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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  
LEPAKSHI MANDAL, ANANTAPUR DISTRICT  
ANDHRA PRADESH

SOUTHERN REGION  
HYDERABAD  
AUGUST-2016

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

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AT A GLANCE

Name of the Mandal	LEPAKSHI
District	ANANTAPUR
State	ANDHRA PRADESH
Total Area (Sq.kms)	147
Area suitable for Artificial Recharge (Sq.kms)	139
Latitude and Longitude	13.724170 to 13.878180 and 77.532590 to 77.664540
Average Annual Rainfall (mm)	619
Geology	Granites, Gneisses
Average Depth To Water Level (Decadal) (Pre Monsoon)	21.2
Average Depth To Water Level (Decadal) (Post Monsoon)	16.2
Ground Water Resources (2011)	
Annual Replenishable Ground Water Resources (MCM/yr)	17.07
Net Annual Ground Water Availability(MCM)/yr	15.36
Net Annual Ground Water Draft(MCM)/yr	20.06
Projected Demand for Domestic and Industrial Use(MCM)/yr	1.74
Stage of Ground Water Development (%)	131
Surface runoff available (MCM)/yr	12.58
Total Storage Created in the Mandal by Various Agencies (MCM)/yr	1.43
Artificial Recharge/Conservation Measures	
Recharge Structures Proposed (No.s)	Percolation Tanks: 0, Check Dams: 10 Farm ponds: 240, Recharge Shafts: 101
Improving Water use Efficiency	Micro Irrigation System: 1200 ha
Tentative Total Cost in Lakhs (Rs.)	936.81
Expected Recharge/Savings (MCM)/yr	4.952

## 1. INTRODUCTION

Lepakshi 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 12 inhabited villages and with 10 gram panchayats.

## 2. LOCATION

The mandal lies between north latitudes 13.724170 to 13.878180 and between east longitudes 77.532590 to 77.664540. The mandal occupies the Southern part of the Anantapur district and is bounded on the north by Hindupur Mandal, on the east by Chilamathur mandal, on the south by Karnataka State and west by Hindupur mandal. (Fig.1)The geographical area of the mandal is 147sq.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 619 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 147sq.km, the area covered by forest is 7.08 sq.km and the net area sown is 63.92 sq.km. Barren and uncultivable land is 0.88 sq.km. The land for non agricultural use accounts for 25.39 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 9 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 2 to 5 m bgl. The average depth to water level (decadal) during pre and post monsoon is 21.2 and 16.2 m bgl respectively. The decadal mean water level trend during post monsoon is depicted in the Fig-5.

## 8. DYNAMIC GROUND WATER RESOURCES

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

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

Annual Replenishable Ground water resources (MCM)	17.07
Net Annual Ground water Availability. (MCM)	15.36
Net Annual Ground Water Draft(MCM)/yr	20.06
Projected Demand for Domestic and Industrial use up to 2025. (MCM)	1.74
Stage of Ground water development (%).	131
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 20 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

Leapakshi Mandal falls under high stage of ground water development i.e., 131 % 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)	147
Hilly Area (Sq.kms)	8
Area suitable for Artificial Recharge (sq.km.)	139
Runoff Yield in MCM/yr	12.58
Existing No. of Check Dams	184
Storage created MCM/yr	1.30
Existing No. of Percolation Tanks	18
Storage created MCM/yr	0.13
Total Existing Storage Created	1.43

## 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 run off available in the mandal has been assessed as 11.15 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 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 619 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 92 and 9 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 240 farm ponds in 12 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 1200 ha @ 100 ha per village.



13. TENTATIVE COST ESTIMATES (LEPAKSHI 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)	92	1.012	0.5	46	1.012
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)	9	0.099	1	9	0.099
5	Proposed Farm Pond (6 filling) 5*5*1.5 dimension @ 20 farm ponds per each village	240	0.03456	0.25	60	0.031104
6	Proposed Sprinkler/drip/HDPE pipes for 100 ha in each village	1200	7.2	0.6	720	3.6
7	Proposed Piezometers up to 50 mbgl @ one PZ per Village	12	0	0.6	7.2	0
8 (i)	Total (No. of AR Structures)	363	1.43		172.2	1.352
8 (ii)	Total (ha)	1200			720	3.6
	Total (8(i) + 8 (ii))				<b>892.2</b>	<b>4.952</b>
9	Impact Assessment & O & M -5 % of Total cost of the Scheme				<b>44.61</b>	
	<b>Grand Total</b>				<b>936.81</b>	

\*(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 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
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 4.95 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 131% to 98% (33%)
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 has been taken from the EMUSTER, Department of Rural Development, Government of AP.

EXISTING ARTIFICIAL STRUCTURES  
LAPAKSHI MANDAL, ANANTAPUR DISTRICT, AP.

S.no	Gram Panchayat	Habitation	Structure Type	Longitude	Latitude	Scheme
1	Mydugolam	Mydugolam	Check Dam	77.6330	13.7417	NREGS
2	Mydugolam	Mydugolam	Check Dam	77.6346	13.7400	NREGS
3	Mydugolam	Mydugolam	Check Dam	77.6288	13.7403	NREGS
4	Mydugolam	Mydugolam	Check Dam	77.6315	13.7368	NREGS
5	Mydugolam	Mydugolam	Check Dam	77.6412	13.7441	NREGS
6	Mydugolam	Mydugolam	Check Dam	77.6180	13.7458	NREGS
7	Mydugolam	Mydugolam	Check Dam	77.6219	13.7509	NREGS
8	Mydugolam	Mydugolam	Check Dam	77.6200	13.7528	NREGS
9	Cholasamudram	Cholasamudram	Check Dam	77.5745	13.8052	NREGS
10	Cholasamudram	Cholasamudram	Check Dam	77.5721	13.8049	NREGS
11	Cholasamudram	Cholasamudram	Check Dam	77.5749	13.8024	NREGS
12	Cholasamudram	Cholasamudram	Check Dam	77.5680	13.8068	NREGS
13	Cholasamudram	Cholasamudram	Check Dam	77.5622	13.8105	NREGS
14	Cholasamudram	NaganaPalli	Check Dam	77.5647	13.7884	NREGS
15	Cholasamudram	NaganaPalli	Check Dam	77.5655	13.7817	NREGS
16	Cholasamudram	NaganaPalli	Check Dam	77.5680	13.7820	NREGS
17	Cholasamudram	NaganaPalli	Check Dam	77.5704	13.7810	NREGS
18	Cholasamudram	NaganaPalli	Check Dam	77.5735	13.7815	NREGS
19	Cholasamudram	NaganaPalli	Check Dam	77.5718	13.7812	NREGS
20	Kallur	Kallur	Check Dam	77.5598	13.8400	NREGS
21	Kallur	Kallur	Check Dam	77.5648	13.8391	NREGS
22	Kallur	Kallur	Check Dam	77.5658	13.8396	NREGS
23	Kallur	Kallur	Check Dam	77.5738	13.8388	NREGS
24	Kallur	Kallur	Check Dam	77.5749	13.8391	NREGS
25	Kallur	Kallur	Check Dam	77.5746	13.8406	NREGS
26	Kallur	Kallur	Check Dam	77.5710	13.8447	NREGS
27	Kallur	Kallur	Check Dam	77.5747	13.8517	NREGS
28	Kallur	Kallur	Check Dam	77.5682	13.8560	NREGS
29	Kallur	Kallur	Check Dam	77.5655	13.8534	NREGS
30	Bisalamanepalle	BisalamanePalle	Check Dam	77.5806	13.8201	NREGS
31	Bisalamanepalle	BisalamanePalle	Check Dam	77.5840	13.8189	NREGS
32	Bisalamanepalle	BisalamanePalle	Check Dam	77.5842	13.8169	NREGS
33	Bisalamanepalle	BisalamanePalle	Check Dam	77.5848	13.8135	NREGS
34	Bisalamanepalle	BisalamanePalle	Check Dam	77.5863	13.8105	NREGS
35	Bisalamanepalle	BisalamanePalle	Check Dam	77.5924	13.8044	NREGS
36	Bisalamanepalle	BisalamanePalle	Check Dam	77.5893	13.8071	NREGS
37	Bisalamanepalle	ObulaPuram	Check Dam	77.5763	13.7857	NREGS
38	Bisalamanepalle	ObulaPuram	Check Dam	77.5759	13.7814	NREGS
39	Bisalamanepalle	ObulaPuram	Check Dam	77.5780	13.7808	NREGS
40	Bisalamanepalle	ObulaPuram	Check Dam	77.5861	13.7867	NREGS
41	Bisalamanepalle	ObulaPuram	Check Dam	77.5851	13.7892	NREGS

42	Bisalamanepalle	ObulaPuram	Check Dam	77.5848	13.7910	NREGS
43	Bisalamanepalle	VenkataPuram	Check Dam	77.5842	13.7936	NREGS
44	Bisalamanepalle	VenkataPuram	Check Dam	77.5772	13.7990	NREGS
45	Bisalamanepalle	VenkataPuram	Check Dam	77.5840	13.7978	NREGS
46	Nayanipalle	Nayanipalle	Check Dam	77.5823	13.8399	NREGS
47	Nayanipalle	Nayanipalle	Check Dam	77.5747	13.8406	NREGS
48	Nayanipalle	Nayanipalle	Check Dam	77.5749	13.8391	NREGS
49	Nayanipalle	Nayanipalle	Check Dam	77.5736	13.8317	NREGS
50	Nayanipalle	Nayanipalle	Check Dam	77.5776	13.8397	NREGS
51	Nayanipalle	Nayanipalle	Check Dam	77.5777	13.8376	NREGS
52	Nayanipalle	Nayanipalle	Check Dam	77.5784	13.8345	NREGS
53	Nayanipalle	Upparapalle	Check Dam	77.5929	13.8289	NREGS
54	Nayanipalle	Upparapalle	Check Dam	77.5866	13.8309	NREGS
55	Pulamathi	BasanaPalle	Check Dam	77.5372	13.7754	NREGS
56	Pulamathi	BasanaPalle	Check Dam	77.5343	13.7748	NREGS
57	Pulamathi	P SadlaPalle	Check Dam	77.5234	13.7948	NREGS
58	Pulamathi	P SadlaPalle	Check Dam	77.5153	13.7994	NREGS
59	Pulamathi	P SadlaPalle	Check Dam	77.5161	13.8006	NREGS
60	Pulamathi	P SadlaPalle	Check Dam	77.5163	13.8033	NREGS
61	Pulamathi	P SadlaPalle	Check Dam	77.5148	13.7915	NREGS
62	Pulamathi	P SadlaPalle	Check Dam	77.5101	13.7883	NREGS
63	Pulamathi	P SadlaPalle	Check Dam	77.5029	13.7964	NREGS
64	Pulamathi	P SadlaPalle	Check Dam	77.5116	13.7885	NREGS
65	Pulamathi	P SadlaPalle	Check Dam	77.5061	13.7888	NREGS
66	Pulamathi	P SadlaPalle	Check Dam	77.5077	13.7959	NREGS
67	Pulamathi	P SadlaPalle	Check Dam	77.5067	13.7964	NREGS
68	Pulamathi	P SadlaPalle	Check Dam	77.5054	13.7974	NREGS
69	Pulamathi	P SadlaPalle	Check Dam	77.5045	13.7963	NREGS
70	Pulamathi	Pulamathi	Check Dam	77.5441	13.7763	NREGS
71	Sirivaram	GopindevaPalle	Check Dam	77.5909	13.7455	NREGS
72	Sirivaram	GopindevaPalle	Check Dam	77.5928	13.7480	NREGS
73	Sirivaram	GopindevaPalle	Check Dam	77.5900	13.7439	NREGS
74	Sirivaram	GopindevaPalle	Check Dam	77.5906	13.7510	NREGS
75	Sirivaram	Sirivaram	Check Dam	77.5861	13.7589	NREGS
76	Sirivaram	Sirivaram	Check Dam	77.5936	13.7665	NREGS
77	Sirivaram	Sirivaram	Check Dam	77.5825	13.7651	NREGS
78	Sirivaram	Sirivaram	Check Dam	77.5797	13.7661	NREGS
79	Sirivaram	Sirivaram	Check Dam	77.5805	13.7623	NREGS
80	Sirivaram	Sirivaram	Check Dam	77.5816	13.7780	NREGS
81	Sirivaram	Sirivaram	Check Dam	77.5814	13.7796	NREGS
82	Sirivaram	Sirivaram	Check Dam	77.5793	13.7700	NREGS
83	Sirivaram	Sirivaram	Check Dam	77.5733	13.7674	NREGS
84	Sirivaram	Sirivaram	Check Dam	77.5877	13.7515	NREGS
85	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5812	13.7765	NREGS

86	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5778	13.7809	NREGS
87	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5703	13.7781	NREGS
88	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5678	13.7774	NREGS
89	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5673	13.7731	NREGS
90	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5694	13.7709	NREGS
91	Sirivaram	ThirumalaDevara Pal	Check Dam	77.5734	13.7716	NREGS
92	Kondur	Kondur	Check Dam	77.6071	13.8633	NREGS
93	Kondur	Kondur	Check Dam	77.6166	13.8656	NREGS
94	Kondur	Kondur	Check Dam	77.6048	13.8507	NREGS
95	Kondur	Kondur	Check Dam	77.6185	13.8402	NREGS
96	Kondur	Kondur	Check Dam	77.5981	13.8375	NREGS
97	Kondur	Kondur	Check Dam	77.6246	13.8683	NREGS
98	Kondur	Kondur	Check Dam	77.6182	13.8679	NREGS
99	Kondur	Kondur	Check Dam	77.6203	13.8635	NREGS
100	Kondur	Kondur	Check Dam	77.6119	13.8379	NREGS
101	Kondur	Kondur	Check Dam	77.6013	13.8365	NREGS
102	Kondur	Kondur	Check Dam	77.6247	13.8606	NREGS
103	Kondur	Kondur	Check Dam	77.6275	13.8618	NREGS
104	Kondur	Kondur	Check Dam	77.6255	13.8653	NREGS
105	Kondur	ThimmagariPalle	Check Dam	77.6043	13.8696	NREGS
106	Kondur	ThimmagariPalle	Check Dam	77.6007	13.8673	NREGS
107	Kondur	ThimmagariPalle	Check Dam	77.5935	13.8699	NREGS
108	Kondur	VaddiPalle	Check Dam	77.6012	13.8513	NREGS
109	Kondur	VaddiPalle	Check Dam	77.6068	13.8474	NREGS
110	Manepalle	Manepalle	Check Dam	77.5522	13.7697	NREGS
111	Manepalle	Manepalle	Check Dam	77.5435	13.7703	NREGS
112	Manepalle	Manepalle	Check Dam	77.5499	13.7547	NREGS
113	Manepalle	Manepalle	Check Dam	77.5440	13.7672	NREGS
114	Manepalle	Manepalle	Check Dam	77.5481	13.7556	NREGS
115	Manepalle	Manepalle	Check Dam	77.5467	13.7565	NREGS
116	Manepalle	Manepalle	Check Dam	77.5456	13.7573	NREGS
117	Manepalle	Manepalle	Check Dam	77.5575	13.7596	NREGS
118	Manepalle	Manepalle	Check Dam	77.5482	13.7610	NREGS
119	Manepalle	Manepalle	Check Dam	77.5563	13.7398	NREGS
120	Manepalle	Manepalle	Check Dam	77.5437	13.7562	NREGS
121	Manepalle	Manepalle	Check Dam	77.5604	13.7555	NREGS
122	Manepalle	VenkataPuram	Check Dam	77.5538	13.7723	NREGS
123	Manepalle	VenkataPuram	Check Dam	77.5561	13.7646	NREGS
124	Kodipalle	Kodihalli	Check Dam	77.5285	13.7980	NREGS
125	Kodipalle	KothaPalle	Check Dam	77.5265	13.8053	NREGS
126	Kodipalle	KothaPalle	Check Dam	77.5236	13.8048	NREGS
127	Kodipalle	KothaPalle	Check Dam	77.5277	13.7983	NREGS
128	Kodipalle	KothaPalle	Check Dam	77.5283	13.8023	NREGS
129	Kodipalle	KothaPalle	Check Dam	77.5305	13.8095	NREGS

130	Kodipalle	NagePalle	Check Dam	77.5377	13.8095	NREGS
131	Kodipalle	NagePalle	Check Dam	77.5326	13.8124	NREGS
132	Kodipalle	NagePalle	Check Dam	77.5314	13.8120	NREGS
133	Kodipalle	VibudhiPalle	Check Dam	77.5474	13.7772	NREGS
134	Kodipalle	VibudhiPalle	Check Dam	77.5406	13.7976	NREGS
135	Kodipalle	VibudhiPalle	Check Dam	77.5444	13.8017	NREGS
136	Kanchisamudram	BasanaPalle	Check Dam	77.6250	13.7805	NREGS
137	Kanchisamudram	BayanaPalle	Check Dam	77.6296	13.7823	NREGS
138	Kanchisamudram	BayanaPalle	Check Dam	77.6330	13.7820	NREGS
139	Kanchisamudram	BayanaPalle	Check Dam	77.6348	13.7798	NREGS
140	Kanchisamudram	BayanaPalle	Check Dam	77.6395	13.7776	NREGS
141	Kanchisamudram	Kanchisamudram	Check Dam	77.6141	13.7662	NREGS
142	Kanchisamudram	Kanchisamudram	Check Dam	77.6144	13.7609	NREGS
143	Kanchisamudram	Kanchisamudram	Check Dam	77.5978	13.7818	NREGS
144	Kanchisamudram	Kanchisamudram	Check Dam	77.6085	13.7876	NREGS
145	Kanchisamudram	Maddippi	Check Dam	77.6074	13.7563	NREGS
146	Kanchisamudram	Maddippi	Check Dam	77.5982	13.7526	NREGS
147	Kanchisamudram	Maddippi	Check Dam	77.5983	13.7537	NREGS
148	Kanchisamudram	Maddippi	Check Dam	77.5936	13.7665	NREGS
149	Kanchisamudram	Maddippi	Check Dam	77.5923	13.7746	NREGS
150	Kanchisamudram	Maddippi	Check Dam	77.5902	13.7765	NREGS
151	Kanchisamudram	Maddippi	Check Dam	77.5975	13.7766	NREGS
152	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6425	13.7827	NREGS
153	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6411	13.7846	NREGS
154	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6403	13.7842	NREGS
155	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6390	13.7864	NREGS
156	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6371	13.7887	NREGS
157	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6397	13.7910	NREGS
158	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6393	13.7929	NREGS
159	Kanchisamudram	MamidimakulaPalle	Check Dam	77.6347	13.7924	NREGS
160	Lepakshi	BingiPalle	Check Dam	77.5899	13.7953	NREGS
161	Lepakshi	BingiPalle	Check Dam	77.5972	13.7889	NREGS
162	Lepakshi	GalibiPalle	Check Dam	77.6053	13.8286	NREGS
163	Lepakshi	GalibiPalle	Check Dam	77.6043	13.8313	NREGS
164	Lepakshi	GalibiPalle	Check Dam	77.6004	13.8258	NREGS
165	Lepakshi	GalibiPalle	Check Dam	77.6250	13.8133	NREGS
166	Lepakshi	GongatiPalle	Check Dam	77.6257	13.8144	NREGS
167	Lepakshi	Lepakshi	Check Dam	77.5869	13.8178	NREGS
168	Lepakshi	Lepakshi	Check Dam	77.6041	13.7961	NREGS
169	Lepakshi	Lepakshi	Check Dam	77.5989	13.7976	NREGS
170	Lepakshi	Lepakshi	Check Dam	77.5977	13.7999	NREGS
171	Lepakshi	Lepakshi	Check Dam	77.6242	13.8006	NREGS
172	Lepakshi	Lepakshi	Check Dam	77.6221	13.8016	NREGS
173	Lepakshi	Lepakshi	Check Dam	77.6202	13.8030	NREGS

174	Lepakshi	Lepakshi	Check Dam	77.6203	13.8016	NREGS
175	Lepakshi	Lepakshi	Check Dam	77.6191	13.8039	NREGS
176	Lepakshi	SomireddiPalle	Check Dam	77.6284	13.8178	NREGS
177	Lepakshi	SomireddiPalle	Check Dam	77.6262	13.8185	NREGS
178	Lepakshi	SomireddiPalle	Check Dam	77.6248	13.8187	NREGS
179	Mydugolam	Mydugolam	Check Wall	77.6191	13.7547	NREGS
180	Kallur	Kallur	Check Wall	77.5755	13.8494	NREGS
181	Nayanipalle	Nayanipalle	Check Wall	77.5738	13.8389	NREGS
182	Kondur	Kondur	Check Wall	77.6214	13.8634	NREGS
183	Kondur	ThimmagariPalle	Check Wall	77.5952	13.8683	NREGS
184	Kondur	ThimmagariPalle	Check Wall	77.5954	13.8671	NREGS
185	Nayanipalle	Nayanipalle	MPT	77.5740	13.8324	NREGS
186	Pulamathi	Pulamathi	MPT	77.5394	13.7747	NREGS
187	Pulamathi	Pulamathi	MPT	77.5420	13.7747	NREGS
188	Pulamathi	Pulamathi	MPT	77.5441	13.7768	NREGS
189	Kodipalle	VibudhiPalle	MPT	77.5494	13.7791	NREGS
190	Sirivaram	Sirivaram	PT	77.5880	13.7587	NREGS
191	Sirivaram	Sirivaram	PT	77.5816	13.7660	NREGS
192	Kondur	Kondur	PT	77.6085	13.8439	NREGS
193	Kondur	Kondur	PT	77.6315	13.8622	NREGS
194	Manepalle	VenkataPuram	PT	77.5538	13.7654	NREGS
195	Kodipalle	VibudhiPalle	PT	77.5506	13.7839	NREGS
196	Kodipalle	VibudhiPalle	PT	77.5503	13.7852	NREGS
197	Kodipalle	VibudhiPalle	PT	77.5508	13.7809	NREGS
198	Kodipalle	VibudhiPalle	PT	77.5512	13.7774	NREGS
199	Kodipalle	VibudhiPalle	PT	77.5471	13.7779	NREGS
200	Kodipalle	VibudhiPalle	PT	77.5411	13.7983	NREGS
201	Kanchisamudram	BayanaPalle	PT	77.6355	13.7761	NREGS
202	Kanchisamudram	Kanchisamudram	PT	77.6161	13.7554	NREGS

PROPOSED ARTIFICIAL STRUCTURES  
LAPAKSHI MANDAL, ANANTAPUR DISTRICT, AP.

S.No.	Mandal	Lattitude	Longitude	Structure_Type
1	Lepakshi	13.8524	77.5841	CheckDam
2	Lepakshi	13.8464	77.6302	CheckDam
3	Lepakshi	13.8101	77.5966	CheckDam
4	Lepakshi	13.7994	77.6454	CheckDam
5	Lepakshi	13.8239	77.5541	CheckDam
6	Lepakshi	13.7647	77.5670	CheckDam
7	Lepakshi	13.8533	77.6292	CheckDam
8	Lepakshi	13.8589	77.6070	CheckDam
9	Lepakshi	13.8702	77.6392	CheckDam
10	Lepakshi	13.7775	77.6044	CheckDam



Fig.1

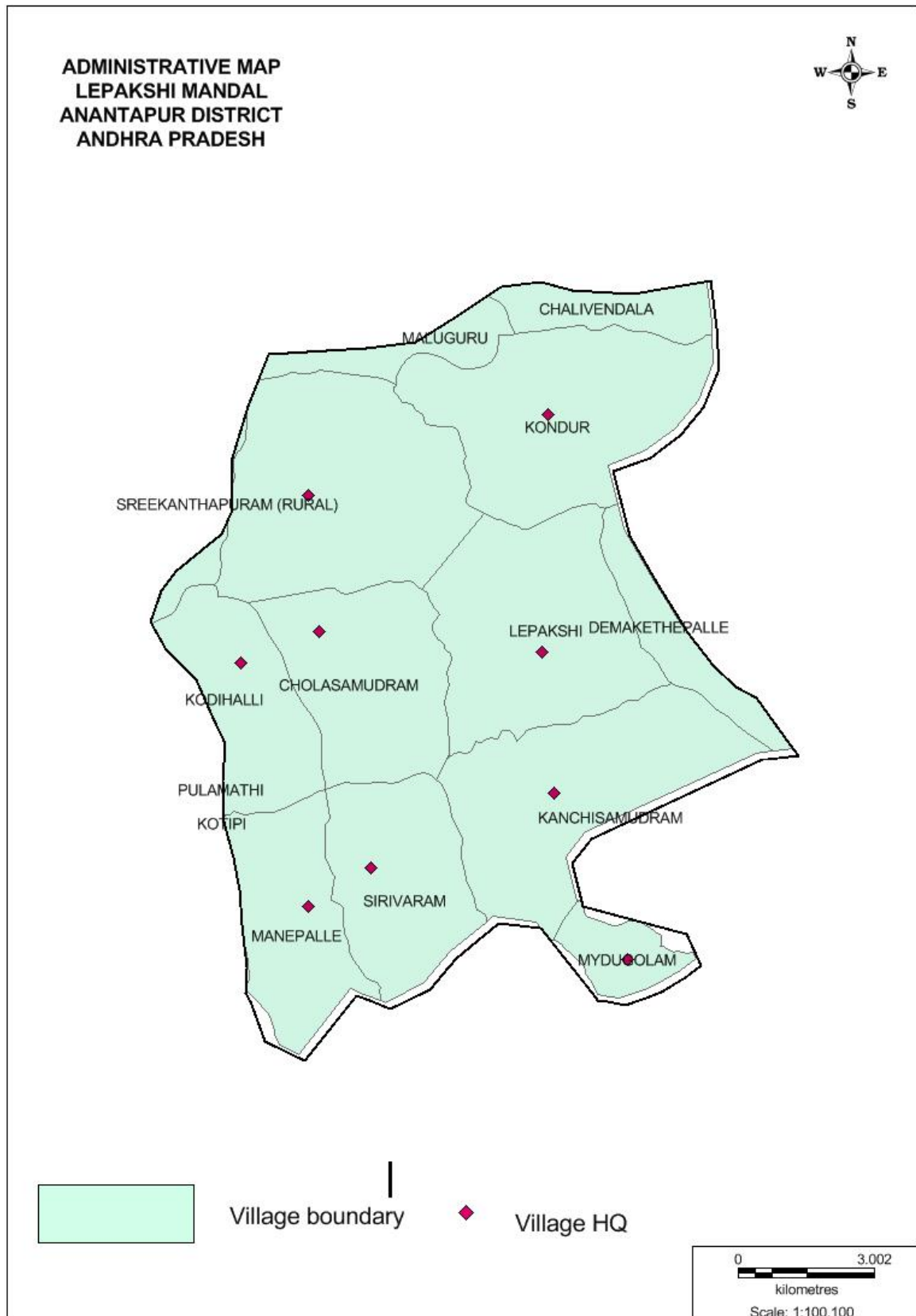


Fig.2

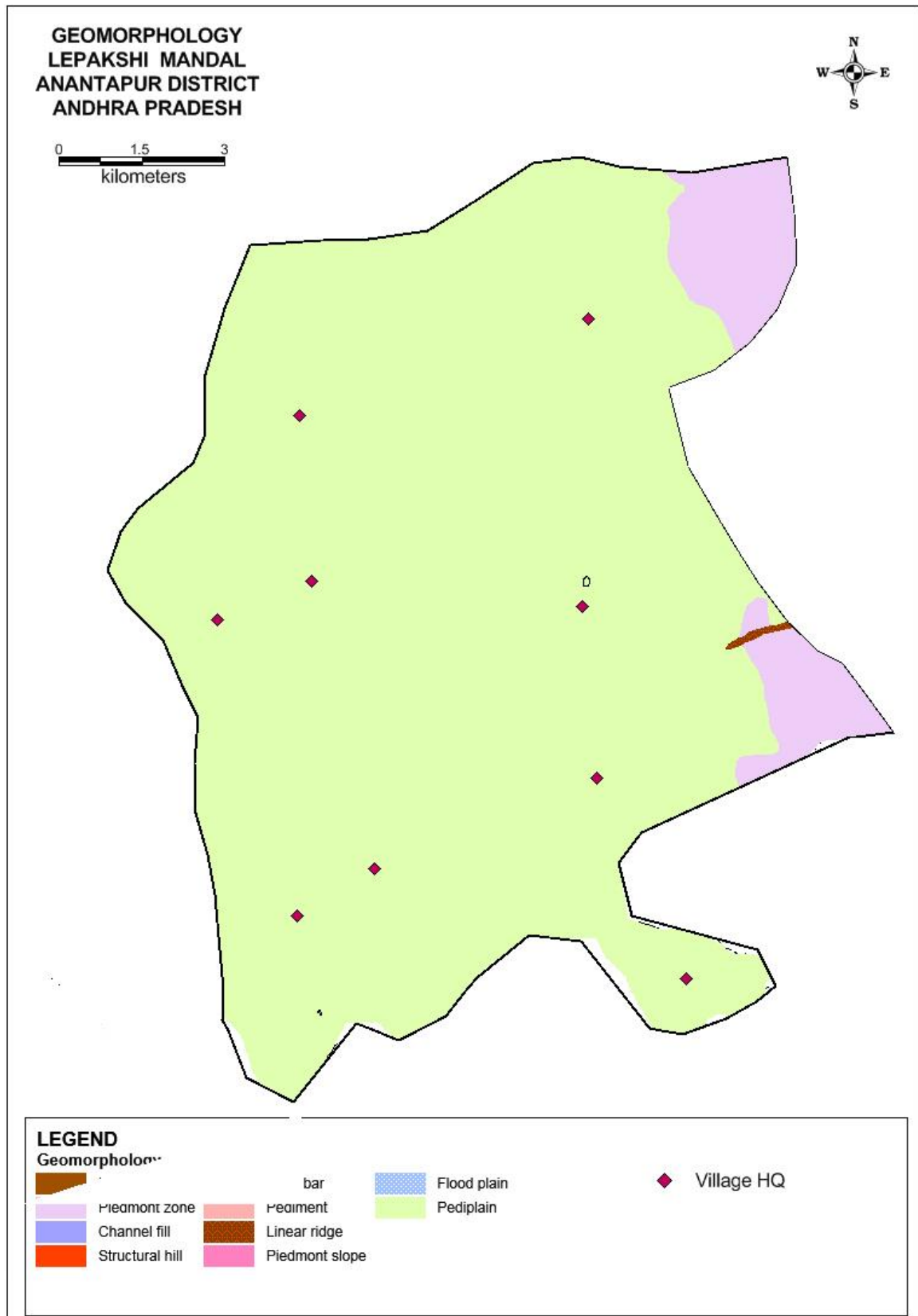


Fig.3

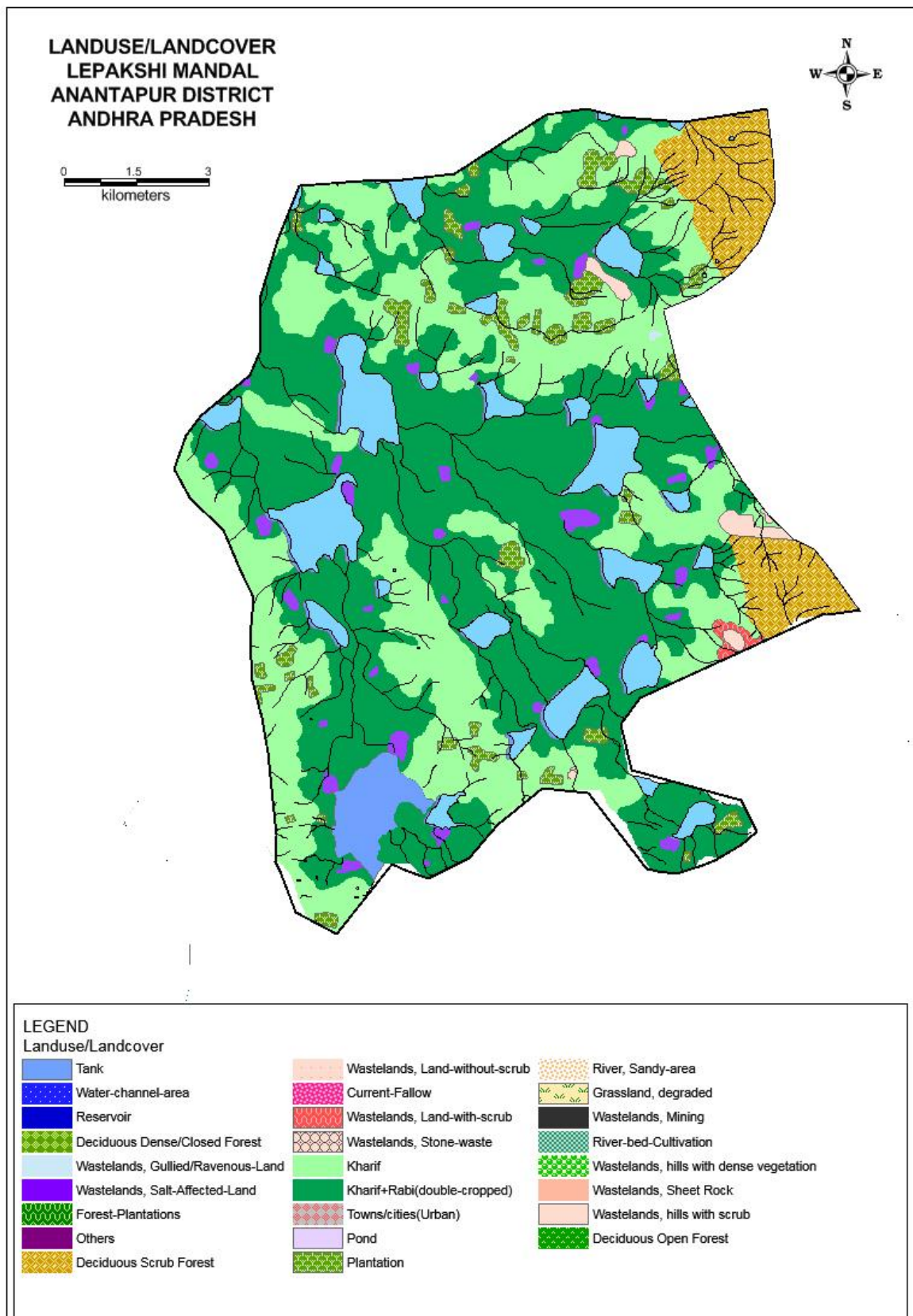


Fig.4

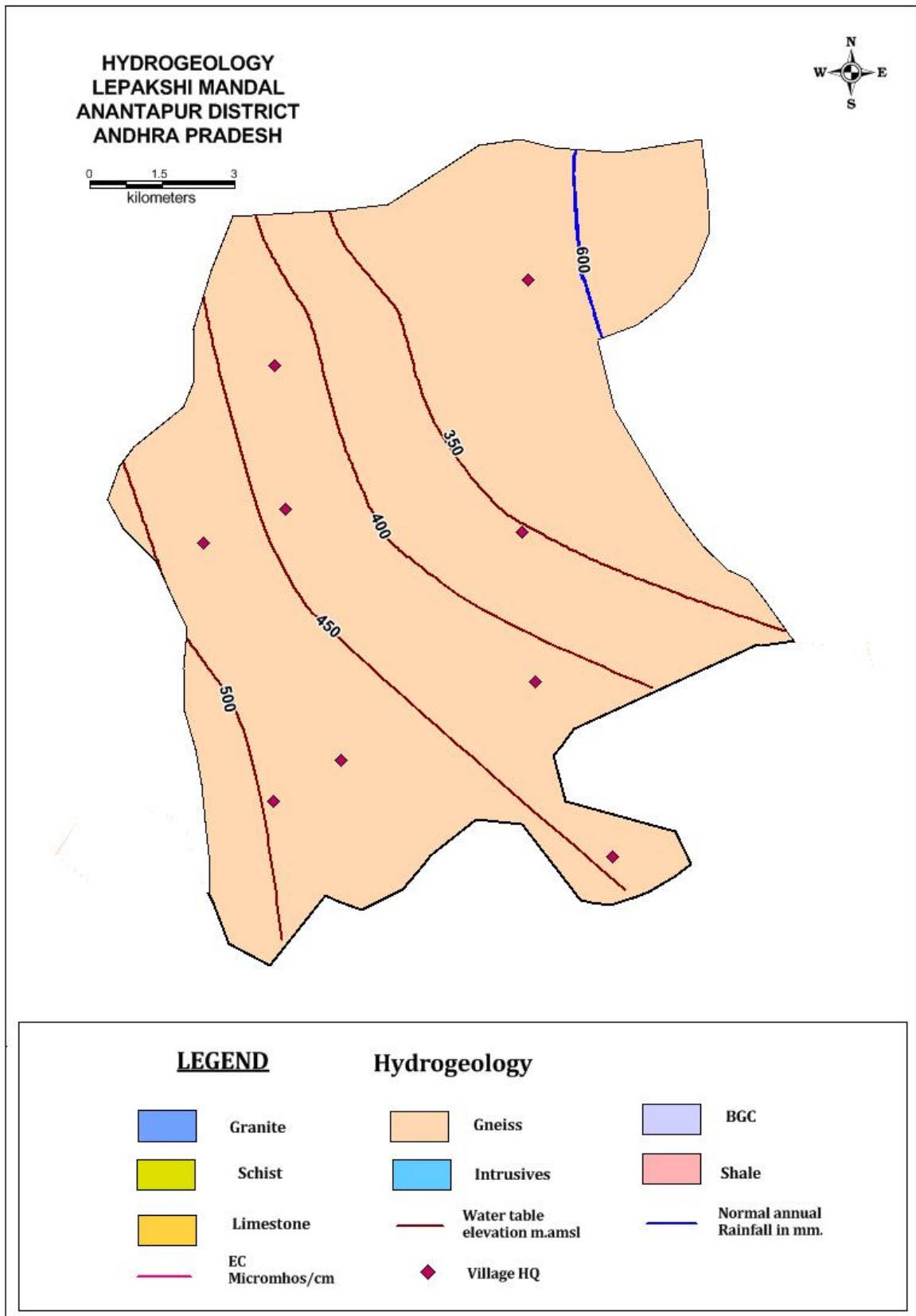




Fig.5

