

# Water and Livelihoods Andhra Pradesh INDIA

June 2005

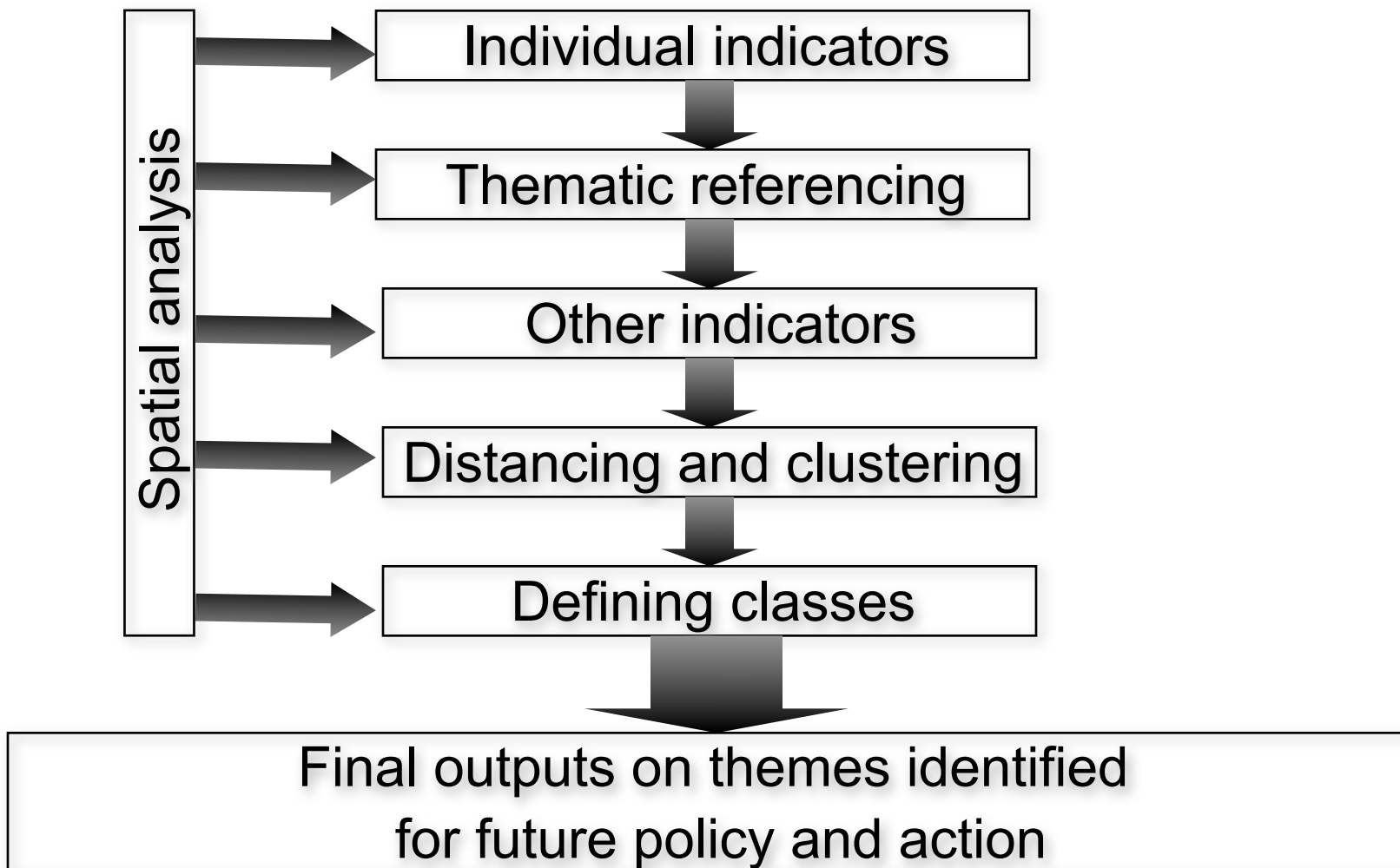
# Scope

- Context
  - MDG, HDI, Local benchmarks like BPL
  - Domain specific SC/ST, Water, Education, etc
  - General Solution
- Process
- Definition
  - Knowledge
  - Access
  - Resources

# General Solution

- Integrated approach over various domains
- Comparison with benchmark
- Clustering the similarities
- Spatial distribution
- Contextual action plan and sector policy

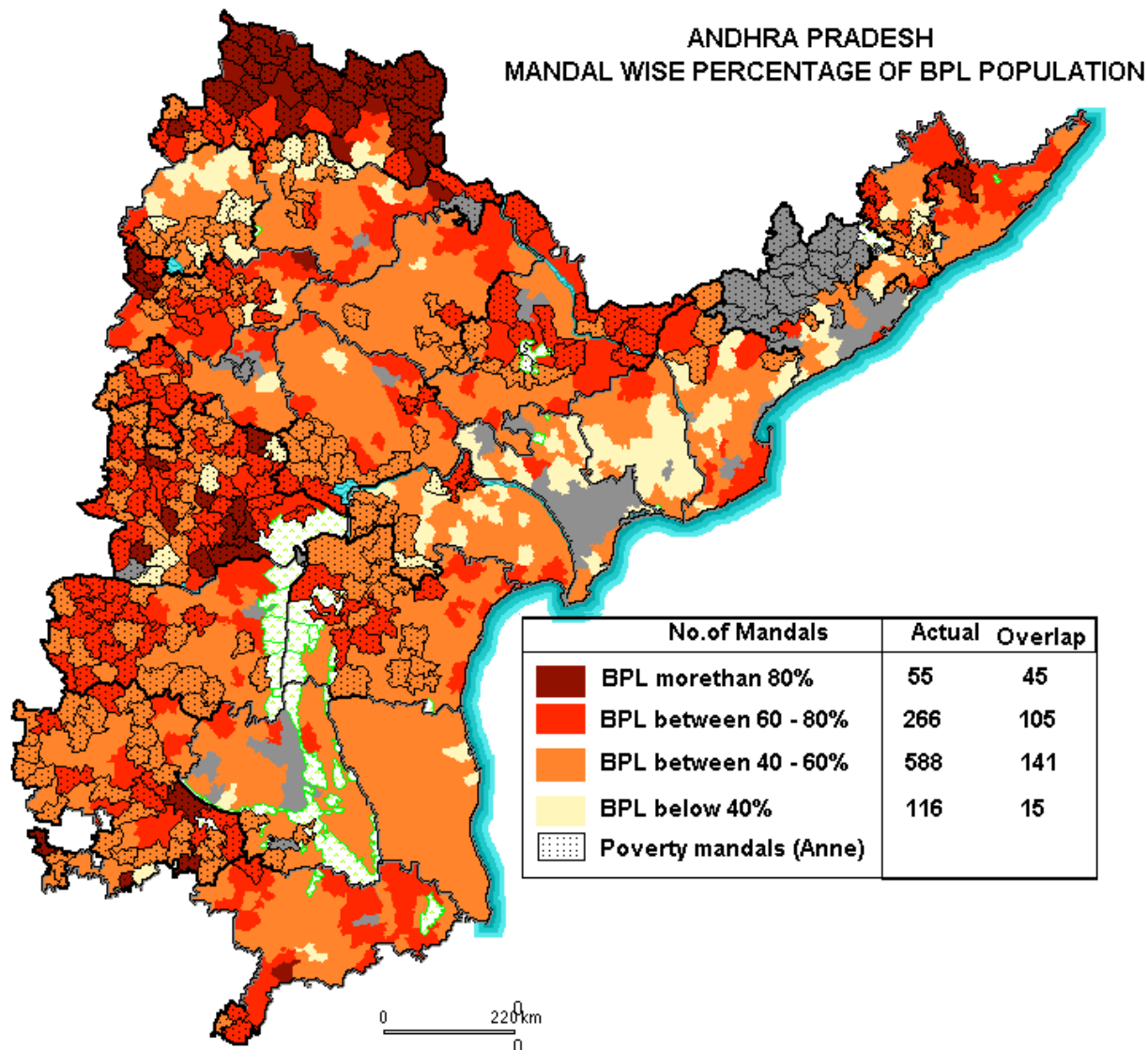
# Process



# Dimensions

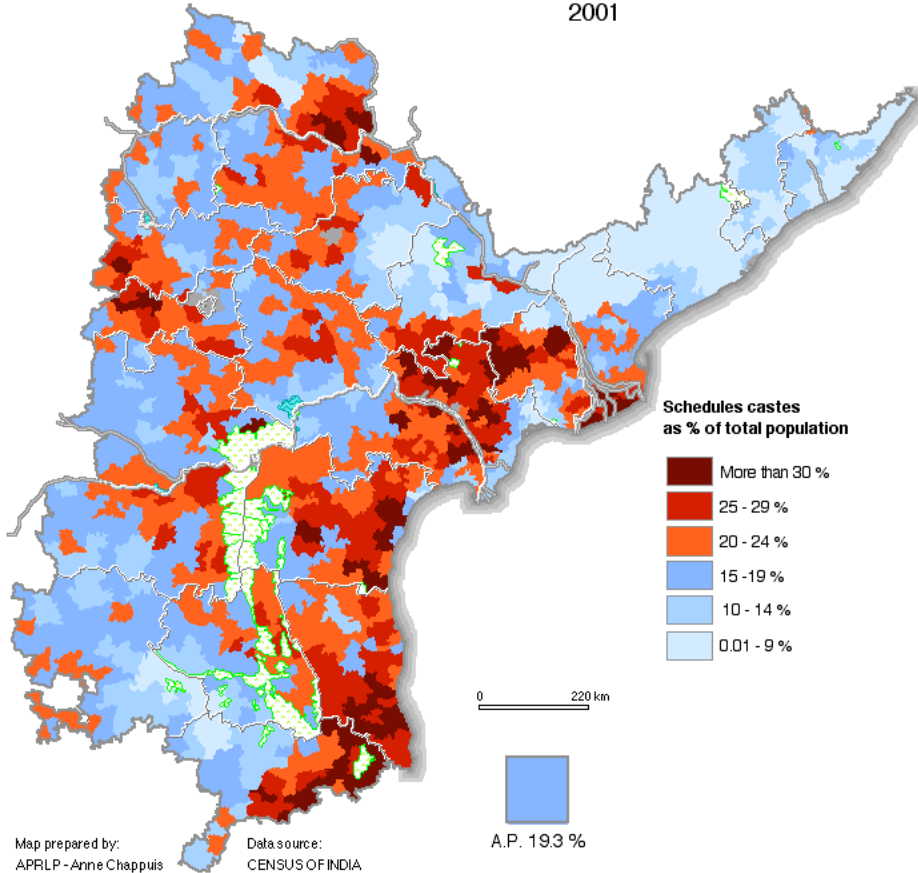
- Social deprivation
- Unequal access to education
- Gender
- Economic
- Water related

# Local benchmarks like BPL

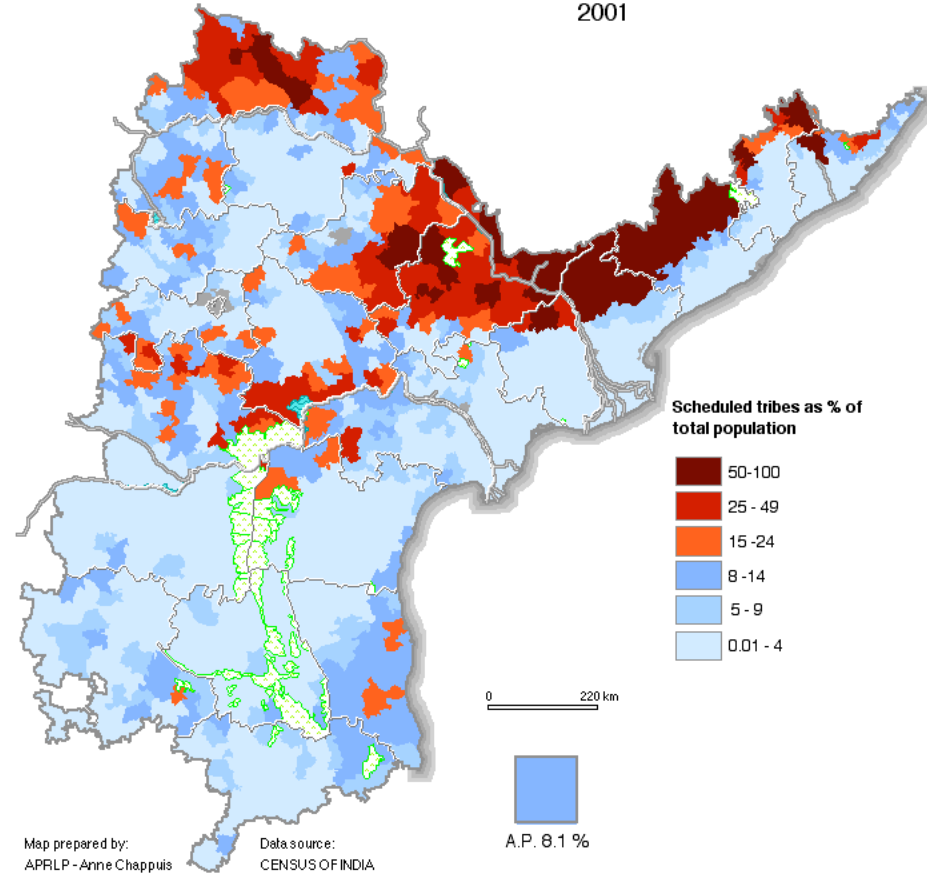


# Social deprivation

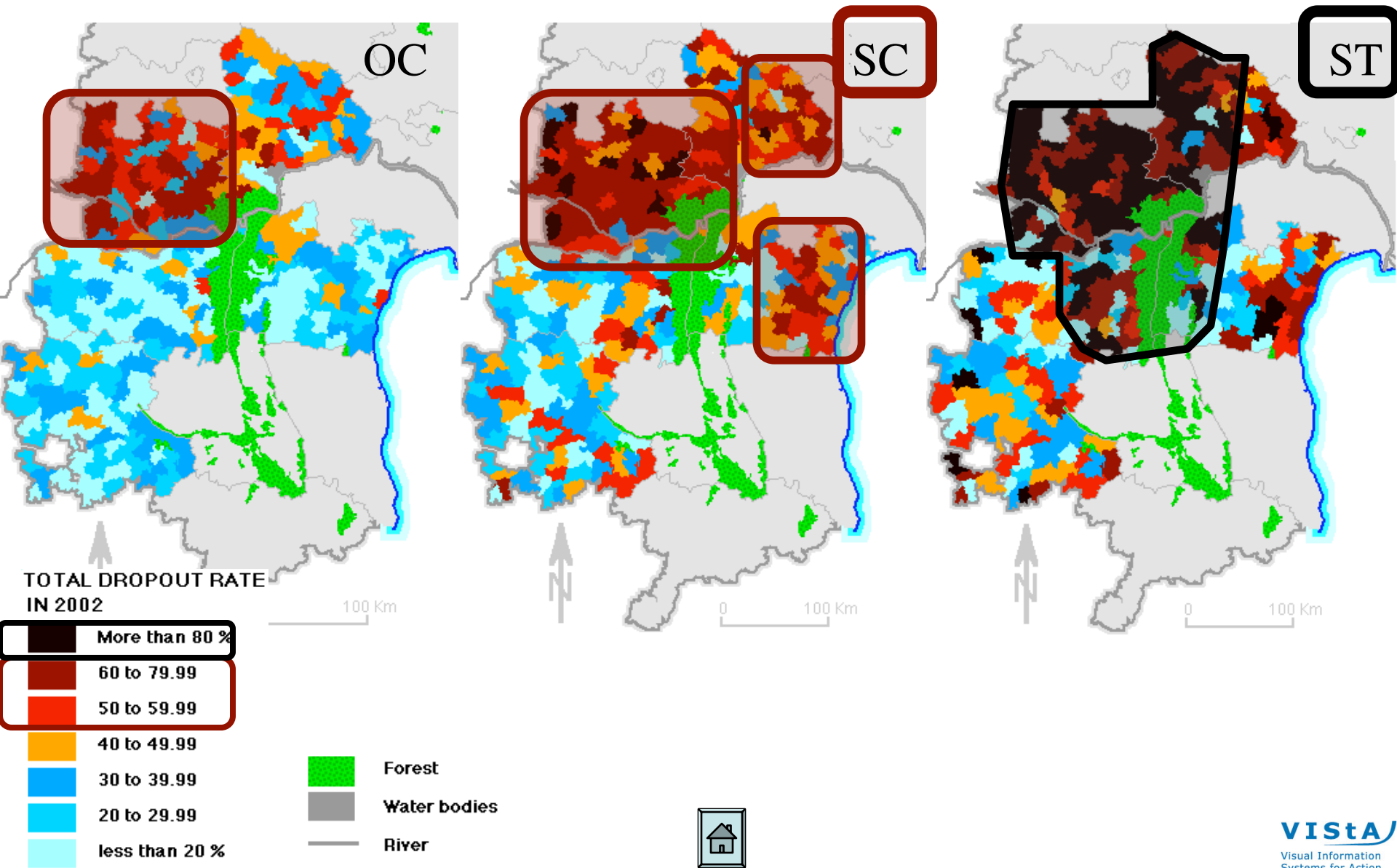
**SCHEDULED CASTES**  
Mandals  
2001



**SCHEDULED TRIBES**  
Mandals  
2001



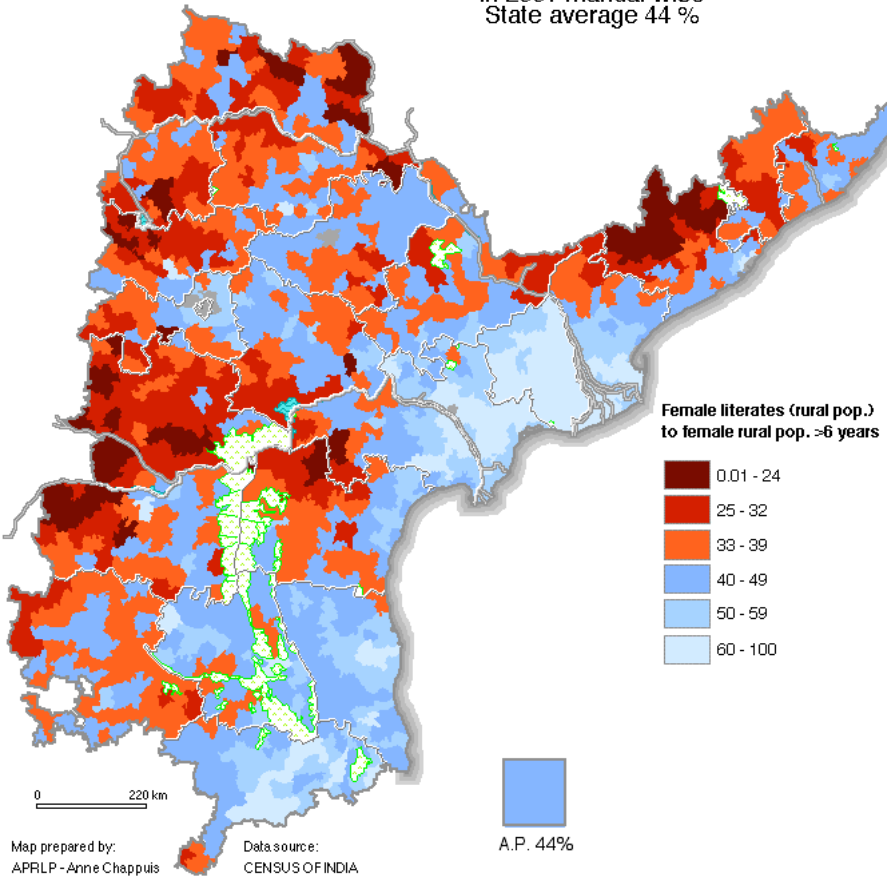
# Unequal Access to Education: Girl dropouts from class I to V



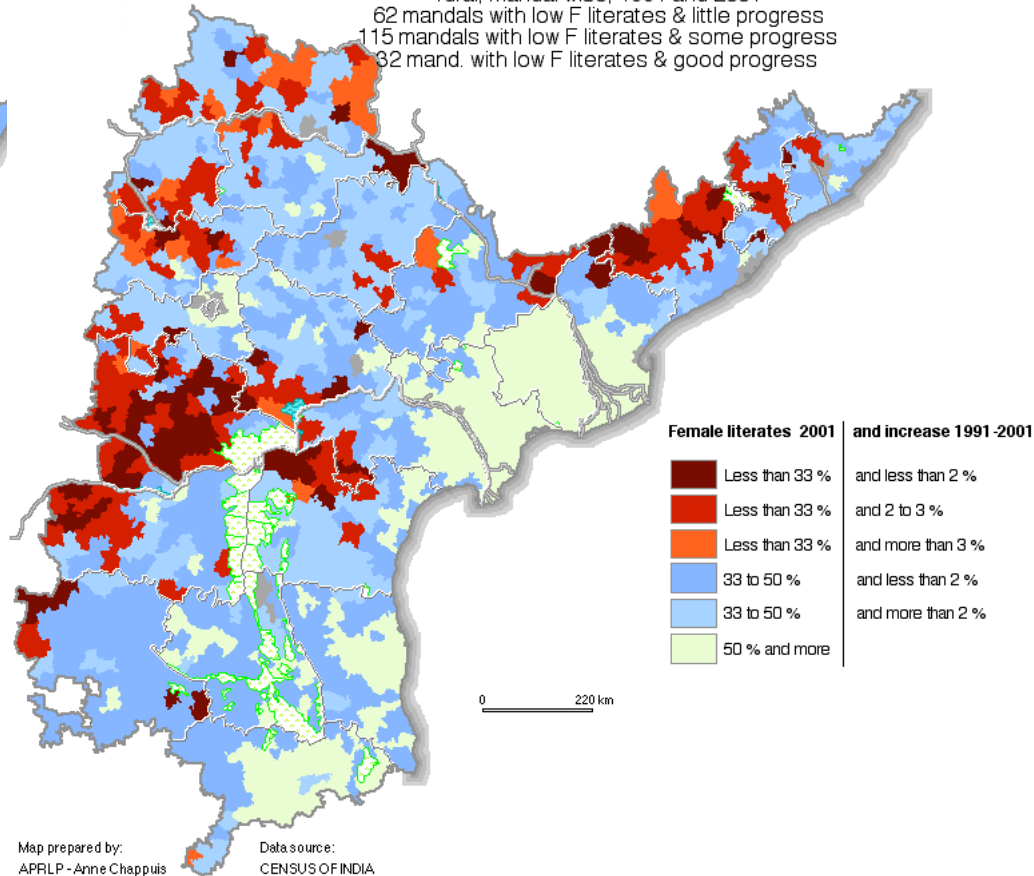


# Literacy and its evolution

ANDHRA PRADESH  
**FEMALE LITERACY RURAL**  
in 2001 mandal wise  
State average 44 %

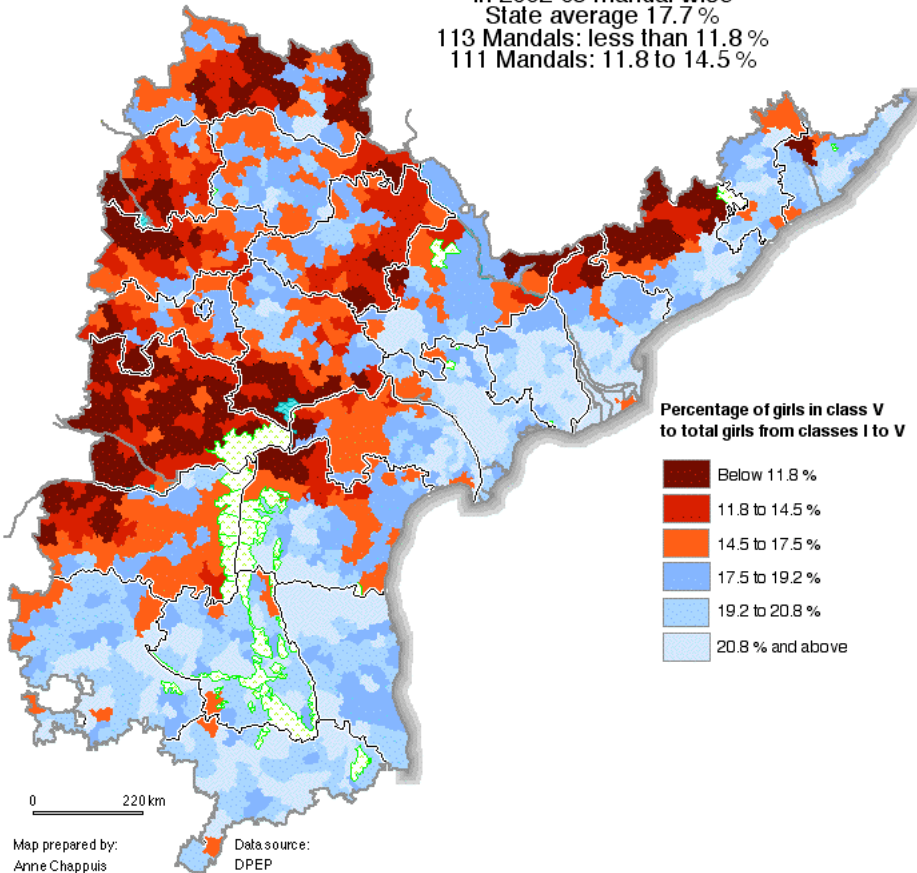


**FEMALE LITERACY AND ITS EVOLUTION**  
rural, mandal wise, 1991 and 2001  
62 mandals with low F literates & little progress  
115 mandals with low F literates & some progress  
32 mand. with low F literates & good progress

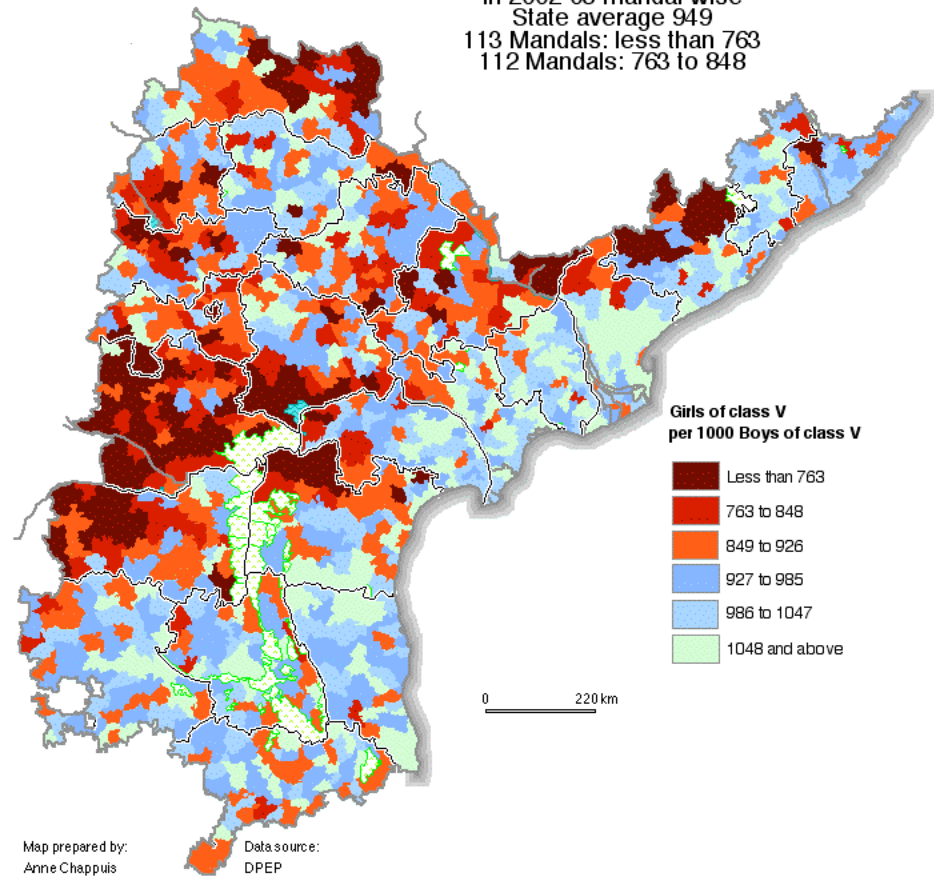


# Gender

ANDHRA PRADESH  
**GIRLS IN CLASS V AS PERCENTAGE OF GIRLS I TO V**  
 in 2002-03 mandal wise  
 State average 17.7 %  
 113 Mandals: less than 11.8 %  
 111 Mandals: 11.8 to 14.5 %

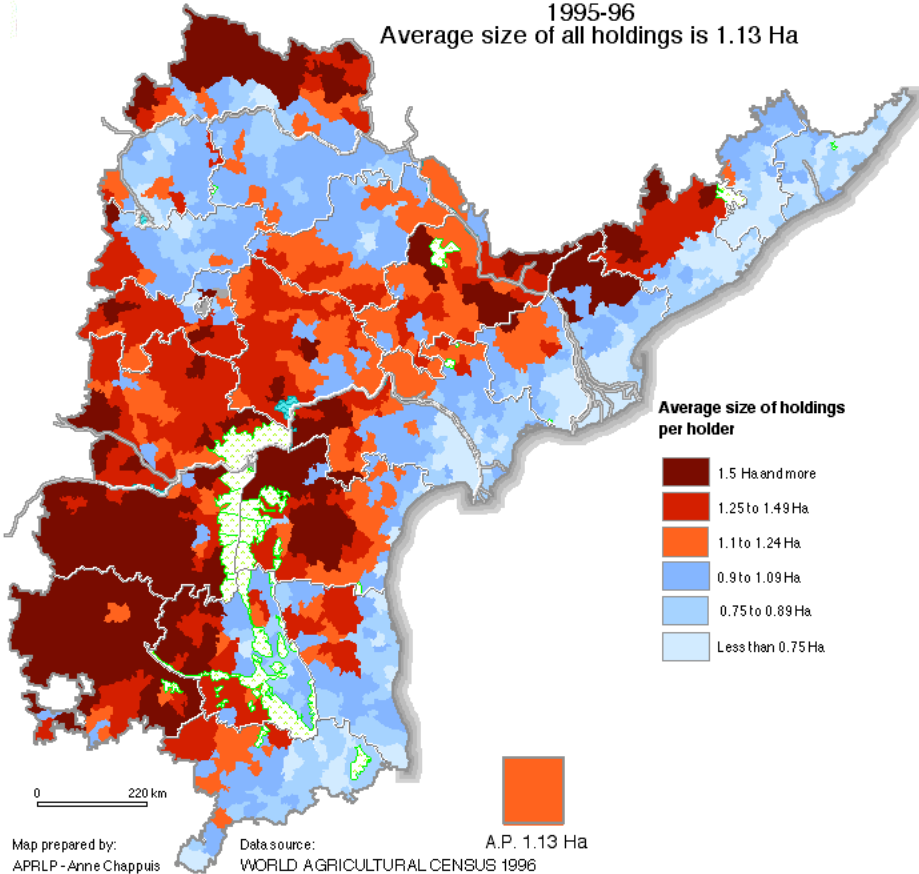


ANDHRA PRADESH  
**STUDENTS OF CLASS V SEX RATIO**  
 in 2002-03 mandal wise  
 State average 949  
 113 Mandals: less than 763  
 112 Mandals: 763 to 848

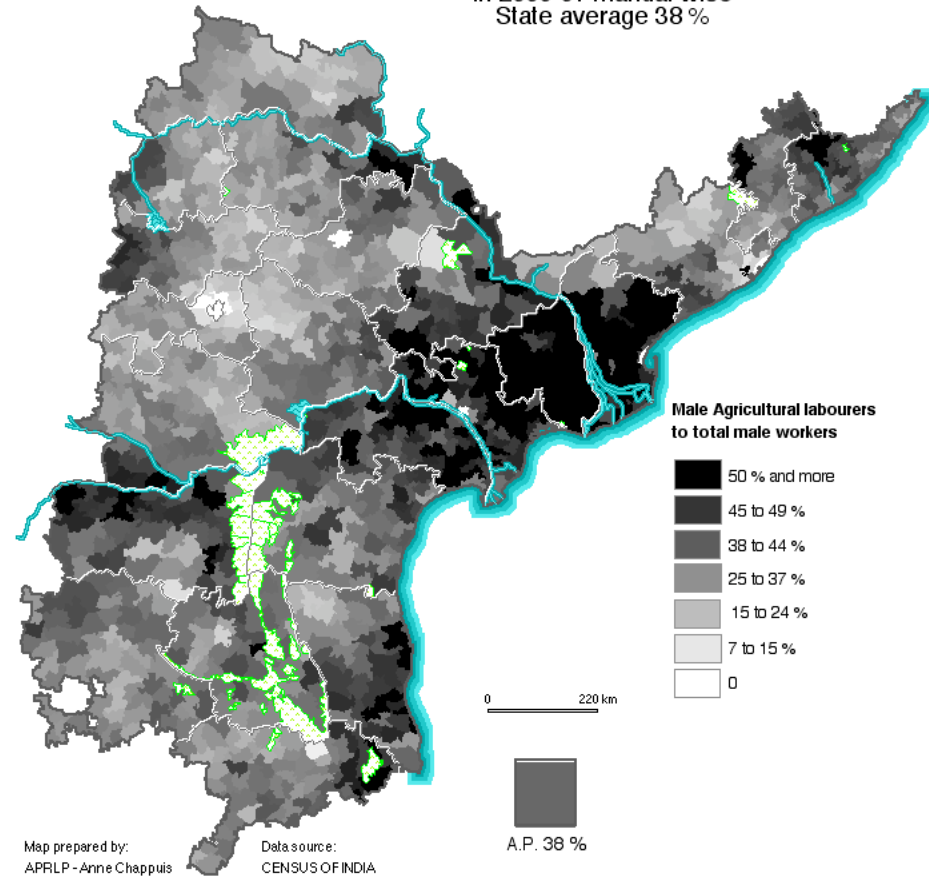


# Economic

**AVERAGE SIZE OF HOLDINGS**  
for all castes  
1995-96  
Average size of all holdings is 1.13 Ha

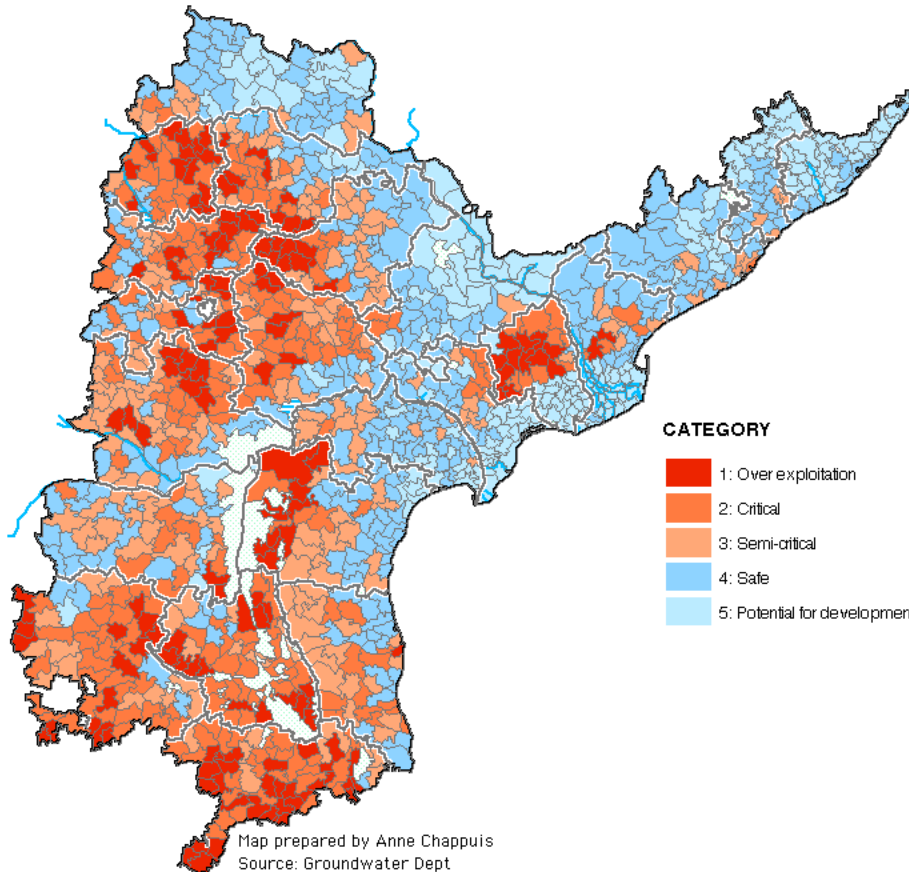


**MALE WORKERS: AGRICULTURE LABOURERS**  
in 2000-01 mandal wise  
State average 38 %

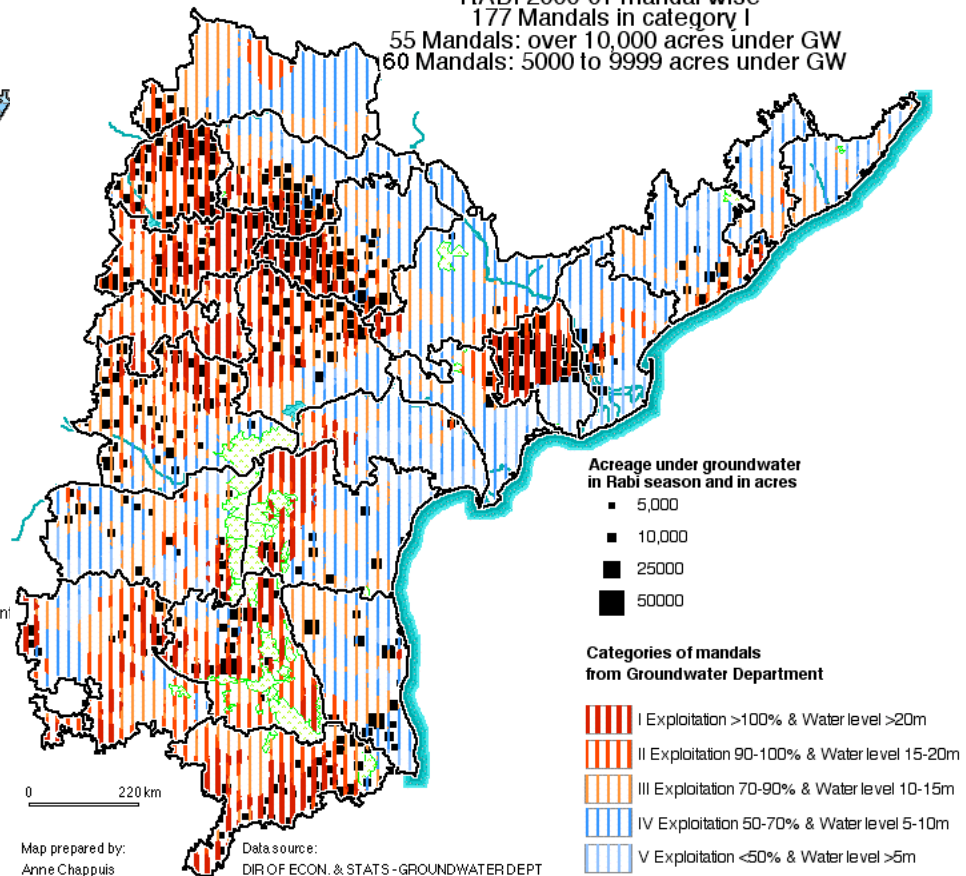


# Water related

ANDHRA PRADESH MANDAL WISE  
GROUNDWATER CATEGORISATION  
in 2004



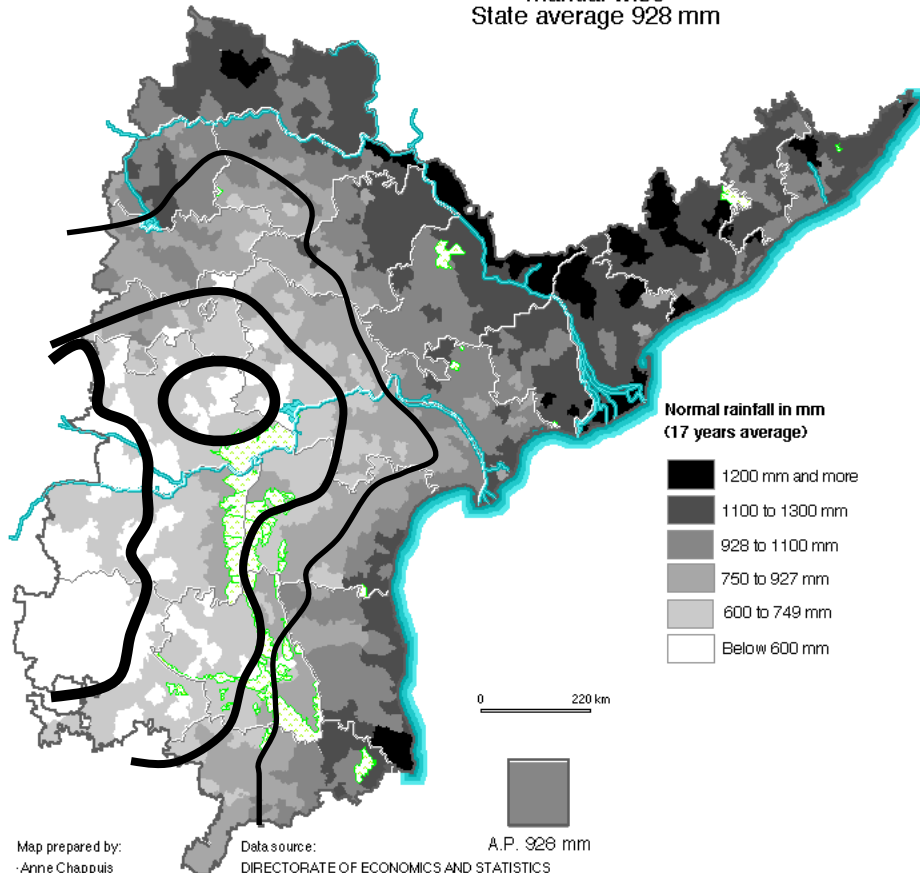
ANDHRA PRADESH  
**OVER EXPLOITATION OF GROUNDWATER FOR CULTIVATION**  
RABI 2000-01 mandal wise  
177 Mandals in category I  
55 Mandals: over 10,000 acres under GW  
60 Mandals: 5000 to 9999 acres under GW



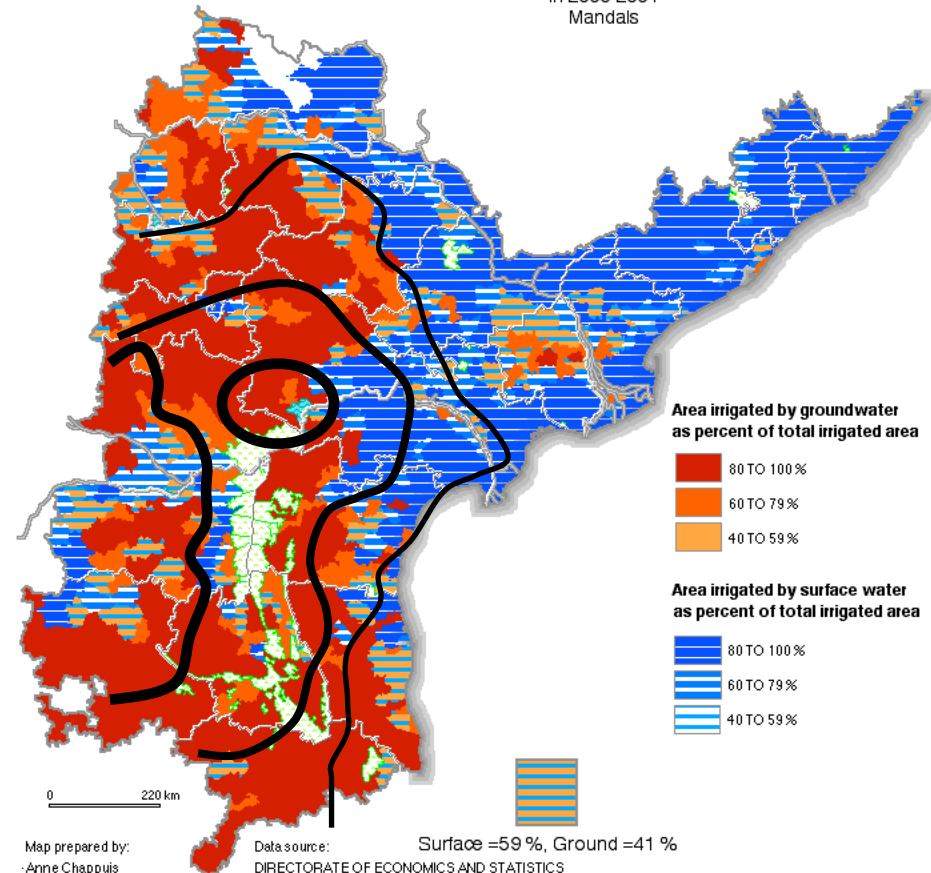


# Rainfall and Irrigation

**NORMAL RAINFALL**  
mandal wise  
State average 928 mm



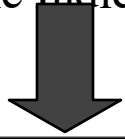
**IRRIGATION BY SURFACE AND GROUNDWATER**  
in 2000-2001  
Mandals



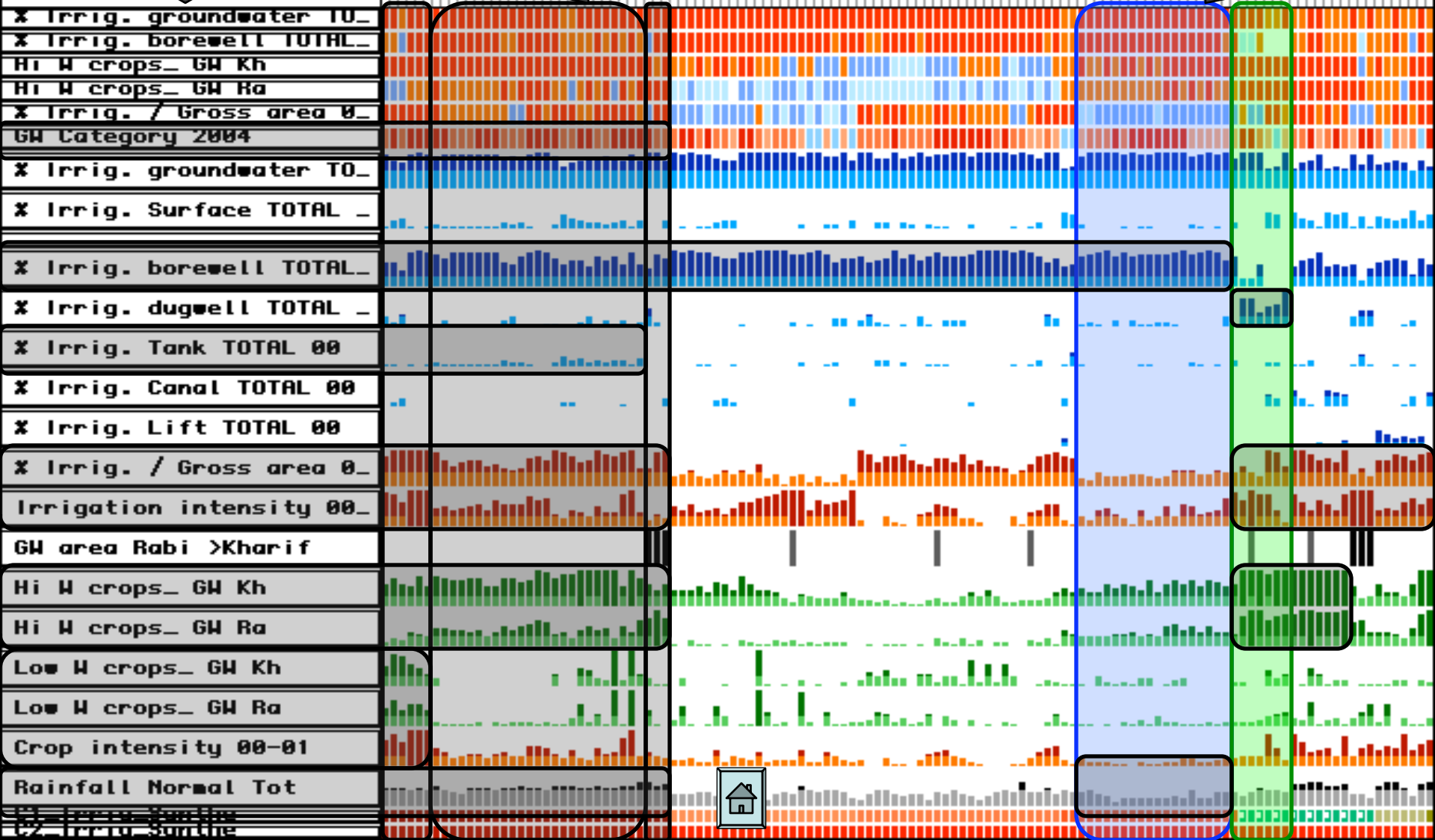
# Clustering the similarities

Each line represents

one Indicator



Each column represents one Mandal

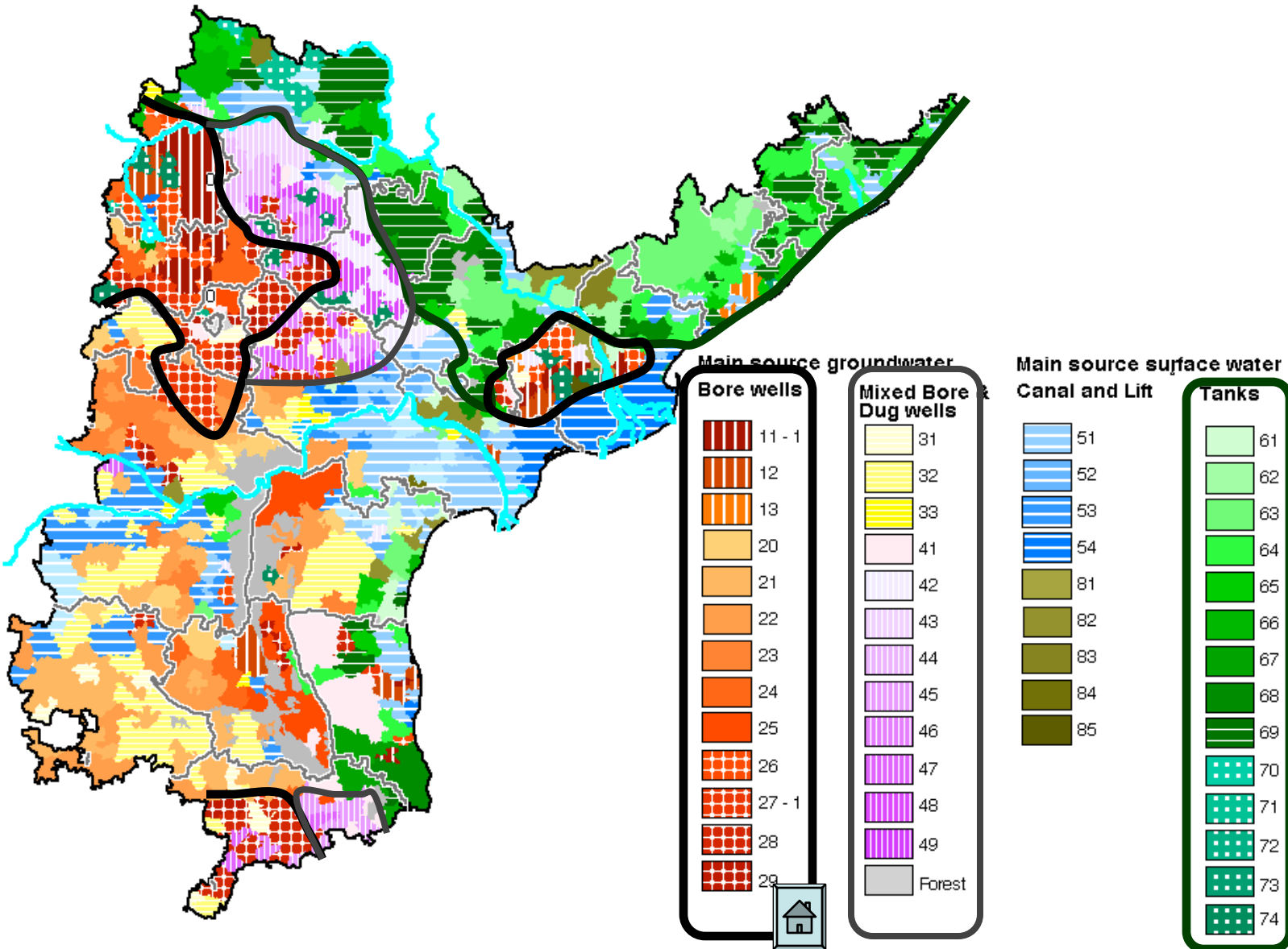


# Spatial distribution

ANDHRA PRADESH MANDAL WISE

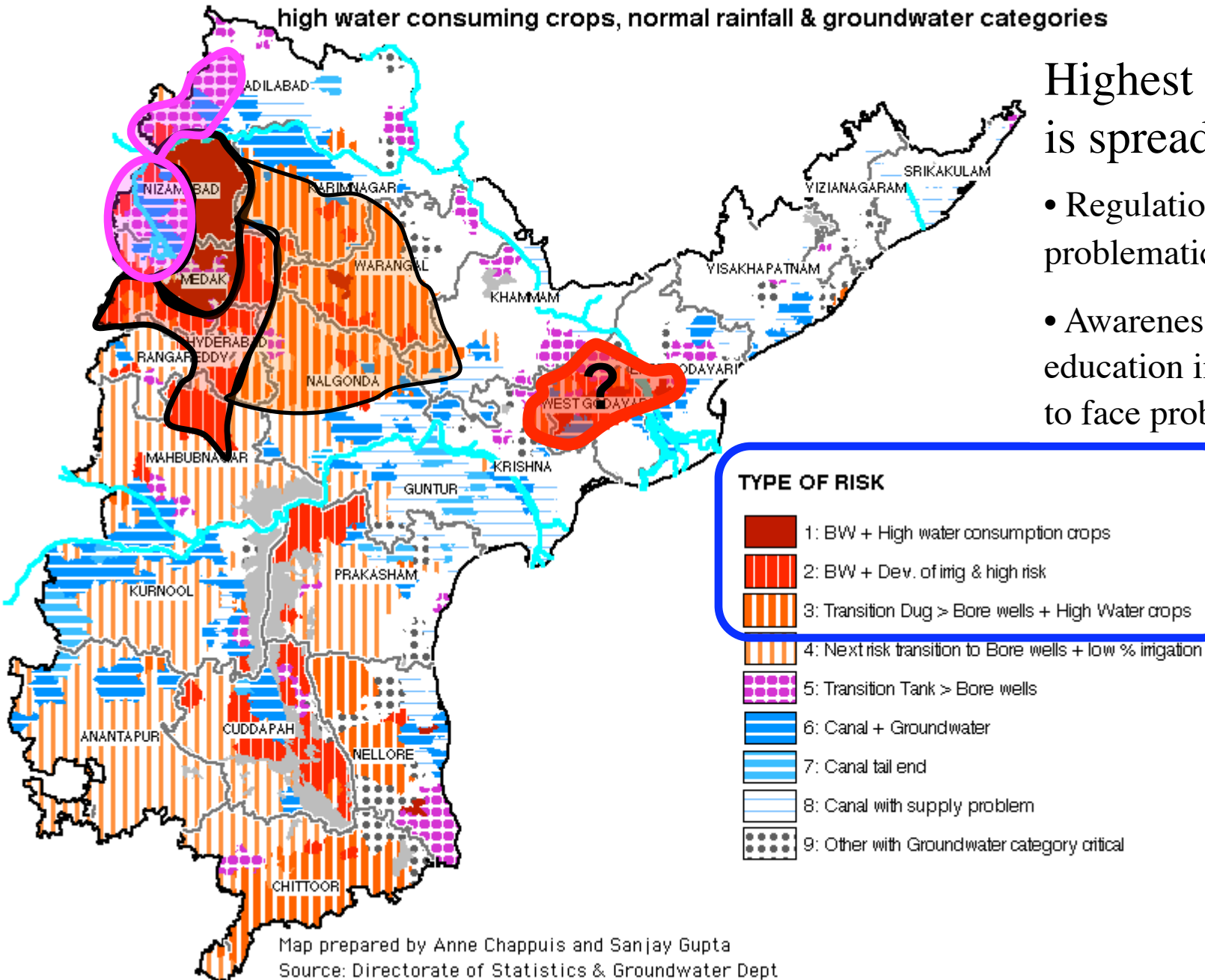
IRRIGATION PATTERN

Mandal wise in 2000-2001



# Risks:

**FUTURE RISKS OF OVER UTILISATION OF GROUNDWATER**  
based on source of irrigation, percentage and intensity of irrigation  
high water consuming crops, normal rainfall & groundwater categories



Highest risk area  
is spreading

- Regulation in already problematic areas
- Awareness and education in areas soon to face problems



# IDENTIFICATION OF POOREST MANDALS

89 mandals with <33% Fem Lit and very low crop intensity

92 mandals with <33% Fem Lit and medium crop intensity

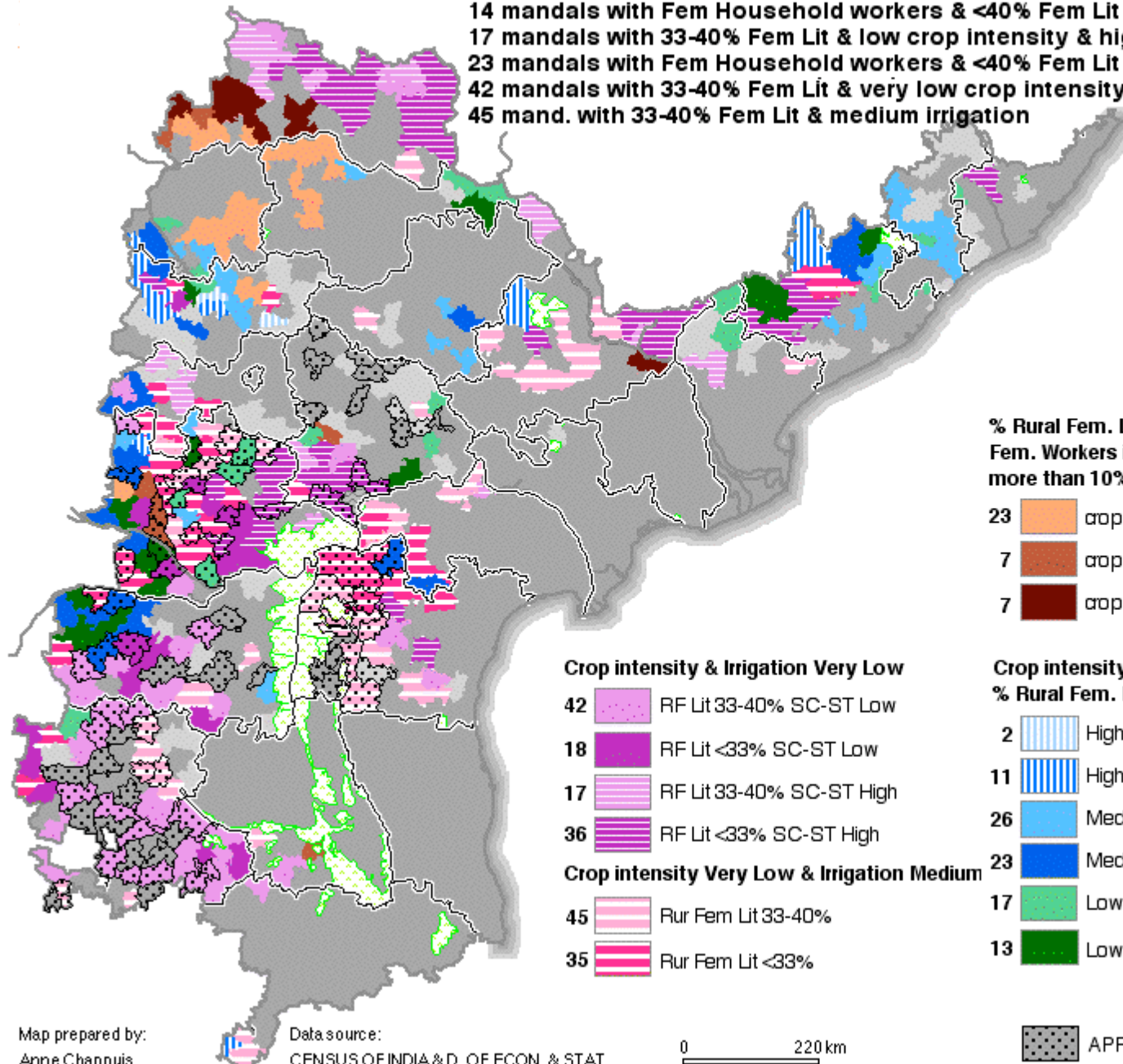
14 mandals with Fem Household workers & <40% Fem Lit & low crop intensity

17 mandals with 33-40% Fem Lit & low crop intensity & high % SC-ST

23 mandals with Fem Household workers & <40% Fem Lit & high crop

42 mandals with 33-40% Fem Lit & very low crop intensity

45 mand. with 33-40% Fem Lit & medium irrigation



% Rural Fem. Literates less than 40%  
Fem. Workers in Household Indus.  
more than 10% of tot. fem. work.

- 23 crop intens. High
- 7 crop intens. Low
- 7 crop intens. Low & ST high

## Crop intensity & Irrigation Very Low

- 42 RF Lit 33-40% SC-ST Low
- 18 RF Lit <33% SC-ST Low
- 17 RF Lit 33-40% SC-ST High
- 36 RF Lit <33% SC-ST High

## Crop intensity Very Low & Irrigation Medium

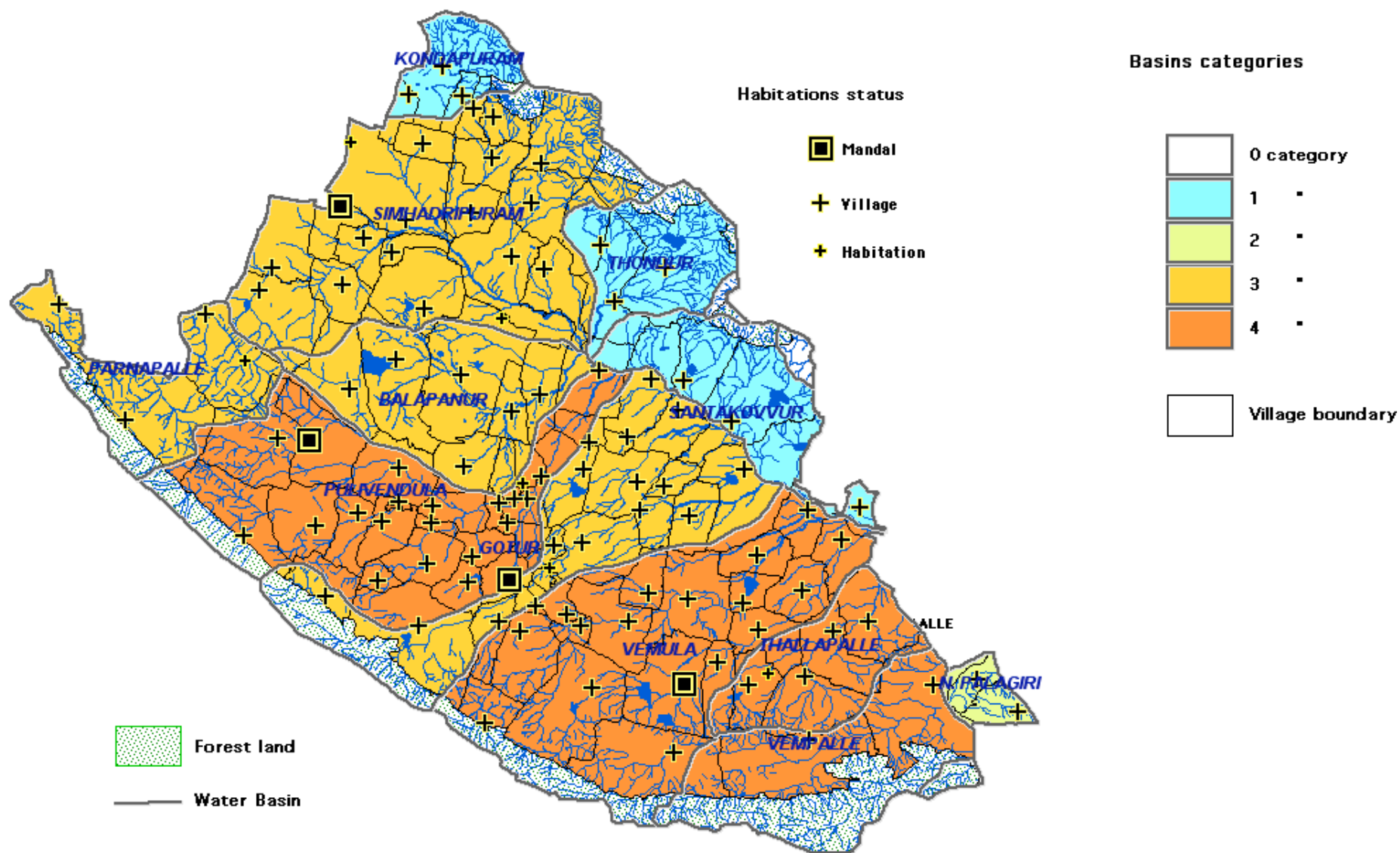
- 45 Rur Fem Lit 33-40%
- 35 Rur Fem Lit <33%

## Crop intensity & Irrigation medium to high % Rural Fem. Literates less than 33%

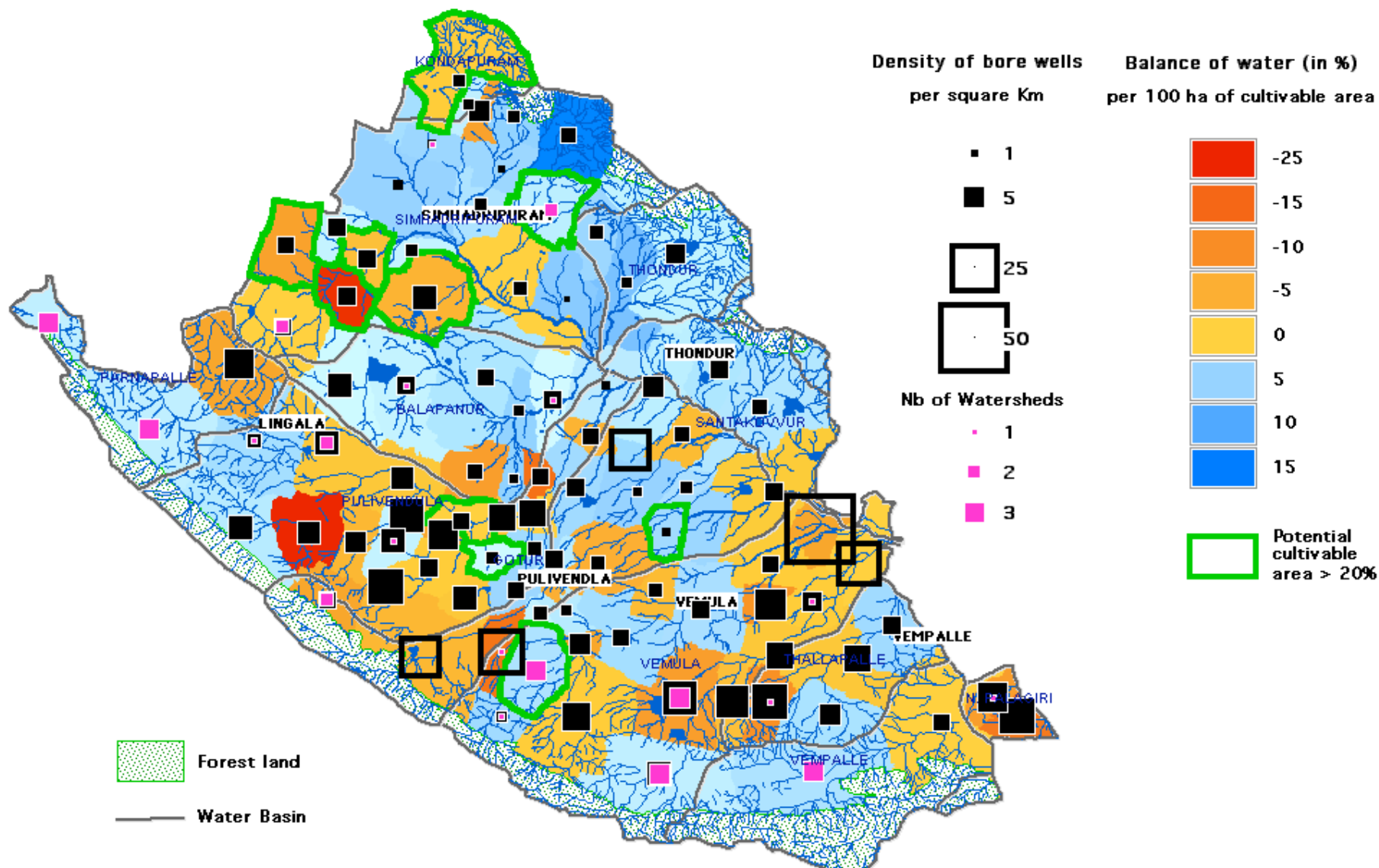
- 2 High Lit. Progress & Pop. Increase Low
- 11 High Lit. Progress & Pop. Increase High
- 26 Medium Lit. Progress & Pop. Increase Low
- 23 Medium Lit. Progress & Pop. Increase High
- 17 Low Lit. Progress & Pop. Increase Low
- 13 Low Lit. Progress & Pop. Increase High

APRLP MANDAL

# PULIVENDLA CONSTITUENCY WATER BASINS



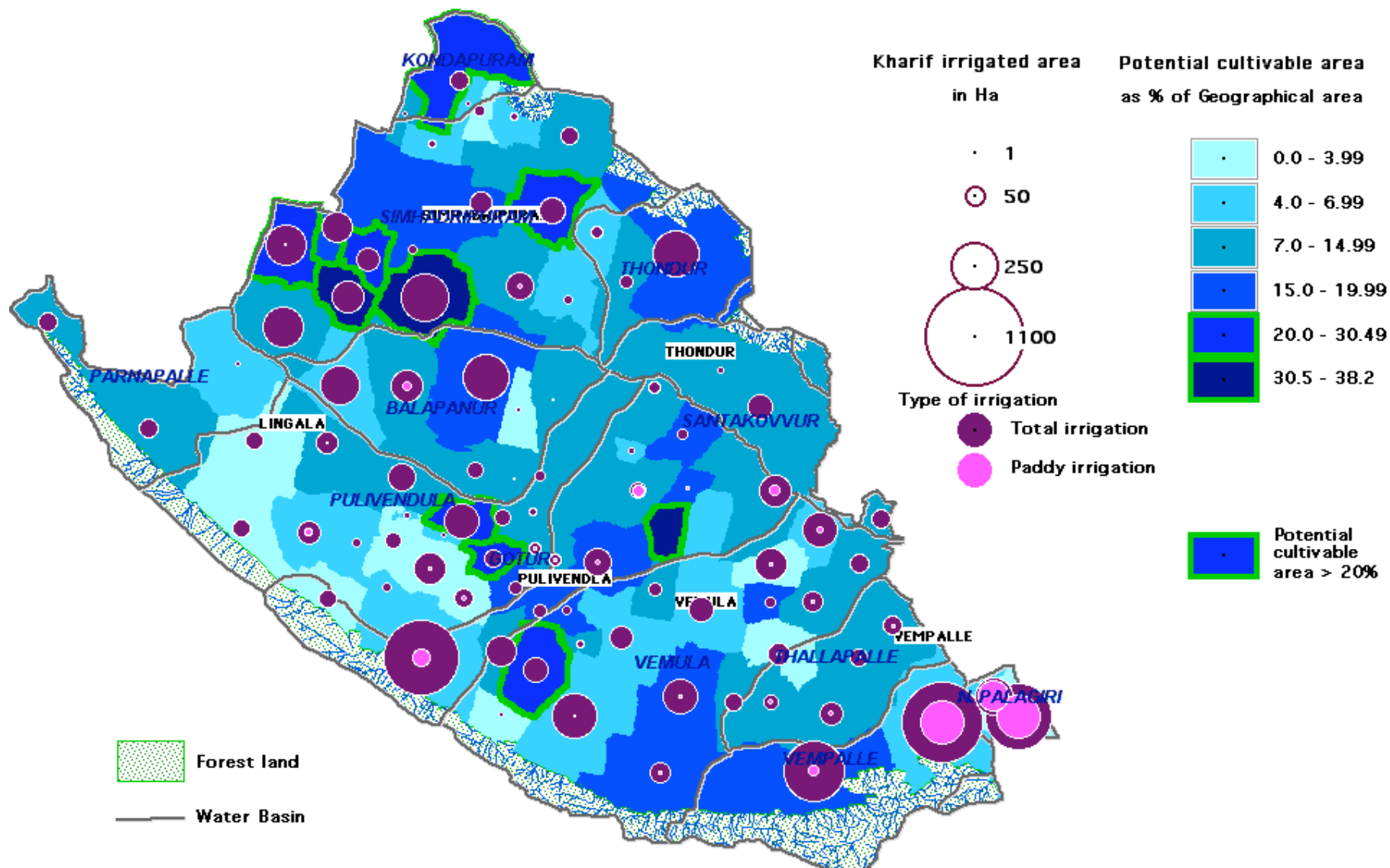
# PULIVENDLA CONSTITUENCY DENSITY OF BORE WELLS, BALANCE OF WATER WATER BASINS AND POTENTIAL CULTIVABLE AREA



# PULIVENDLA CONSTITUENCY

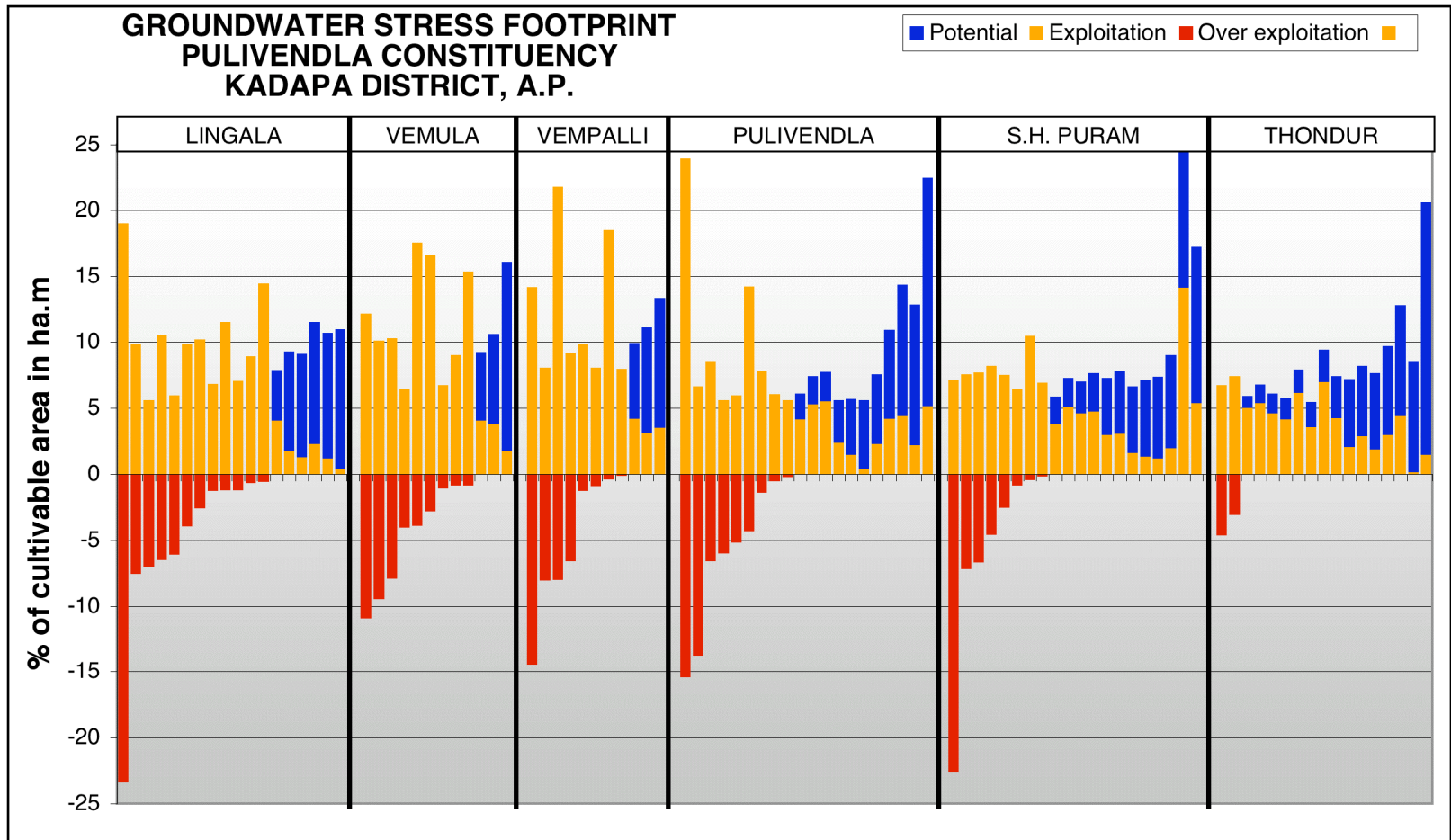
## KHARIF IRRIGATION AND POTENTIAL CULTIVABLE AREA

### VILLAGE WISE

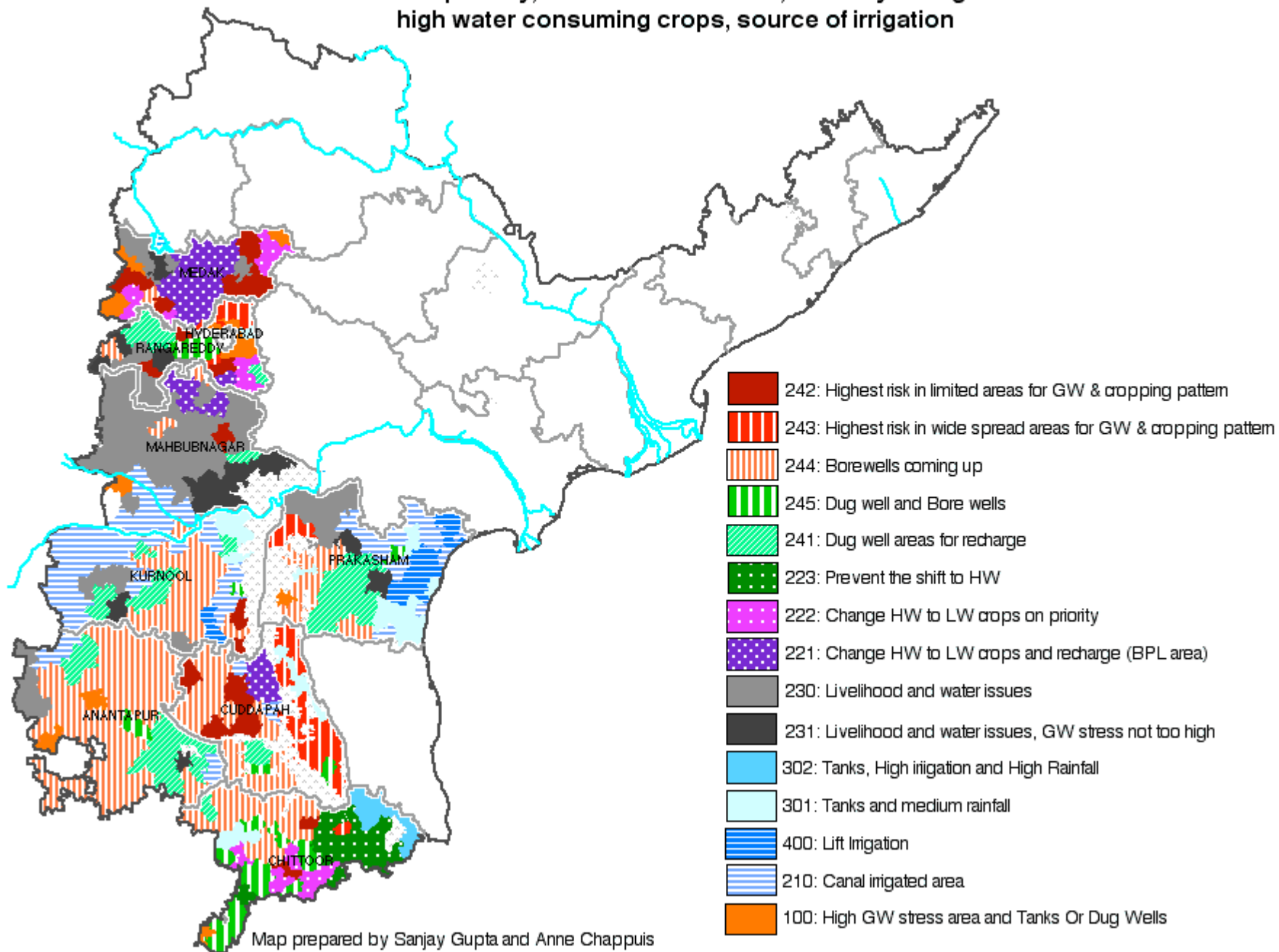




# Ground water stress

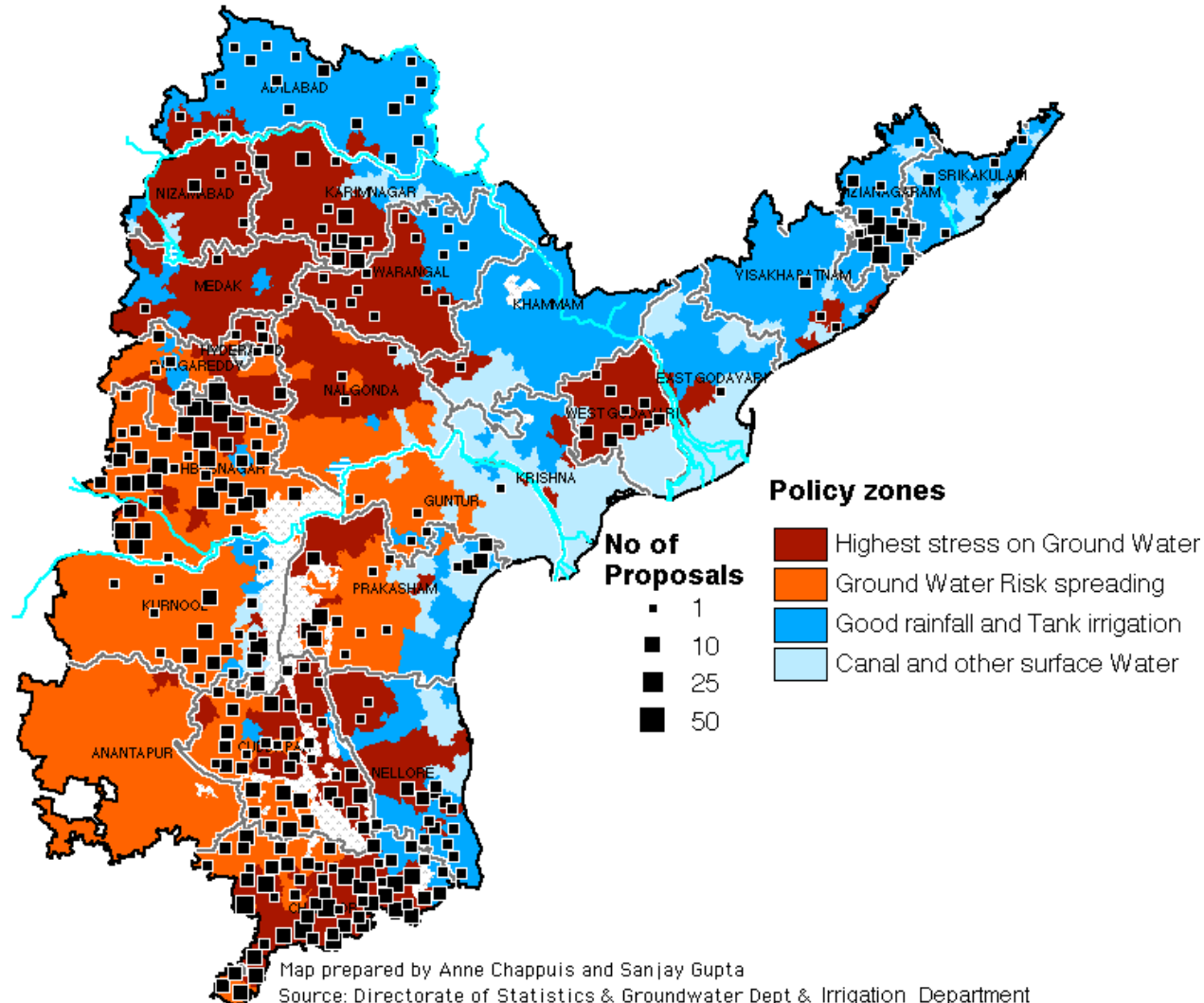


# **PRIORITY MANDALS FOR MINOR IRRIGATION PLAN** Based on poverty, Ground water stress, intensity of irrigation high water consuming crops, source of irrigation

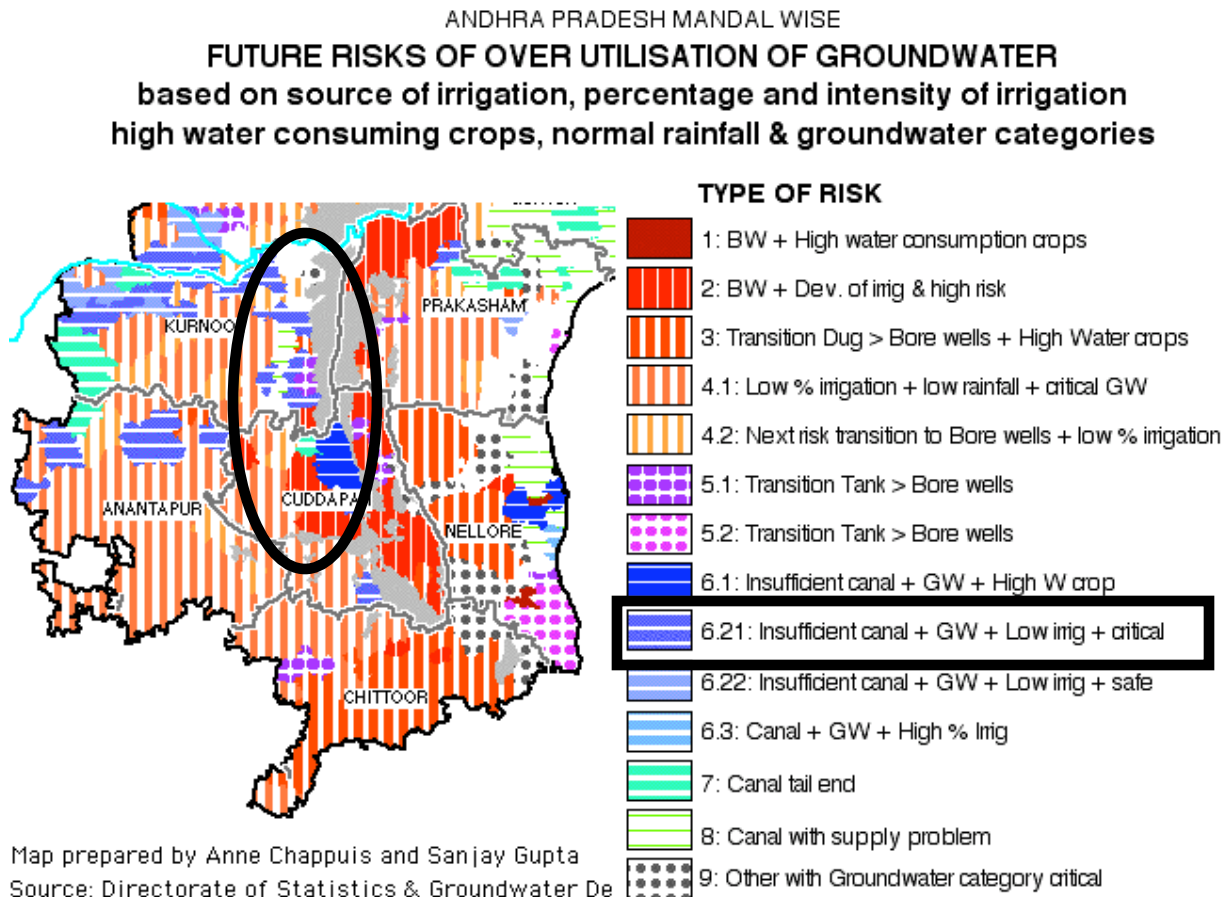


# Contextual action plan and sector policy

ANDHRA PRADESH MANDAL WISE  
**MINOR IRRIGATION PLANNING**  
**TOTAL NUMBER OF PROPOSALS**



# Risk map and conjunctive use of different sources



In KC canal area,  
**parallel use of groundwater is leading to depletion** of the water table which has been classified as critical.

**Conjunctive use of canal and wells** should be planned and managed so as to replenish the water table.