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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 PUTLUR MANDAL, ANANTAPUR DISTRICT, ANDHRA PRADESH

SOUTHERN REGION
HYDERABAD
AUGUST-2016

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

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AT A GLANCE

| | |
|---|---|
| Name of the Mandal | PUTLUR |
| District | ANANTAPUR |
| State | ANDHRA PRADESH |
| Total Area (Sq.kms) | 318 |
| Area suitable for Artificial Recharge (Sq.kms) | 247.03 |
| Latitude and Longitude | 14.628620 to 14.852490 and<br>77.854950 to 78.073050 |
| Average Annual Rainfall (mm) | 563 |
| Geology | Limestones, Shales |
| Average Depth To Water Level (Decadal) (Pre Monsoon) | 17.10 |
| Average Depth To Water Level (Decadal) (Post Monsoon) | 11.10 |
| Ground Water Resources (2011) | |
| Annual Replenishable Ground Water Resources (MCM/yr) | 11.72 |
| Net Annual Ground Water Availability(MCM)/yr | 10.73 |
| Net Annual Ground Water Draft(MCM)/yr | 19.32 |
| Projected Demand for Domestic and Industrial Use(MCM)/yr | 1.40 |
| Stage of Ground Water Development (%) | 180 |
| Surface runoff available (MCM)/yr | 18.18 |
| Total Storage Created in the Mandal by Various Agencies (MCM)/yr | 2.40 |
| Artificial Recharge/Conservation Measures | |
| Recharge Structures Proposed (No.s) | Percolation Tanks: 7, Check Dams: 26<br>Farm ponds: 460, Recharge Shafts: 170 |
| Improving Water use Efficiency | Micro Irrigation System: 2300 ha |
| Tentative Total Cost in Lakhs (Rs.) | 1936 |
| Expected Recharge/Savings (MCM)/yr | 9.9 |

## 1. INTRODUCTION

Putlur 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 17 inhabited villages and with 23 gram panchayats.

## 2. LOCATION

The mandal lies between north latitudes 14.628620 to 14.852490 and between east longitudes 77.854950 to 78.073050. The mandal occupies the Eastern part of the Anantapur district and is bounded on the north by Tadipatri Mandal, on the east by Kadapa District, on the south by Tadimarri mandal and west by Narpala mandal. (Fig.1) The geographical area of the mandal is 318 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 563 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 318 sq.km, the area covered by forest is 57.97 sq.km and the net area sown is 193.31 sq.km. Barren and uncultivable land is 35 sq.km. The land for non agricultural use accounts for 12.28 sq.km. (Fig.3)

## 6. HYDROGEOLOGY

The area is underlain by Lime stones and shales (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 upto20 m depth. Ground water occurs in fractured rocks down to a depth of 200 m bgl. However, the potential fractures are encountered between 50-100 m bgl. The cumulative yield varies from 2-5lps.

## 7. GROUND WATER LEVEL SCENARIO

The depth to water level during pre and post-monsoon varies from 5 to 20 m bgl. The average depth to water level (decadal) during pre and post monsoon is 17.1 and 11.1mbgl respectively. The depth to water levels maps for pre and post monsoon period (2014) are shown in (Figs 5 & 6. respectively.). 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 Putlur Mandal, Ananthapur District is given in Table-1.

Table-1: Ground water resources of Putlur Mandal, Ananthapur District.

| | |
|---|---|
| Annual Replenishable Ground water resources (MCM) | 11.72 |
| Net Annual Ground water Availability. (MCM) | 10.73 |
| Net Annual Ground Water Draft(MCM)/yr | 19.32 |
| Projected Demand for Domestic and Industrial use up to 2025. (MCM) | 1.40 |
| Stage of Ground water development (%). | 180 |
| 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

Putlur Mandal falls under high stage of ground water development i.e., 180 % 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) | 318 |
| Hilly Area (Sq.kms) | 70.97 |
| Area suitable for Artificial Recharge (sq.km.) | 247.03 |
| Runoff Yield in MCM/yr | 18.18 |
| Existing No. of Check Dams | 280 |
| Storage created MCM/yr | 1.98 |
| Existing No. of Percolation Tanks | 59 |
| Storage created MCM/yr | 0.42 |
| Total Existing Storage Created | 2.40 |

## 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 15.78 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 563 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 26 **Check dams and 7 Percolation tanks** 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 140 and 30 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 460 farm ponds in 23 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 2300 ha @ 100 ha per village.

13. TENTATIVE COST ESTIMATES (PUTLUR 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) | 26 | 0.728 | 5 | 130 | 0.546 |
| 2 | Recharge shaft in Check dam (50% of the existing Check dams) | 140 | 1.54 | 0.5 | 70 | 1.54 |
| 3 | Proposed Percolation Tanks (100*100*2.5)* 4 fillings) | 7 | 0.7 | 15 | 105 | 0.525 |
| 4 | Renovation Desilting, Repairs and installation of Recharge Shafts in existing PTS (50% of the existing PTS) | 30 | 0.33 | 1 | 30 | 0.33 |
| 5 | Proposed Farm Pond (6 filling) 5*5*1.5 dimension @ 20 farm ponds per each village | 460 | 0.06624 | 0.25 | 115 | 0.059616 |
| 6 | Proposed Sprinkler/drip/HDPE pipes for 100 ha in each village | 2300 | 13.8 | 0.6 | 1380 | 6.9 |
| 7 | Proposed Piezometers up to 50 mbgl @ one PZ per Village | 23 | 0 | 0.6 | 13.8 | 0 |
| 8 (i) | Total (No. of AR Structures) | 686 | 3.36 | | 463.8 | 3.001 |
| 8 (ii) | Total (ha) | 2300 | | | 1380 | 6.9 |
| | Total (8(i) + 8 (ii)) | | | | **1843.8** | **9.901** |
| 9 | Impact Assessment & O & M -5 % of Total cost of the Scheme | | | | **92.19** | |
| | **Grand Total** | | | | **1935.99** | |

*(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 | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
| 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 9.901 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 180% to 94% (86%)
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 RECHARGE STRUCTURES
PUTLUR MANDAL, ANANTAPUR DISTRICT, AP

| S.no | Gram Panchayat | Habitation | Structure Type | Longitude | Latitude | Scheme |
|---|---|---|---|---|---|---|
| 1 | Chalavemula | Chalavemula | Check Dam | 77.9674 | 14.7456 | NREGS |
| 2 | Chalavemula | Chalavemula | Check Dam | 77.9730 | 14.7232 | NREGS |
| 3 | Cherlopalli | Cherlopalli | Check Dam | 77.9310 | 14.7923 | NREGS |
| 4 | Cherlopalli | Cherlopalli | Check Dam | 77.9315 | 14.7949 | NREGS |
| 5 | Cherlopalli | Cherlopalli | Check Dam | 77.9316 | 14.7960 | NREGS |
| 6 | Cherlopalli | Cherlopalli | Check Dam | 77.9315 | 14.7971 | NREGS |
| 7 | Cherlopalli | Cherlopalli | Check Dam | 77.9328 | 14.7994 | NREGS |
| 8 | Cherlopalli | Cherlopalli | Check Dam | 77.9323 | 14.8028 | NREGS |
| 9 | Cherlopalli | Cherlopalli | Check Dam | 77.9369 | 14.7841 | NREGS |
| 10 | Cherlopalli | Cherlopalli | Check Dam | 77.9297 | 14.7856 | NREGS |
| 11 | Cherlopalli | Cherlopalli | Check Dam | 77.9309 | 14.7859 | NREGS |
| 12 | Cherlopalli | Cherlopalli | Check Dam | 77.9348 | 14.7926 | NREGS |
| 13 | Cherlopalli | Cherlopalli | Check Dam | 77.9368 | 14.7901 | NREGS |
| 14 | Cherlopalli | Cherlopalli | Check Dam | 77.9456 | 14.7886 | NREGS |
| 15 | Cherlopalli | Cherlopalli | Check Dam | 77.9477 | 14.7962 | NREGS |
| 16 | Cherlopalli | Cherlopalli | Check Dam | 77.9461 | 14.7973 | NREGS |
| 17 | Arkativemula | Arkativemula | Check Dam | 77.8973 | 14.8546 | NREGS |
| 18 | Arkativemula | Arkativemula | Check Dam | 77.9008 | 14.8562 | NREGS |
| 19 | Arkativemula | Arkativemula | Check Dam | 77.9021 | 14.8559 | NREGS |
| 20 | Arkativemula | Arkativemula | Check Dam | 77.8991 | 14.8552 | NREGS |
| 21 | Arkativemula | Arkativemula | Check Dam | 77.9004 | 14.8566 | NREGS |
| 22 | Arkativemula | Arkativemula | Check Dam | 77.9098 | 14.8490 | NREGS |
| 23 | Arkativemula | Arkativemula | Check Dam | 77.9109 | 14.8502 | NREGS |
| 24 | Arkativemula | Arkativemula | Check Dam | 77.9147 | 14.8473 | NREGS |
| 25 | Arkativemula | Arkativemula | Check Dam | 77.9029 | 14.8544 | NREGS |
| 26 | Arkativemula | Arkativemula | Check Dam | 77.9112 | 14.8581 | NREGS |
| 27 | Arkativemula | Arkativemula | Check Dam | 77.9122 | 14.8516 | NREGS |
| 28 | Arkativemula | Arkativemula | Check Dam | 77.9088 | 14.8547 | NREGS |
| 29 | Ellutla | Ellutla | Check Dam | 77.8890 | 14.6704 | NREGS |
| 30 | Ellutla | Ellutla | Check Dam | 77.8911 | 14.6731 | NREGS |
| 31 | Ellutla | Ellutla | Check Dam | 77.9014 | 14.6648 | NREGS |
| 32 | Ellutla | Ellutla | Check Dam | 77.8984 | 14.6544 | NREGS |
| 33 | Ellutla | Ellutla | Check Dam | 77.9323 | 14.6491 | NREGS |
| 34 | Ellutla | Ellutla | Check Dam | 77.9365 | 14.6465 | NREGS |
| 35 | Ellutla | Ellutla | Check Dam | 77.9375 | 14.6446 | NREGS |
| 36 | Ellutla | Ellutla | Check Dam | 77.9223 | 14.6590 | NREGS |
| 37 | Ellutla | Ellutla | Check Dam | 77.9182 | 14.6631 | NREGS |
| 38 | Ellutla | Ellutla | Check Dam | 77.9188 | 14.6631 | NREGS |
| 39 | Ellutla | Ellutla | Check Dam | 77.9307 | 14.6574 | NREGS |
| 40 | Ellutla | Ellutla | Check Dam | 77.9255 | 14.6601 | NREGS |

| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | Ellutla | Ellutla | Check Dam | 77.9272 | 14.6593 | NREGS |
| 42 | Komatikuntla | Komatikuntla | Check Dam | 77.9795 | 14.7683 | NREGS |
| 43 | Komatikuntla | Komatikuntla | Check Dam | 77.9772 | 14.7677 | NREGS |
| 44 | Komatikuntla | Komatikuntla | Check Dam | 77.9723 | 14.7677 | NREGS |
| 45 | Komatikuntla | Komatikuntla | Check Dam | 77.9850 | 14.7559 | NREGS |
| 46 | Komatikuntla | Komatikuntla | Check Dam | 78.0104 | 14.7540 | NREGS |
| 47 | Komatikuntla | Komatikuntla | Check Dam | 77.9762 | 14.7521 | NREGS |
| 48 | Komatikuntla | Komatikuntla | Check Dam | 78.0126 | 14.7656 | NREGS |
| 49 | Komatikuntla | Komatikuntla | Check Dam | 77.9969 | 14.7529 | NREGS |
| 50 | Komatikuntla | Komatikuntla | Check Dam | 77.9969 | 14.7529 | NREGS |
| 51 | Komatikuntla | Komatikuntla | Check Dam | 78.0090 | 14.7511 | NREGS |
| 52 | Kondapuram | Kondapuram | Check Dam | 77.9160 | 14.8615 | NREGS |
| 53 | Kondapuram | Kondapuram | Check Dam | 77.9112 | 14.8603 | NREGS |
| 54 | Kondapuram | Kondapuram | Check Dam | 77.9075 | 14.8580 | NREGS |
| 55 | Kondapuram | Kondapuram | Check Dam | 77.9051 | 14.8564 | NREGS |
| 56 | Kondapuram | Kondapuram | Check Dam | 77.8976 | 14.8683 | NREGS |
| 57 | Kondapuram | Kondapuram | Check Dam | 77.8963 | 14.8539 | NREGS |
| 58 | Kondepalli | Kondepalli | Check Dam | 78.0696 | 14.8322 | NREGS |
| 59 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8971 | 14.6887 | NREGS |
| 60 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8967 | 14.6898 | NREGS |
| 61 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8929 | 14.6920 | NREGS |
| 62 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8956 | 14.6938 | NREGS |
| 63 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8931 | 14.6976 | NREGS |
| 64 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8965 | 14.6965 | NREGS |
| 65 | Madugupalli | Madugupalli | Check Dam | 77.8695 | 14.7286 | NREGS |
| 66 | Madugupalli | Madugupalli | Check Dam | 77.8695 | 14.7259 | NREGS |
| 67 | Madugupalli | Madugupalli | Check Dam | 77.8689 | 14.7260 | NREGS |
| 68 | Madugupalli | Madugupalli | Check Dam | 77.8724 | 14.7242 | NREGS |
| 69 | Madugupalli | Madugupalli | Check Dam | 77.8746 | 14.7269 | NREGS |
| 70 | Madugupalli | Madugupalli | Check Dam | 77.8782 | 14.7342 | NREGS |
| 71 | Madugupalli | Madugupalli | Check Dam | 77.8672 | 14.7136 | NREGS |
| 72 | Madugupalli | Madugupalli | Check Dam | 77.8686 | 14.7141 | NREGS |
| 73 | Madugupalli | Madugupalli | Check Dam | 77.8944 | 14.7164 | NREGS |
| 74 | Madugupalli | Madugupalli | Check Dam | 77.8781 | 14.7080 | NREGS |
| 75 | Madugupalli | Madugupalli | Check Dam | 77.8812 | 14.7125 | NREGS |
| 76 | Madugupalli | Madugupalli | Check Dam | 77.8800 | 14.7160 | NREGS |
| 77 | Madugupalli | Madugupalli | Check Dam | 77.8756 | 14.7124 | NREGS |
| 78 | Madugupalli | Madugupalli | Check Dam | 77.8721 | 14.7095 | NREGS |
| 79 | Madugupalli | Madugupalli | Check Dam | 77.8753 | 14.7214 | NREGS |
| 80 | Madugupalli | Madugupalli | Check Dam | 77.8752 | 14.7173 | NREGS |
| 81 | Madugupalli | Madugupalli | Check Dam | 77.8765 | 14.7163 | NREGS |
| 82 | Madugupalli | Madugupalli | Check Dam | 77.8999 | 14.7096 | NREGS |
| 83 | S.gudur | Guduru | Check Dam | 77.9502 | 14.8931 | NREGS |
| 84 | S.gudur | Guduru | Check Dam | 78.0261 | 14.8213 | NREGS |

| | | | | | | |
|---|---|---|---|---|---|---|
| 85 | S.gudur | Guduru | Check Dam | 78.0232 | 14.8182 | NREGS |
| 86 | S.gudur | Guduru | Check Dam | 78.0217 | 14.8092 | NREGS |
| 87 | S.gudur | Guduru | Check Dam | 78.0226 | 14.8104 | NREGS |
| 88 | S.gudur | Guduru | Check Dam | 78.0219 | 14.8070 | NREGS |
| 89 | S.gudur | Guduru | Check Dam | 78.0216 | 14.8042 | NREGS |
| 90 | S.gudur | Guduru | Check Dam | 78.0683 | 14.8043 | NREGS |
| 91 | S.gudur | Guduru | Check Dam | 78.0339 | 14.8317 | NREGS |
| 92 | S.gudur | Guduru | Check Dam | 78.0335 | 14.8296 | NREGS |
| 93 | Takkallapalli | Takkallapalli | Check Dam | 78.0088 | 14.8167 | NREGS |
| 94 | Takkallapalli | Takkallapalli | Check Dam | 78.0040 | 14.8357 | NREGS |
| 95 | Takkallapalli | Takkallapalli | Check Dam | 78.0026 | 14.8337 | NREGS |
| 96 | Takkallapalli | Takkallapalli | Check Dam | 78.0108 | 14.8164 | NREGS |
| 97 | Surepalli | Surepalli | Check Dam | 77.9080 | 14.8379 | NREGS |
| 98 | Surepalli | Surepalli | Check Dam | 77.9052 | 14.8393 | NREGS |
| 99 | Surepalli | Surepalli | Check Dam | 77.9019 | 14.8406 | NREGS |
| 100 | Surepalli | Surepalli | Check Dam | 77.9137 | 14.8292 | NREGS |
| 101 | Surepalli | Surepalli | Check Dam | 77.8982 | 14.8404 | NREGS |
| 102 | Surepalli | Surepalli | Check Dam | 77.9185 | 14.8387 | NREGS |
| 103 | Surepalli | Surepalli | Check Dam | 77.8924 | 14.8385 | NREGS |
| 104 | Surepalli | Surepalli | Check Dam | 77.8946 | 14.8391 | NREGS |
| 105 | Surepalli | Surepalli | Check Dam | 77.8912 | 14.8378 | NREGS |
| 106 | Maddipalli | Maddipalli | Check Dam | 77.9307 | 14.7342 | NREGS |
| 107 | Maddipalli | Maddipalli | Check Dam | 77.9393 | 14.7310 | NREGS |
| 108 | Maddipalli | Narayanareddipalli | Check Dam | 77.9509 | 14.7690 | NREGS |
| 109 | Maddipalli | Narayanareddipalli | Check Dam | 77.9455 | 14.7737 | NREGS |
| 110 | Kadavakal | Kadavakal | Check Dam | 77.9251 | 14.8193 | NREGS |
| 111 | Kadavakal | Kadavakal | Check Dam | 77.9281 | 14.8139 | NREGS |
| 112 | Kandikapula | Kandikapula | Check Dam | 77.9435 | 14.8394 | NREGS |
| 113 | Kandikapula | Kandikapula | Check Dam | 77.9571 | 14.8517 | NREGS |
| 114 | Kandikapula | Kandikapula | Check Dam | 77.9567 | 14.8483 | NREGS |
| 115 | Kandikapula | Kandikapula | Check Dam | 77.9532 | 14.8431 | NREGS |
| 116 | Kandikapula | Kandikapula | Check Dam | 77.9547 | 14.8436 | NREGS |
| 117 | Kandikapula | Kandikapula | Check Dam | 77.9458 | 14.8412 | NREGS |
| 118 | Kandikapula | Kandikapula | Check Dam | 77.9544 | 14.8424 | NREGS |
| 119 | Kandikapula | Kandikapula | Check Dam | 77.9549 | 14.8398 | NREGS |
| 120 | Kandikapula | Kandikapula | Check Dam | 77.9545 | 14.8377 | NREGS |
| 121 | Kandikapula | Kandikapula | Check Dam | 77.9501 | 14.8429 | NREGS |
| 122 | Kandikapula | Kandikapula | Check Dam | 77.9480 | 14.8413 | NREGS |
| 123 | Balapuram | Bolapuram | Check Dam | 77.9816 | 14.7808 | NREGS |
| 124 | Balapuram | Bolapuram | Check Dam | 77.9858 | 14.7791 | NREGS |
| 125 | Balapuram | Bolapuram | Check Dam | 77.9869 | 14.7819 | NREGS |
| 126 | Balapuram | Bolapuram | Check Dam | 77.9877 | 14.7813 | NREGS |
| 127 | Balapuram | Bolapuram | Check Dam | 77.9931 | 14.7813 | NREGS |
| 128 | Balapuram | Bolapuram | Check Dam | 77.9911 | 14.7805 | NREGS |

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|---|---|---|---|---|---|---|
| 129 | Balapuram | Bolapuram | Check Dam | 77.9749 | 14.7779 | NREGS |
| 130 | Balapuram | Bolapuram | Check Dam | 77.9756 | 14.7783 | NREGS |
| 131 | Balapuram | Bolapuram | Check Dam | 77.9772 | 14.7928 | NREGS |
| 132 | Balapuram | Bolapuram | Check Dam | 77.9740 | 14.7849 | NREGS |
| 133 | Balapuram | Bolapuram | Check Dam | 77.9703 | 14.7900 | NREGS |
| 134 | Balapuram | Bolapuram | Check Dam | 77.9702 | 14.7770 | NREGS |
| 135 | Balapuram | Bolapuram | Check Dam | 77.9812 | 14.7884 | NREGS |
| 136 | Balapuram | Chintalapalli | Check Dam | 77.9778 | 14.8086 | NREGS |
| 137 | Balapuram | Chintalapalli | Check Dam | 77.9772 | 14.8079 | NREGS |
| 138 | Balapuram | Chintalapalli | Check Dam | 77.9763 | 14.8055 | NREGS |
| 139 | Balapuram | Chintalapalli | Check Dam | 77.9905 | 14.7957 | NREGS |
| 140 | Balapuram | Chintalapalli | Check Dam | 77.9931 | 14.7978 | NREGS |
| 141 | Balapuram | Chintalapalli | Check Dam | 77.9947 | 14.7995 | NREGS |
| 142 | Balapuram | Chintalapalli | Check Dam | 77.9963 | 14.7997 | NREGS |
| 143 | Balapuram | Chintalapalli | Check Dam | 77.9983 | 14.8031 | NREGS |
| 144 | Balapuram | Chintalapalli | Check Dam | 77.9975 | 14.8001 | NREGS |
| 145 | Balapuram | Chintalapalli | Check Dam | 78.0008 | 14.8062 | NREGS |
| 146 | Balapuram | Chintalapalli | Check Dam | 78.0031 | 14.8091 | NREGS |
| 147 | Balapuram | Chintalapalli | Check Dam | 78.0036 | 14.8102 | NREGS |
| 148 | Chintalapalli | Chintalapalle | Check Dam | 78.0070 | 14.7235 | NREGS |
| 149 | Chintalapalli | Chintalapalle | Check Dam | 78.0089 | 14.7228 | NREGS |
| 150 | Chintalapalli | Chintalapalle | Check Dam | 78.0044 | 14.7326 | NREGS |
| 151 | Chintalapalli | Chintalapalle | Check Dam | 78.0084 | 14.7405 | NREGS |
| 152 | Chintalapalli | Chintalapalli | Check Dam | 78.0051 | 14.7385 | NREGS |
| 153 | Chintalapalli | Chintalapalli | Check Dam | 78.0048 | 14.7392 | NREGS |
| 154 | Dosaledu | Obulapuram | Check Dam | 77.9032 | 14.7834 | NREGS |
| 155 | Dosaledu | Obulapuram | Check Dam | 77.8851 | 14.7699 | NREGS |
| 156 | Dosaledu | Obulapuram | Check Dam | 77.8891 | 14.7843 | NREGS |
| 157 | Dosaledu | Obulapuram | Check Dam | 77.8827 | 14.7863 | NREGS |
| 158 | C.vengannapalli | Goparajupalli | Check Dam | 78.0124 | 14.7949 | NREGS |
| 159 | C.vengannapalli | Goparajupalli | Check Dam | 78.0149 | 14.7966 | NREGS |
| 160 | C.vengannapalli | Goparajupalli | Check Dam | 78.0170 | 14.7970 | NREGS |
| 161 | C.vengannapalli | Goparajupalli | Check Dam | 78.0182 | 14.7983 | NREGS |
| 162 | C.vengannapalli | Goparajupalli | Check Dam | 78.0114 | 14.7934 | NREGS |
| 163 | C.vengannapalli | Goparajupalli | Check Dam | 78.0084 | 14.7893 | NREGS |
| 164 | C.vengannapalli | Goparajupalli | Check Dam | 78.0025 | 14.7868 | NREGS |
| 165 | C.vengannapalli | Goparajupalli | Check Dam | 77.9972 | 14.7843 | NREGS |
| 166 | C.vengannapalli | Goparajupalli | Check Dam | 77.9956 | 14.7831 | NREGS |
| 167 | Rangarajukunta | Rangamanayunipalle | Check Dam | 77.9476 | 14.6941 | NREGS |
| 168 | Rangarajukunta | Rangamanayunipalle | Check Dam | 77.9447 | 14.6951 | NREGS |
| 169 | Rangarajukunta | Rangamanayunipalle | Check Dam | 77.9462 | 14.6932 | NREGS |
| 170 | Rangarajukunta | Rangamanayunipalle | Check Dam | 77.9416 | 14.6953 | NREGS |
| 171 | Rangarajukunta | Rangamanayunipalle | Check Dam | 77.9456 | 14.6995 | NREGS |
| 172 | Gandlapadu | Gandlapadu | Check Dam | 78.0169 | 14.8434 | NREGS |

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|---|---|---|---|---|---|---|
| 173 | Gandlapadu | Pothinreddipalli | Check Dam | 78.0192 | 14.8419 | NREGS |
| 174 | Gandlapadu | Thimmapuram | Check Dam | 78.0407 | 14.8479 | NREGS |
| 175 | Gandlapadu | Thimmapuram | Check Dam | 78.0410 | 14.8457 | NREGS |
| 176 | Gandlapadu | Thimmapuram | Check Dam | 78.0394 | 14.8428 | NREGS |
| 177 | Gandlapadu | Thimmapuram | Check Dam | 78.0364 | 14.8361 | NREGS |
| 178 | Putlur | Nayakunipalli | Check Dam | 77.9498 | 14.8087 | NREGS |
| 179 | Putlur | Nayakunipalli | Check Dam | 77.9477 | 14.8242 | NREGS |
| 180 | Putlur | Putlur | Check Dam | 77.9465 | 14.8156 | NREGS |
| 181 | Putlur | Putlur | Check Dam | 77.9516 | 14.8173 | NREGS |
| 182 | Putlur | Putlur | Check Dam | 77.9775 | 14.8264 | NREGS |
| 183 | Kummanamala | Kondugarikunta | Check Dam | 77.9573 | 14.7054 | NREGS |
| 184 | Kummanamala | KummanamalaPalli | Check Dam | 77.9432 | 14.7221 | NREGS |
| 185 | Kummanamala | KummanamalaPalli | Check Dam | 77.9438 | 14.7200 | NREGS |
| 186 | Kummanamala | KummanamalaPalli | Check Dam | 77.9470 | 14.7152 | NREGS |
| 187 | Kummanamala | KummanamalaPalli | Check Dam | 77.9393 | 14.7307 | NREGS |
| 188 | Kummanamala | KummanamalaPalli | Check Dam | 77.9565 | 14.7282 | NREGS |
| 189 | Kummanamala | Thurakavaripalli | Check Dam | 77.9636 | 14.7143 | NREGS |
| 190 | Kummanamala | Thurakavaripalli | Check Dam | 77.9666 | 14.7116 | NREGS |
| 191 | Kummanamala | Thurakavaripalli | Check Dam | 77.9671 | 14.7101 | NREGS |
| 192 | Kummanamala | Thurakavaripalli | Check Dam | 77.9698 | 14.7058 | NREGS |
| 193 | Kummanamala | Thurakavaripalli | Check Dam | 77.9681 | 14.7094 | NREGS |
| 194 | Chalavemula | Chalavemula | Check Dam | 77.9674 | 14.7456 | IWMP |
| 195 | Chalavemula | Chalavemula | Check Dam | 77.9730 | 14.7232 | IWMP |
| 196 | Cherlopalli | Cherlopalli | Check Dam | 77.9310 | 14.7923 | IWMP |
| 197 | Cherlopalli | Cherlopalli | Check Dam | 77.9315 | 14.7949 | IWMP |
| 198 | Cherlopalli | Cherlopalli | Check Dam | 77.9316 | 14.7960 | IWMP |
| 199 | Cherlopalli | Cherlopalli | Check Dam | 77.9315 | 14.7971 | IWMP |
| 200 | Cherlopalli | Cherlopalli | Check Dam | 77.9328 | 14.7994 | IWMP |
| 201 | Cherlopalli | Cherlopalli | Check Dam | 77.9323 | 14.8028 | IWMP |
| 202 | Cherlopalli | Cherlopalli | Check Dam | 77.9369 | 14.7841 | IWMP |
| 203 | Cherlopalli | Cherlopalli | Check Dam | 77.9297 | 14.7856 | IWMP |
| 204 | Cherlopalli | Cherlopalli | Check Dam | 77.9309 | 14.7859 | IWMP |
| 205 | Cherlopalli | Cherlopalli | Check Dam | 77.9348 | 14.7926 | IWMP |
| 206 | Cherlopalli | Cherlopalli | Check Dam | 77.9368 | 14.7901 | IWMP |
| 207 | Cherlopalli | Cherlopalli | Check Dam | 77.9456 | 14.7886 | IWMP |
| 208 | Cherlopalli | Cherlopalli | Check Dam | 77.9477 | 14.7962 | IWMP |
| 209 | Cherlopalli | Cherlopalli | Check Dam | 77.9461 | 14.7973 | IWMP |
| 210 | Ellutla | Ellutla | Check Dam | 77.8890 | 14.6704 | IWMP |
| 211 | Ellutla | Ellutla | Check Dam | 77.8911 | 14.6731 | IWMP |
| 212 | Ellutla | Ellutla | Check Dam | 77.9014 | 14.6648 | IWMP |
| 213 | Ellutla | Ellutla | Check Dam | 77.8984 | 14.6544 | IWMP |
| 214 | Ellutla | Ellutla | Check Dam | 77.9323 | 14.6491 | IWMP |
| 215 | Ellutla | Ellutla | Check Dam | 77.9365 | 14.6465 | IWMP |
| 216 | Ellutla | Ellutla | Check Dam | 77.9375 | 14.6446 | IWMP |

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|---|---|---|---|---|---|---|
| 217 | Ellutla | Ellutla | Check Dam | 77.9223 | 14.6590 | IWMP |
| 218 | Ellutla | Ellutla | Check Dam | 77.9182 | 14.6631 | IWMP |
| 219 | Ellutla | Ellutla | Check Dam | 77.9188 | 14.6631 | IWMP |
| 220 | Ellutla | Ellutla | Check Dam | 77.9307 | 14.6574 | IWMP |
| 221 | Ellutla | Ellutla | Check Dam | 77.9255 | 14.6601 | IWMP |
| 222 | Ellutla | Ellutla | Check Dam | 77.9272 | 14.6593 | IWMP |
| 223 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8971 | 14.6887 | IWMP |
| 224 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8967 | 14.6898 | IWMP |
| 225 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8929 | 14.6920 | IWMP |
| 226 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8956 | 14.6938 | IWMP |
| 227 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8931 | 14.6976 | IWMP |
| 228 | Jangamreddipeta | Jangamreddypeta | Check Dam | 77.8965 | 14.6965 | IWMP |
| 229 | Madugupalli | Madugupalli | Check Dam | 77.8944 | 14.7164 | IWMP |
| 230 | Madugupalli | Madugupalli | Check Dam | 77.8695 | 14.7286 | IWMP |
| 231 | Madugupalli | Madugupalli | Check Dam | 77.8695 | 14.7259 | IWMP |
| 232 | Madugupalli | Madugupalli | Check Dam | 77.8689 | 14.7260 | IWMP |
| 233 | Madugupalli | Madugupalli | Check Dam | 77.8724 | 14.7242 | IWMP |
| 234 | Madugupalli | Madugupalli | Check Dam | 77.8746 | 14.7269 | IWMP |
| 235 | Madugupalli | Madugupalli | Check Dam | 77.8721 | 14.7095 | IWMP |
| 236 | Madugupalli | Madugupalli | Check Dam | 77.8672 | 14.7136 | IWMP |
| 237 | Madugupalli | Madugupalli | Check Dam | 77.8686 | 14.7141 | IWMP |
| 238 | Madugupalli | Madugupalli | Check Dam | 77.8999 | 14.7096 | IWMP |
| 239 | Madugupalli | Madugupalli | Check Dam | 77.8781 | 14.7080 | IWMP |
| 240 | Madugupalli | Madugupalli | Check Dam | 77.8812 | 14.7125 | IWMP |
| 241 | Madugupalli | Madugupalli | Check Dam | 77.8800 | 14.7160 | IWMP |
| 242 | Madugupalli | Madugupalli | Check Dam | 77.8756 | 14.7124 | IWMP |
| 243 | Madugupalli | Madugupalli | Check Dam | 77.8782 | 14.7342 | IWMP |
| 244 | Madugupalli | Madugupalli | Check Dam | 77.8753 | 14.7214 | IWMP |
| 245 | Madugupalli | Madugupalli | Check Dam | 77.8752 | 14.7173 | IWMP |
| 246 | Madugupalli | Madugupalli | Check Dam | 77.8765 | 14.7163 | IWMP |
| 247 | Maddipalli | Maddipalli | Check Dam | 77.9307 | 14.7342 | IWMP |
| 248 | Maddipalli | Maddipalli | Check Dam | 77.9393 | 14.7310 | IWMP |
| 249 | Maddipalli | Narayanareddipalli | Check Dam | 77.9509 | 14.7690 | IWMP |
| 250 | Maddipalli | Narayanareddipalli | Check Dam | 77.9455 | 14.7737 | IWMP |
| 251 | Dosaledu | Obulapuram | Check Dam | 77.9032 | 14.7834 | IWMP |
| 252 | Dosaledu | Obulapuram | Check Dam | 77.8851 | 14.7699 | IWMP |
| 253 | Dosaledu | Obulapuram | Check Dam | 77.8891 | 14.7843 | IWMP |
| 254 | Dosaledu | Obulapuram | Check Dam | 77.8827 | 14.7863 | IWMP |
| 255 | Ellutla | Ellutla | Check Wall | 77.8946 | 14.6764 | NREGS |
| 256 | Ellutla | Ellutla | Check Wall | 77.8897 | 14.6755 | NREGS |
| 257 | Ellutla | Ellutla | Check Wall | 77.9305 | 14.6522 | NREGS |
| 258 | Madugupalli | Madugupalli | Check Wall | 77.8726 | 14.7082 | NREGS |
| 259 | Madugupalli | Madugupalli | Check Wall | 77.8939 | 14.7163 | NREGS |
| 260 | Madugupalli | Madugupalli | Check Wall | 77.8967 | 14.7123 | NREGS |

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|---|---|---|---|---|---|---|
| 261 | Surepalli | Surepalli | Check Wall | 77.9039 | 14.8295 | NREGS |
| 262 | Maddipalli | Maddipalli | Check Wall | 77.9382 | 14.7337 | NREGS |
| 263 | Balapuram | Bolapuram | Check Wall | 77.9800 | 14.7954 | NREGS |
| 264 | Balapuram | Bolapuram | Check Wall | 77.9793 | 14.7785 | NREGS |
| 265 | Balapuram | Bolapuram | Check Wall | 77.9890 | 14.7832 | NREGS |
| 266 | Balapuram | Bolapuram | Check Wall | 77.9866 | 14.7866 | NREGS |
| 267 | Putlur | Putlur | Check Wall | 77.9553 | 14.8193 | NREGS |
| 268 | Putlur | Putlur | Check Wall | 77.9625 | 14.8154 | NREGS |
| 269 | Putlur | Putlur | Check Wall | 77.9596 | 14.8150 | NREGS |
| 270 | Kummanamala | Kondugarikunta | Check Wall | 77.9544 | 14.7058 | NREGS |
| 271 | Kummanamala | Kondugarikunta | Check Wall | 77.9488 | 14.7125 | NREGS |
| 272 | Kummanamala | KummanamalaPalli | Check Wall | 77.9382 | 14.7338 | NREGS |
| 273 | Kummanamala | KummanamalaPalli | Check Wall | 77.9425 | 14.7248 | NREGS |
| 274 | Ellutla | Ellutla | Check Wall | 77.8946 | 14.6764 | IWMP |
| 275 | Ellutla | Ellutla | Check Wall | 77.8897 | 14.6755 | IWMP |
| 276 | Ellutla | Ellutla | Check Wall | 77.9305 | 14.6522 | IWMP |
| 277 | Madugupalli | Madugupalli | Check Wall | 77.8726 | 14.7082 | IWMP |
| 278 | Madugupalli | Madugupalli | Check Wall | 77.8939 | 14.7163 | IWMP |
| 279 | Madugupalli | Madugupalli | Check Wall | 77.8967 | 14.7123 | IWMP |
| 280 | Maddipalli | Maddipalli | Check Wall | 77.9382 | 14.7337 | IWMP |
| 281 | Cherlopalli | Cherlopalli | MPT | 77.9495 | 14.7945 | NREGS |
| 282 | Kadavakal | Kadavakal | MPT | 77.9336 | 14.8150 | NREGS |
| 283 | Kandikapula | Chintakunta | MPT | 77.9396 | 14.8531 | NREGS |
| 284 | Kandikapula | Chintakunta | MPT | 77.9270 | 14.8468 | NREGS |
| 285 | Kandikapula | Chintakunta | MPT | 77.9281 | 14.8468 | NREGS |
| 286 | Kandikapula | Chintakunta | MPT | 77.9302 | 14.8484 | NREGS |
| 287 | Chintalapalli | Chintalapalli | MPT | 78.0003 | 14.7339 | NREGS |
| 288 | Cherlopalli | Cherlopalli | MPT | 77.9495 | 14.7945 | IWMP |
| 289 | Chalavemula | Chalavemula | PT | 77.9654 | 14.7479 | NREGS |
| 290 | Chalavemula | Chalavemula | PT | 77.9705 | 14.7421 | NREGS |
| 291 | Chalavemula | Chalavemula | PT | 77.9766 | 14.7180 | NREGS |
| 292 | Chalavemula | Chalavemula | PT | 77.9745 | 14.7254 | NREGS |
| 293 | Chalavemula | Chalavemula | PT | 77.9471 | 14.7386 | NREGS |
| 294 | Cherlopalli | Cherlopalli | PT | 77.9495 | 14.7966 | NREGS |
| 295 | Kondapuram | Kondapuram | PT | 77.9164 | 14.8624 | NREGS |
| 296 | Takkallapalli | Takkallapalli | PT | 78.0006 | 14.8305 | NREGS |
| 297 | Surepalli | Gollapalli | PT | 77.8938 | 14.8268 | NREGS |
| 298 | Surepalli | Gollapalli | PT | 77.8908 | 14.8250 | NREGS |
| 299 | Surepalli | Surepalli | PT | 77.9169 | 14.8399 | NREGS |
| 300 | Surepalli | Surepalli | PT | 77.9176 | 14.8412 | NREGS |
| 301 | Surepalli | Surepalli | PT | 77.9198 | 14.8380 | NREGS |
| 302 | Maddipalli | Narayanareddipalli | PT | 77.9416 | 14.7747 | NREGS |
| 303 | Maddipalli | Narayanareddipalli | PT | 77.9569 | 14.7749 | NREGS |
| 304 | Kadavakal | Kadavakal | PT | 77.9400 | 14.8053 | NREGS |

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|---|---|---|---|---|---|---|
| 305 | Kadavakal | Kadavakal | PT | 77.9363 | 14.8207 | NREGS |
| 306 | Kadavakal | Kadavakal | PT | 77.8997 | 14.7990 | NREGS |
| 307 | Kadavakal | Sanjivapuram | PT | 77.8979 | 14.8050 | NREGS |
| 308 | Kandikapula | Chintakunta | PT | 77.9305 | 14.8476 | NREGS |
| 309 | Kandikapula | Chintakunta | PT | 77.9378 | 14.8492 | NREGS |
| 310 | Kandikapula | Kandikapula | PT | 77.9357 | 14.8544 | NREGS |
| 311 | Kandikapula | Kandikapula | PT | 77.9439 | 14.8343 | NREGS |
| 312 | Balapuram | Bolapuram | PT | 77.9734 | 14.7759 | NREGS |
| 313 | Balapuram | Bolapuram | PT | 77.9662 | 14.7910 | NREGS |
| 314 | Balapuram | Bolapuram | PT | 77.9644 | 14.7814 | NREGS |
| 315 | Balapuram | Bolapuram | PT | 77.9670 | 14.7813 | NREGS |
| 316 | Balapuram | Bolapuram | PT | 77.9888 | 14.7866 | NREGS |
| 317 | Balapuram | Bolapuram | PT | 77.9855 | 14.7910 | NREGS |
| 318 | Balapuram | Bolapuram | PT | 77.9808 | 14.7950 | NREGS |
| 319 | Balapuram | Chintalapalli | PT | 77.9752 | 14.8005 | NREGS |
| 320 | Chintalapalli | Chintalapalle | PT | 78.0128 | 14.7417 | NREGS |
| 321 | Putlur | Nayakunipalli | PT | 77.9499 | 14.8276 | NREGS |
| 322 | Putlur | Putlur | PT | 77.9556 | 14.8184 | NREGS |
| 323 | Putlur | Putlur | PT | 77.9503 | 14.8167 | NREGS |
| 324 | Putlur | Putlur | PT | 77.9614 | 14.8103 | NREGS |
| 325 | Putlur | Putlur | PT | 77.9675 | 14.8125 | NREGS |
| 326 | Putlur | Putlur | PT | 77.9589 | 14.8165 | NREGS |
| 327 | Putlur | Putlur | PT | 77.9605 | 14.8204 | NREGS |
| 328 | Putlur | Putlur | PT | 77.9621 | 14.8138 | NREGS |
| 329 | Kummanamala | KummanamalaPalli | PT | 77.9577 | 14.7258 | NREGS |
| 330 | Kummanamala | Thurakavaripalli | PT | 77.9596 | 14.7212 | NREGS |
| 331 | Kummanamala | Thurakavaripalli | PT | 77.9614 | 14.7164 | NREGS |
| 332 | Chalavemula | Chalavemula | PT | 77.9654 | 14.7479 | IWMP |
| 333 | Chalavemula | Chalavemula | PT | 77.9705 | 14.7421 | IWMP |
| 334 | Chalavemula | Chalavemula | PT | 77.9766 | 14.7180 | IWMP |
| 335 | Chalavemula | Chalavemula | PT | 77.9745 | 14.7254 | IWMP |
| 336 | Chalavemula | Chalavemula | PT | 77.9471 | 14.7386 | IWMP |
| 337 | Cherlopalli | Cherlopalli | PT | 77.9495 | 14.7966 | IWMP |
| 338 | Maddipalli | Narayanareddipalli | PT | 77.9416 | 14.7747 | IWMP |
| 339 | Maddipalli | Narayanareddipalli | PT | 77.9569 | 14.7749 | IWMP |

PROPOSED ARTIFICIAL RECHARGE STRUCTURES
PUTLUR MANDAL, ANANTAPUR DISTRICT, AP

| S.No. | Mandal | Lattitude | Longitude | Structure_Type |
|---|---|---|---|---|
| 1 | Putlur | 14.7892 | 77.8686 | CheckDam |
| 2 | Putlur | 14.7715 | 77.8731 | CheckDam |
| 3 | Putlur | 14.7448 | 77.8910 | CheckDam |
| 4 | Putlur | 14.7555 | 77.8934 | CheckDam |
| 5 | Putlur | 14.7718 | 77.9144 | CheckDam |
| 6 | Putlur | 14.7522 | 77.9196 | CheckDam |
| 7 | Putlur | 14.7362 | 77.9189 | CheckDam |
| 8 | Putlur | 14.7282 | 77.9141 | CheckDam |
| 9 | Putlur | 14.7109 | 77.9244 | CheckDam |
| 10 | Putlur | 14.7012 | 77.9261 | CheckDam |
| 11 | Putlur | 14.7598 | 77.9430 | CheckDam |
| 12 | Putlur | 14.8191 | 78.0371 | CheckDam |
| 13 | Putlur | 14.7648 | 78.0402 | CheckDam |
| 14 | Putlur | 14.7905 | 78.0364 | CheckDam |
| 15 | Putlur | 14.8011 | 77.9103 | CheckDam |
| 16 | Putlur | 14.8318 | 77.9244 | CheckDam |
| 17 | Putlur | 14.7582 | 77.8590 | CheckDam |
| 18 | Putlur | 14.7362 | 77.8641 | CheckDam |
| 19 | Putlur | 14.7542 | 77.8803 | CheckDam |
| 20 | Putlur | 14.7269 | 77.8841 | CheckDam |
| 21 | Putlur | 14.6942 | 77.9072 | CheckDam |
| 22 | Putlur | 14.6659 | 77.9131 | CheckDam |
| 23 | Putlur | 14.6419 | 77.9068 | CheckDam |
| 24 | Putlur | 14.6486 | 77.9217 | CheckDam |
| 25 | Putlur | 14.6382 | 77.9279 | CheckDam |
| 26 | Putlur | 14.6549 | 77.8907 | CheckDam |
| 27 | Putlur | 14.8115 | 77.8824 | Percolation Tank |
| 28 | Putlur | 14.7375 | 77.9110 | Percolation Tank |
| 29 | Putlur | 14.7502 | 77.9427 | Percolation Tank |
| 30 | Putlur | 14.7575 | 77.9582 | Percolation Tank |
| 31 | Putlur | 14.7699 | 77.9044 | Percolation Tank |
| 32 | Putlur | 14.7239 | 77.9031 | Percolation Tank |
| 33 | Putlur | 14.6832 | 77.8944 | Percolation Tank |

Fig.1

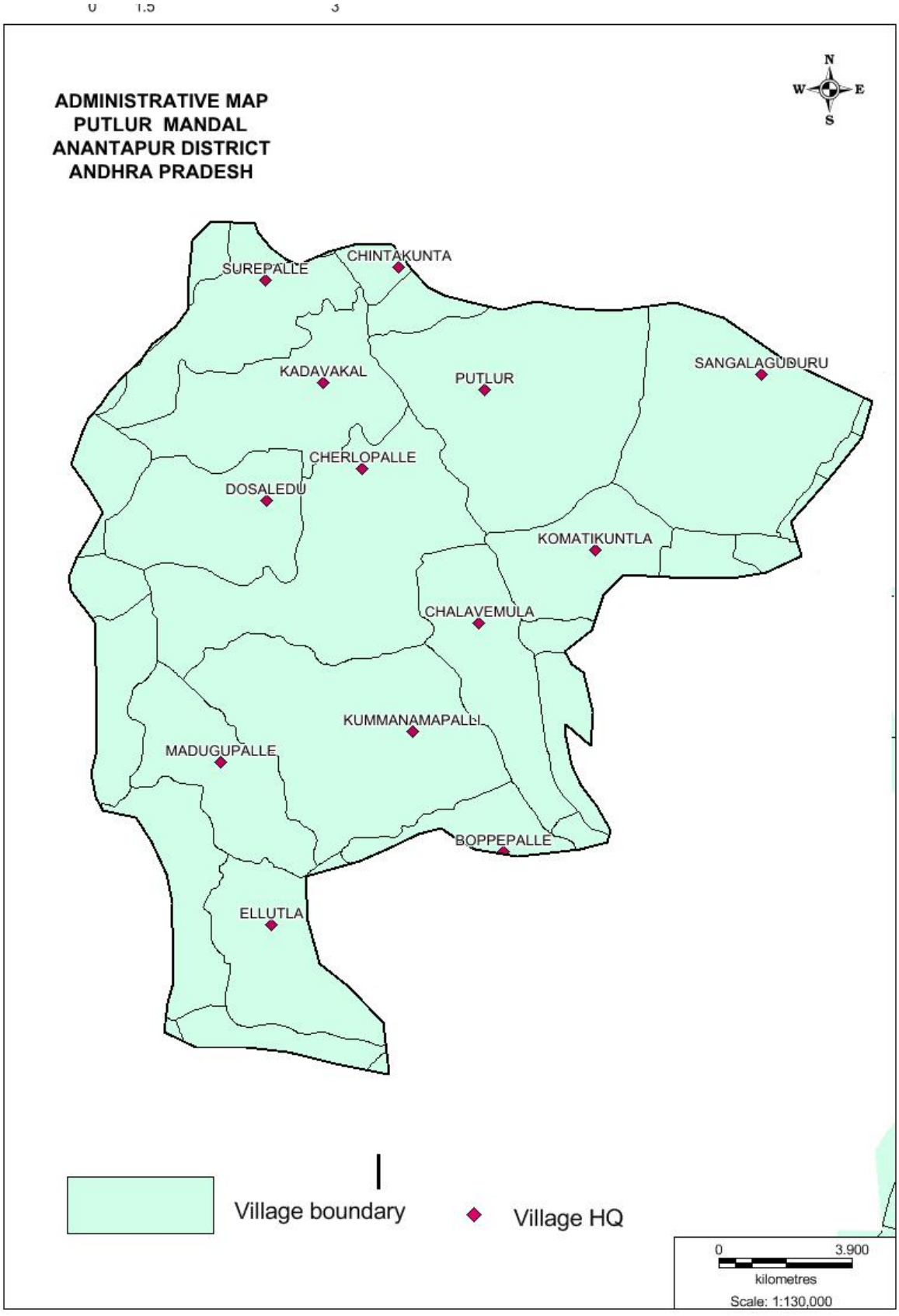

0 1.5 3
ADMINISTRATIVE MAP
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
N
W
E
S
SUREPALLE
CHINTAKUNTA
KADAVAKAL
PUTLUR
SANGALAGUDURU
CHERLOPALLE
DOSALEDU
KOMATIKUNTLA
CHALAVEMULA
KUMMANAMAPALLI
MADUGUPALLE
BOPPEPALLE
ELLUTLA
Village boundary
Village HQ
0
3.900
kilometres
Scale: 1:130,000

Fig.2

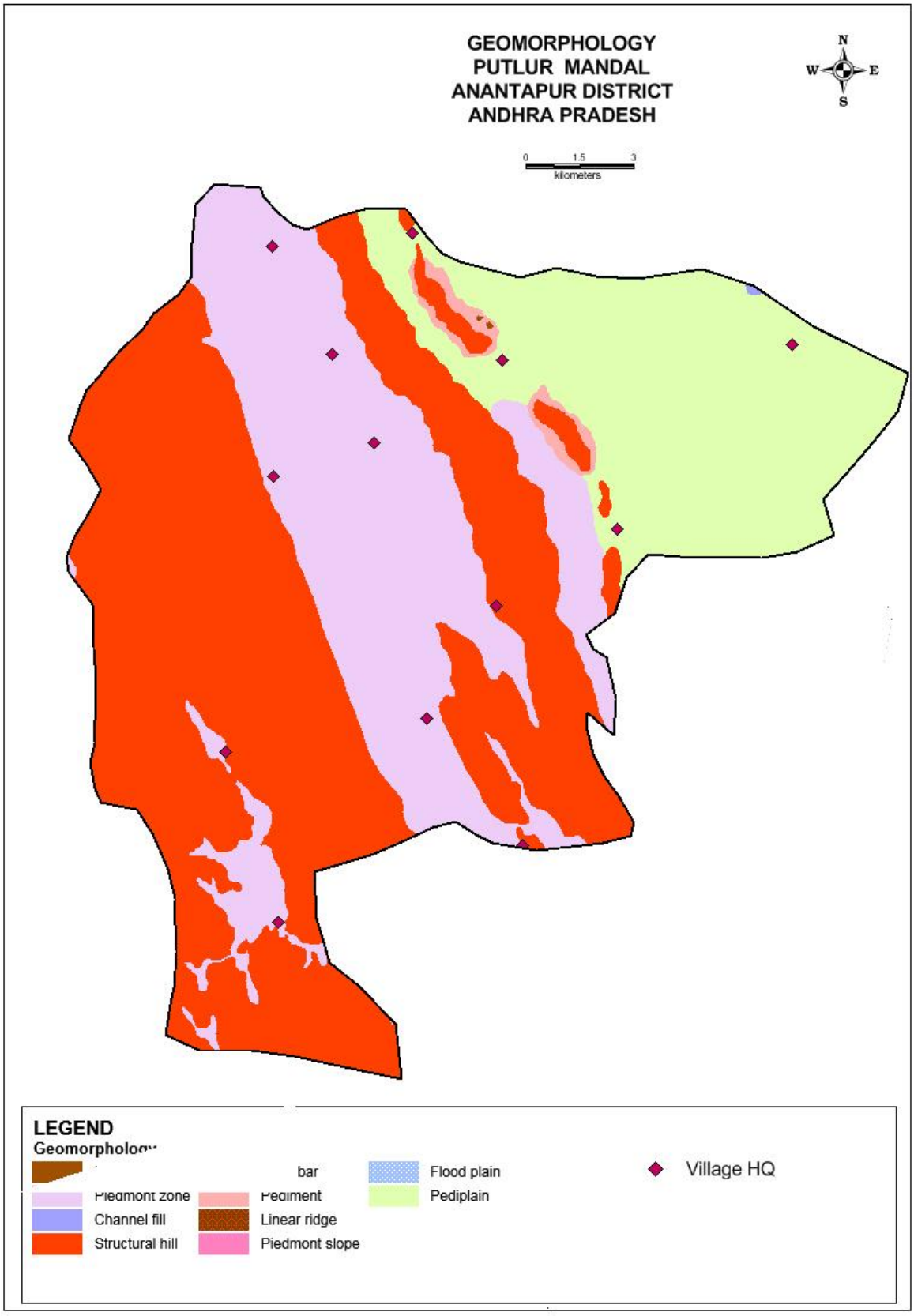

GEOMORPHOLOGY
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
N
W
E
S
0
1.5
3
kilometers
LEGEND
Geomorpholo
bar
Flood plain
Village HQ
Piedmont zone
Pediment
Pediplain
Channel fill
Linear ridge
Structural hill
Piedmont slope

Fig.3

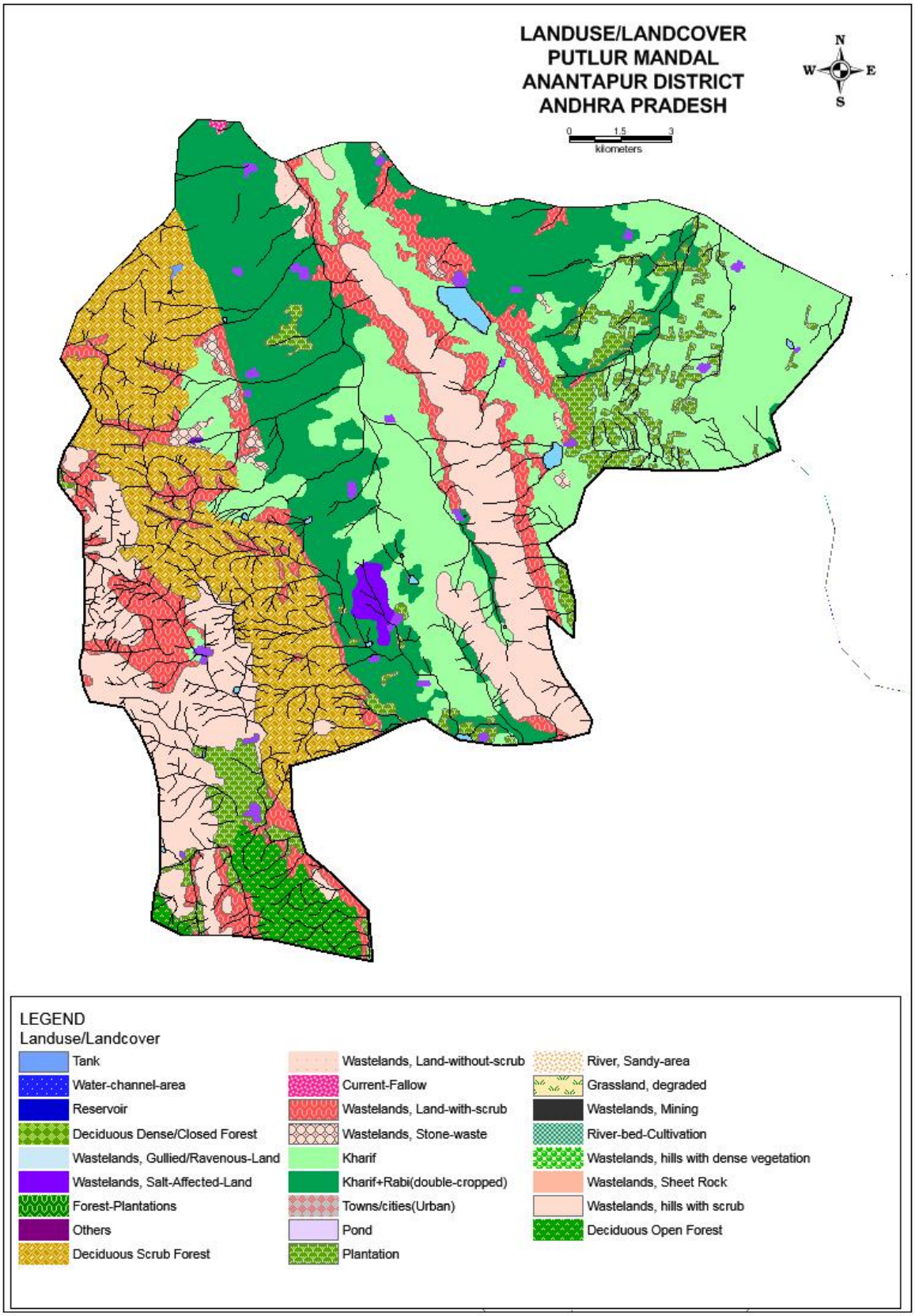

LANDUSE/LANDCOVER
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
N
W
E
S
0
1.5
3
kilometers
LEGEND
Landuse/Landcover
Tank
Water-channel-area
Reservoir
Deciduous Dense/Closed Forest
Wastelands, Gullied/Ravenous-Land
Wastelands, Salt-Affected-Land
Forest-Plantations
Others
Deciduous Scrub Forest
Wastelands, Land-without-scrub
Current-Fallow
Wastelands, Land-with-scrub
Wastelands, Stone-waste
Kharif
Kharif+Rabi(double-cropped)
Towns/cities(Urban)
Pond
Plantation
River, Sandy-area
Grassland, degraded
Wastelands, Mining
River-bed-Cultivation
Wastelands, hills with dense vegetation
Wastelands, Sheet Rock
Wastelands, hills with scrub
Deciduous Open Forest

Fig.4

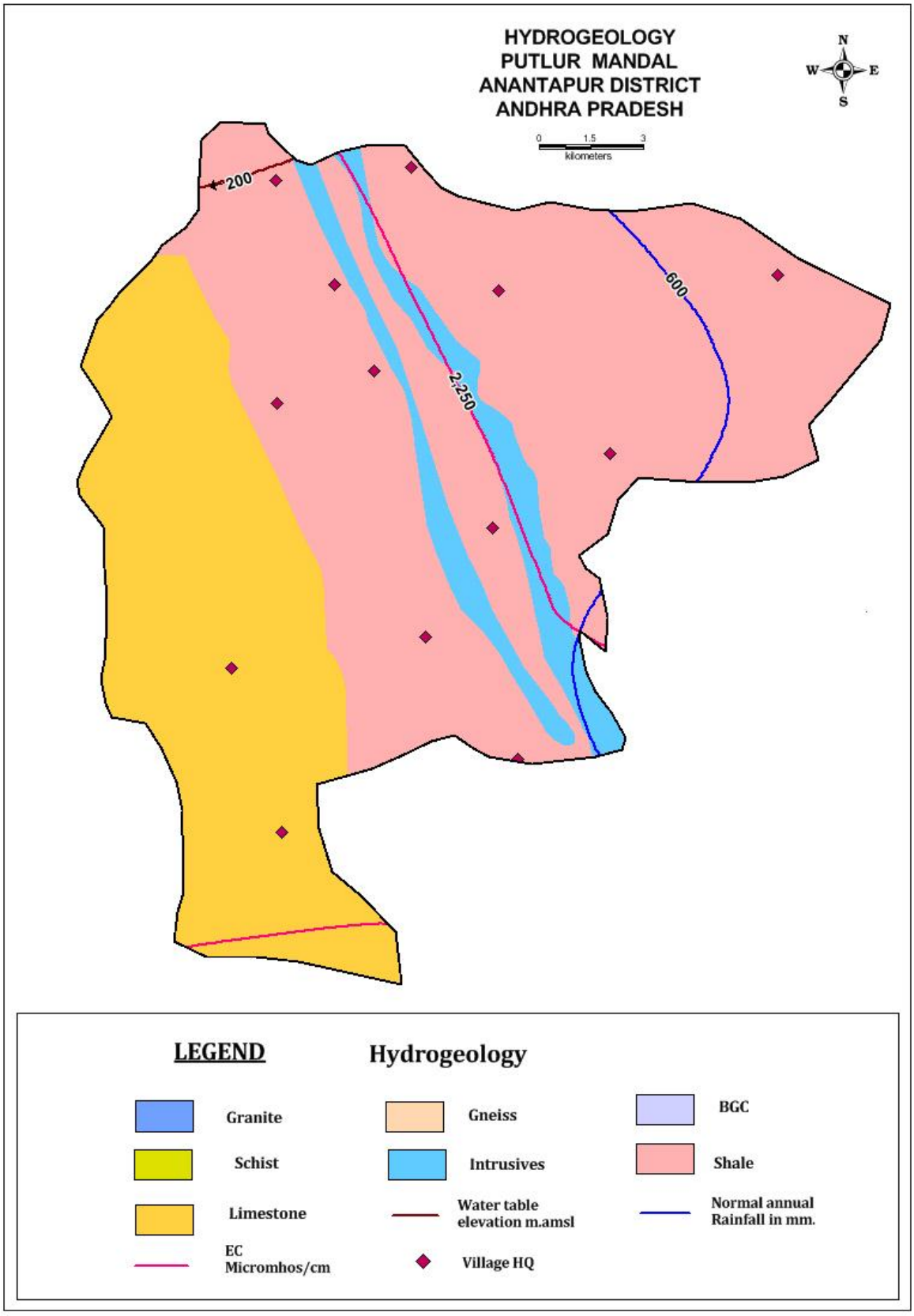

HYDROGEOLOGY
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
N
W
E
S
0
1.5
3
kilometers
200
600
2,250
LEGEND
Hydrogeology
Granite
Gneiss
BGC
Schist
Intrusives
Shale
Limestone
Water table elevation m.amsl
Normal annual Rainfall in mm.
EC Micromhos/cm
Village HQ

Fig.5

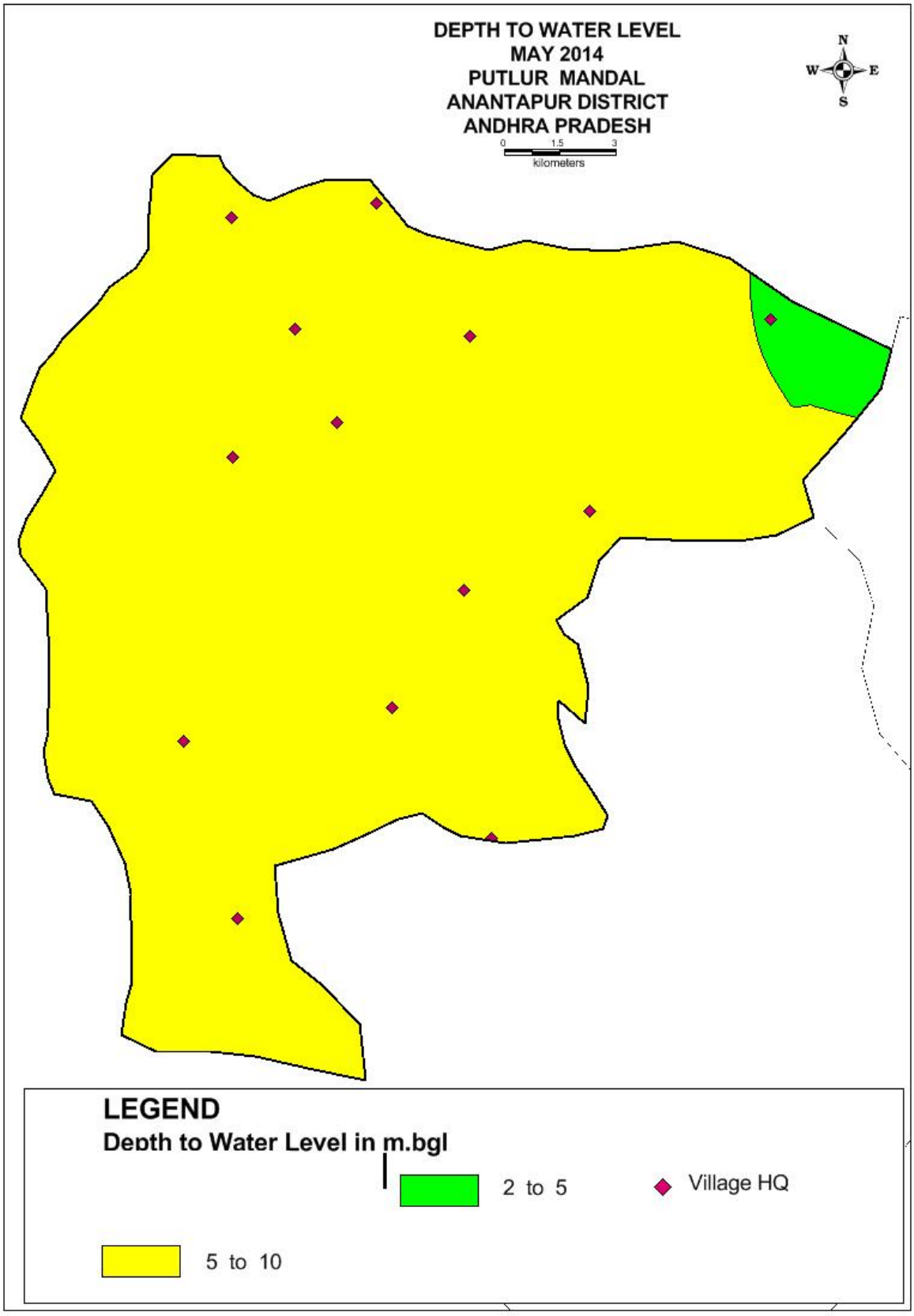

DEPTH TO WATER LEVEL
MAY 2014
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
0 1.5 3
kilometers
N
W
E
S
LEGEND
Depth to Water Level in m.bgl
2 to 5
Village HQ
5 to 10

Fig.6

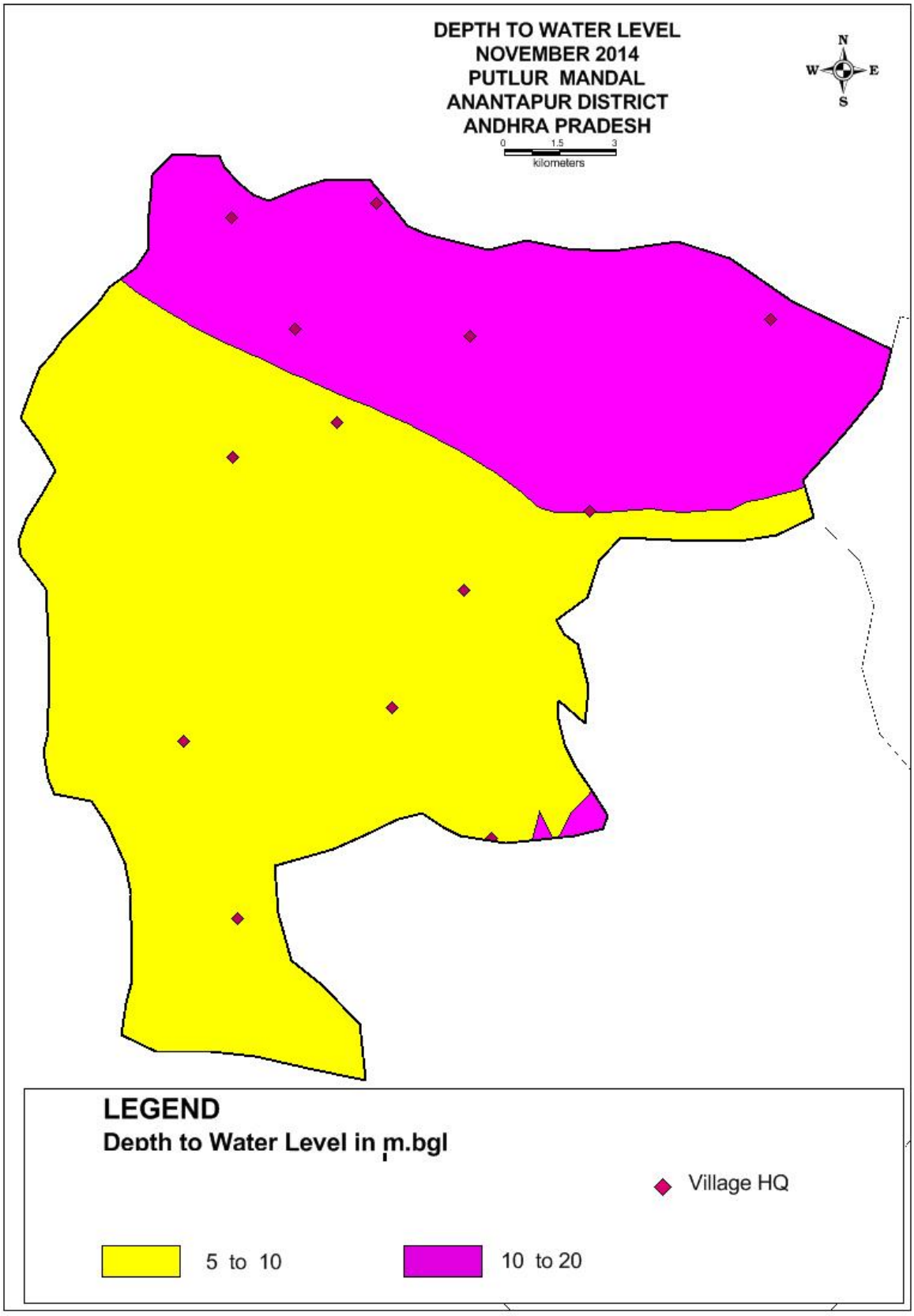
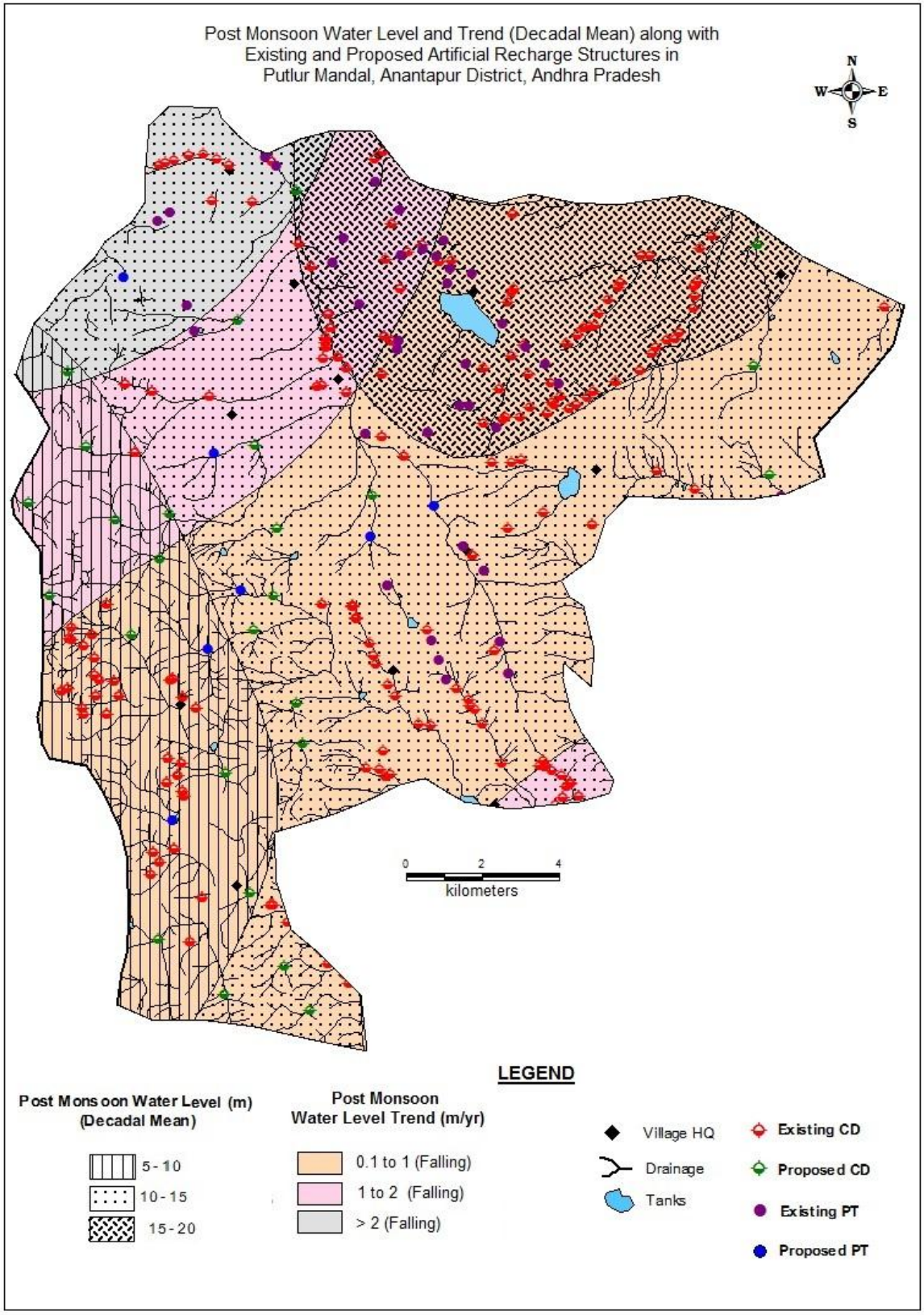

DEPTH TO WATER LEVEL
NOVEMBER 2014
PUTLUR MANDAL
ANANTAPUR DISTRICT
ANDHRA PRADESH
0 1.5 3
kilometers
N
W
E
S
LEGEND
Depth to Water Level in m.bgl
Village HQ
5 to 10
10 to 20

Fig.7


Post Monsoon Water Level and Trend (Decadal Mean) along with
Existing and Proposed Artificial Recharge Structures in
Putlur Mandal, Anantapur District, Andhra Pradesh
N
W
E
S
0
2
4
kilometers
LEGEND
Post Monsoon Water Level (m)
(Decadal Mean)
5 - 10
10 - 15
15 - 20
Post Monsoon
Water Level Trend (m/yr)
0.1 to 1 (Falling)
1 to 2 (Falling)
> 2 (Falling)
Village HQ
Drainage
Tanks
Existing CD
Proposed CD
Existing PT
Proposed PT