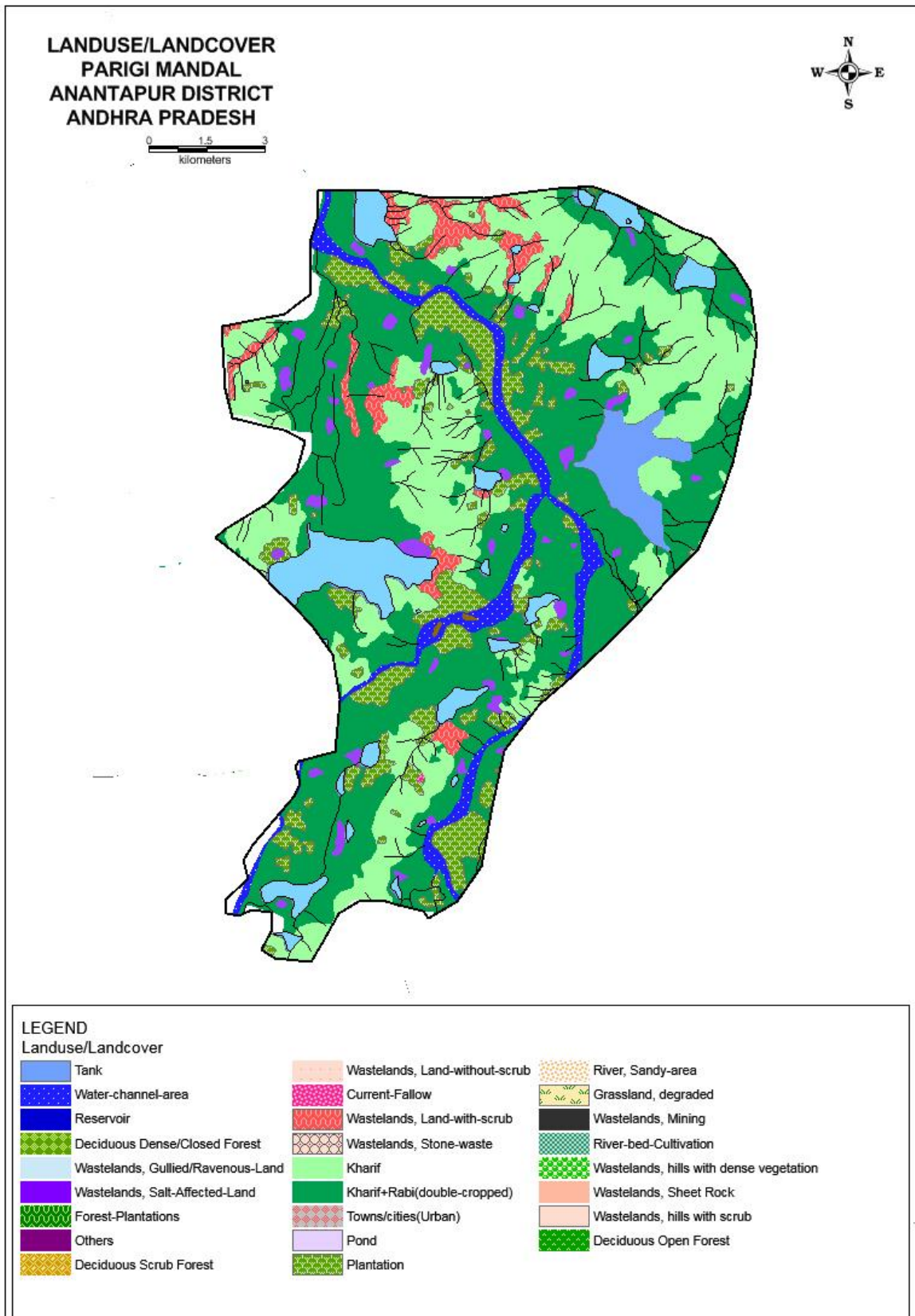


Fig.4

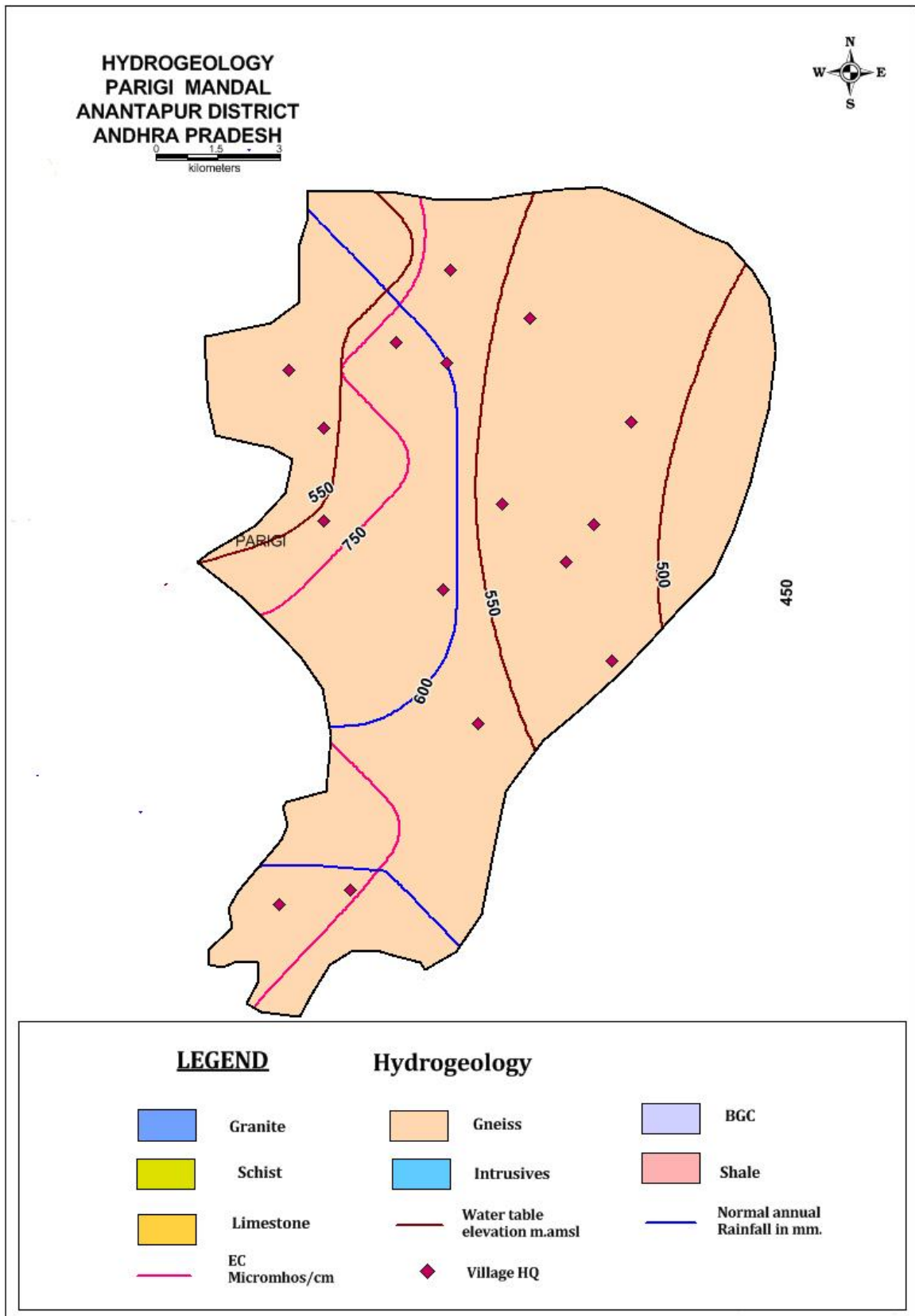


Fig.5

