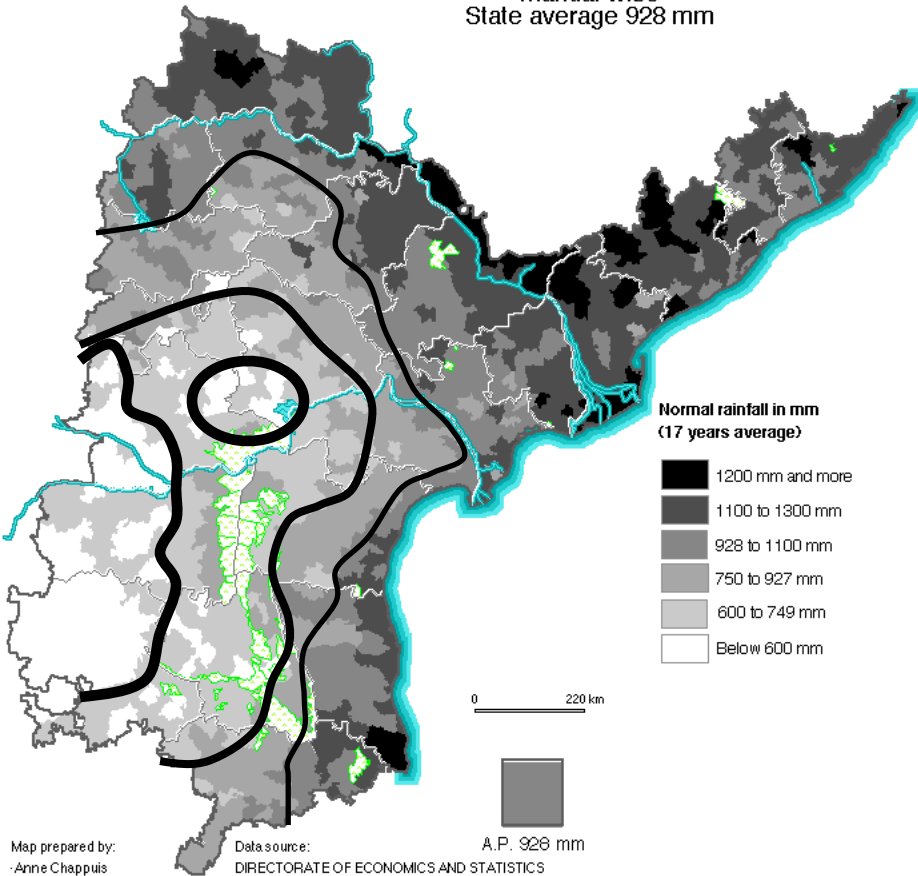


Planning Water Resource Management at Micro basin level

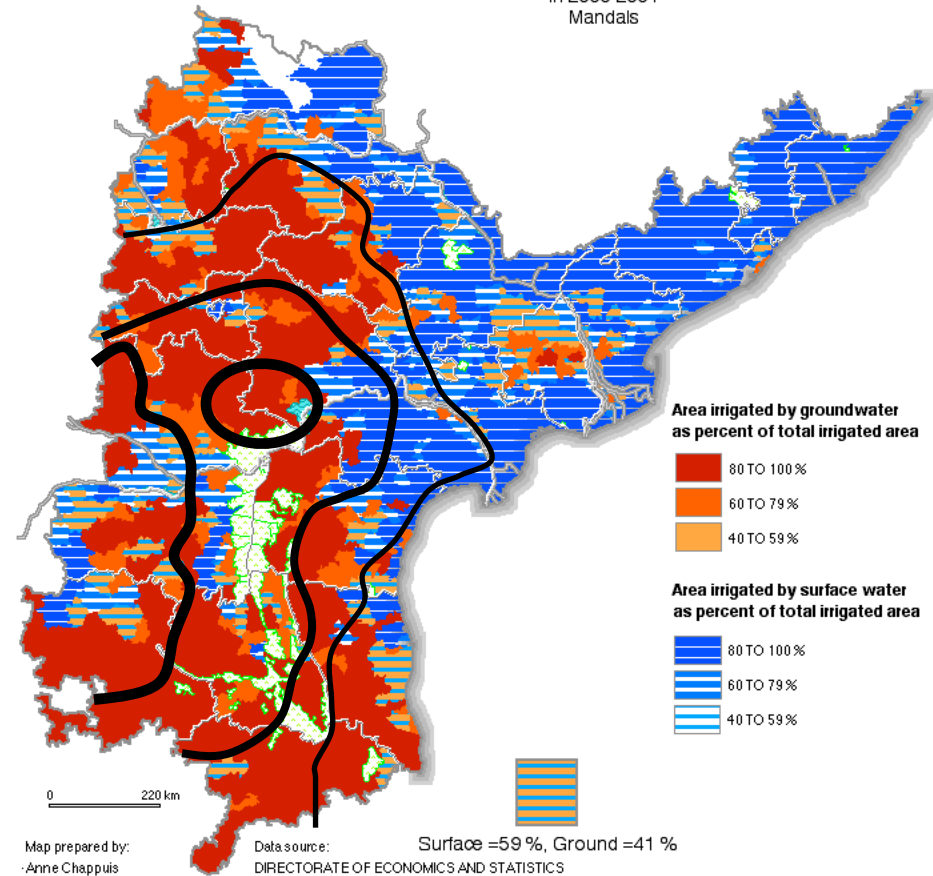
Sanjay Gupta, Anne Chappuis
August 2005

Rainfall and Irrigation

NORMAL RAINFALL
mandal wise
State average 928 mm



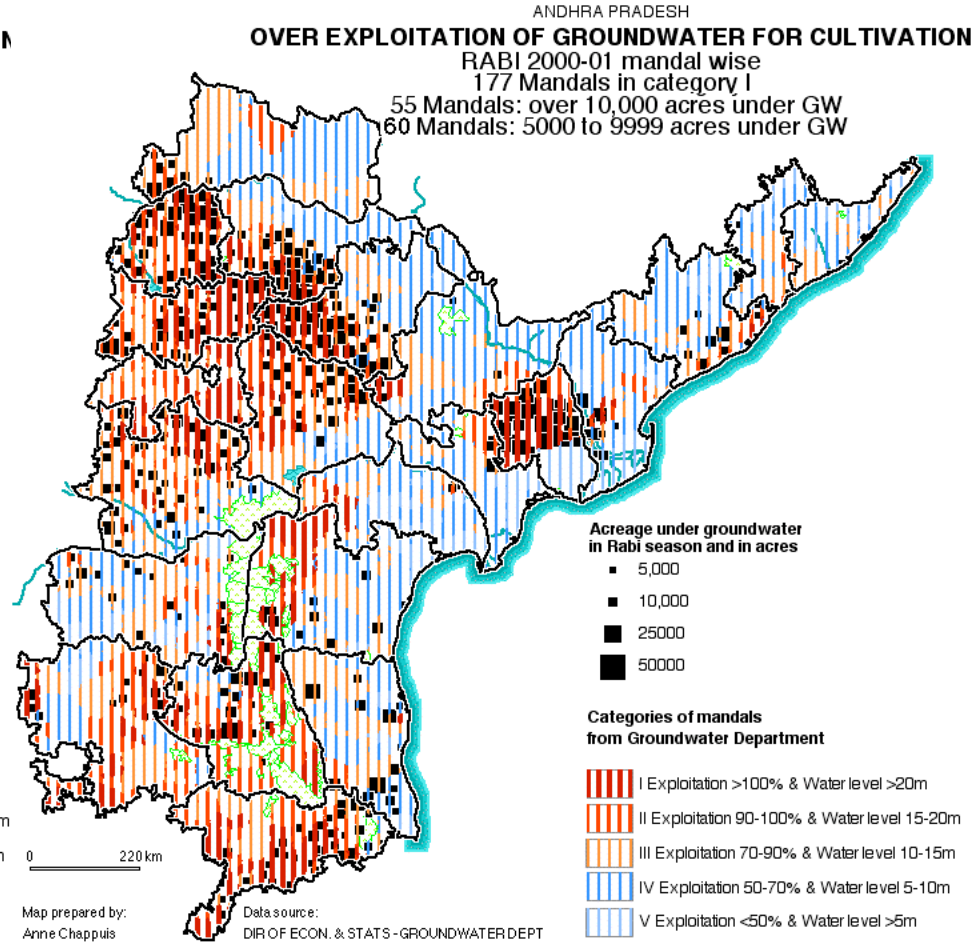
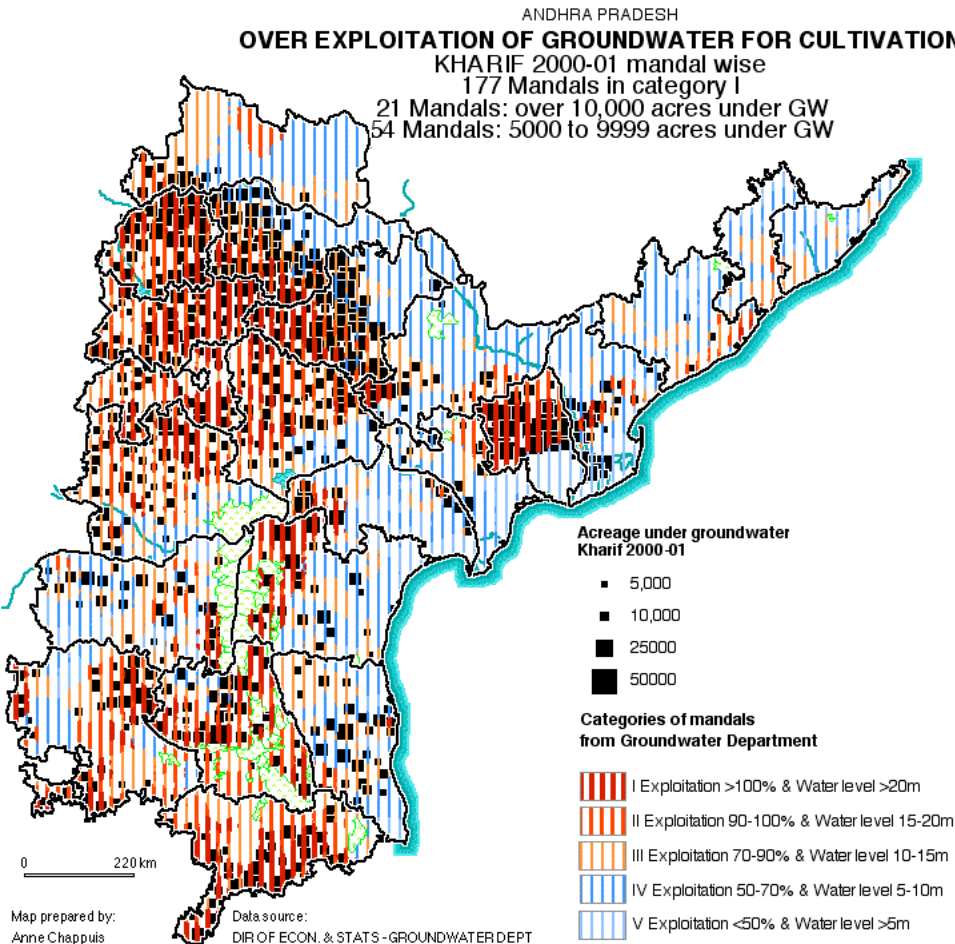
IRRIGATION BY SURFACE AND GROUNDWATER
in 2000-2001
Mandals



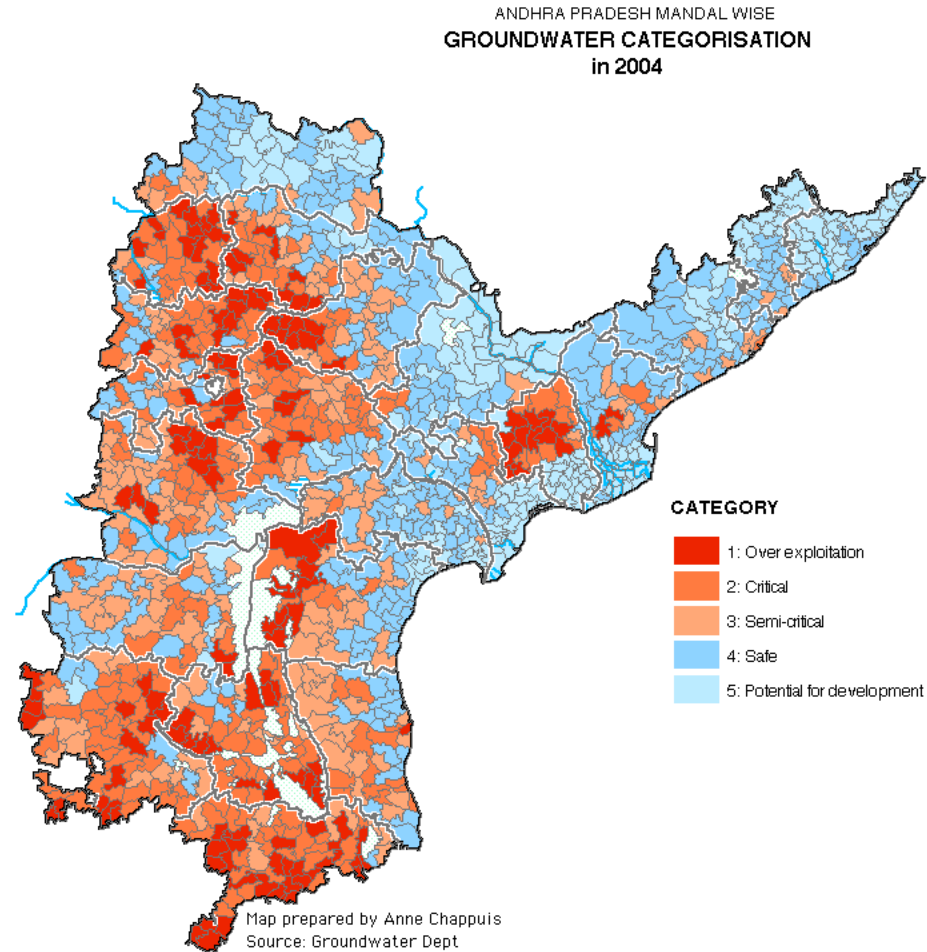
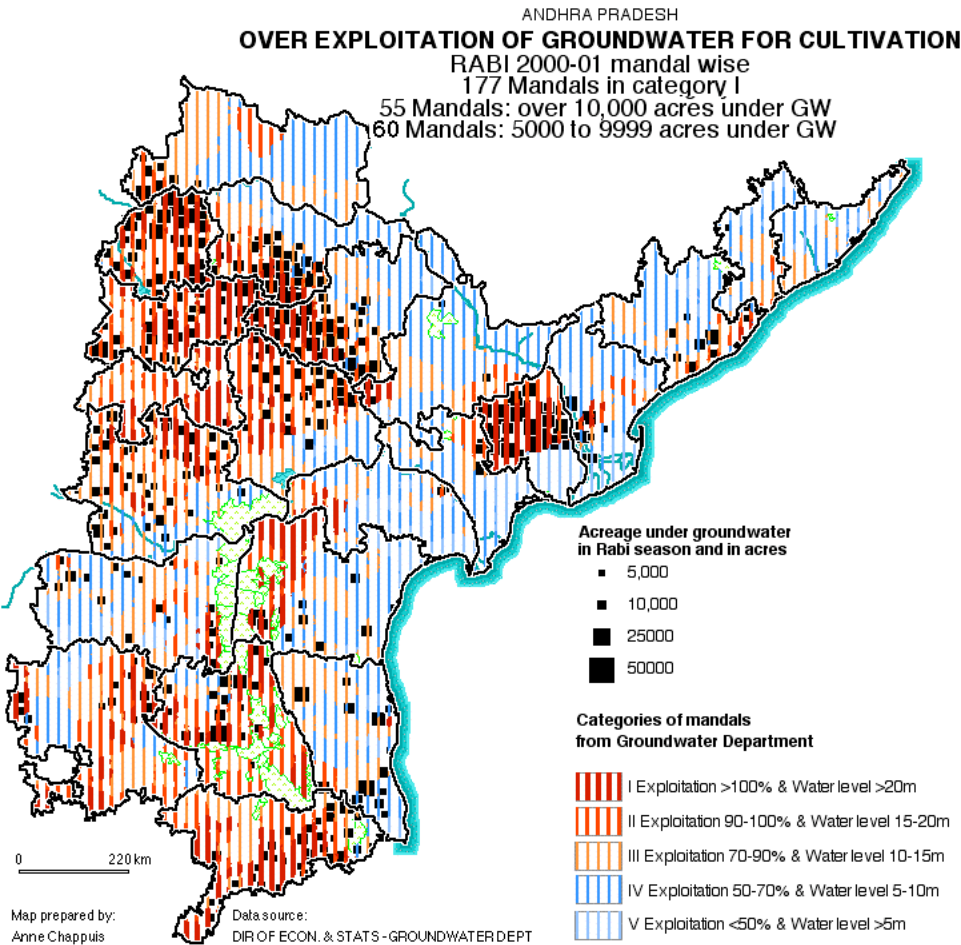
Overexploitation of groundwater

in kharif

in rabi

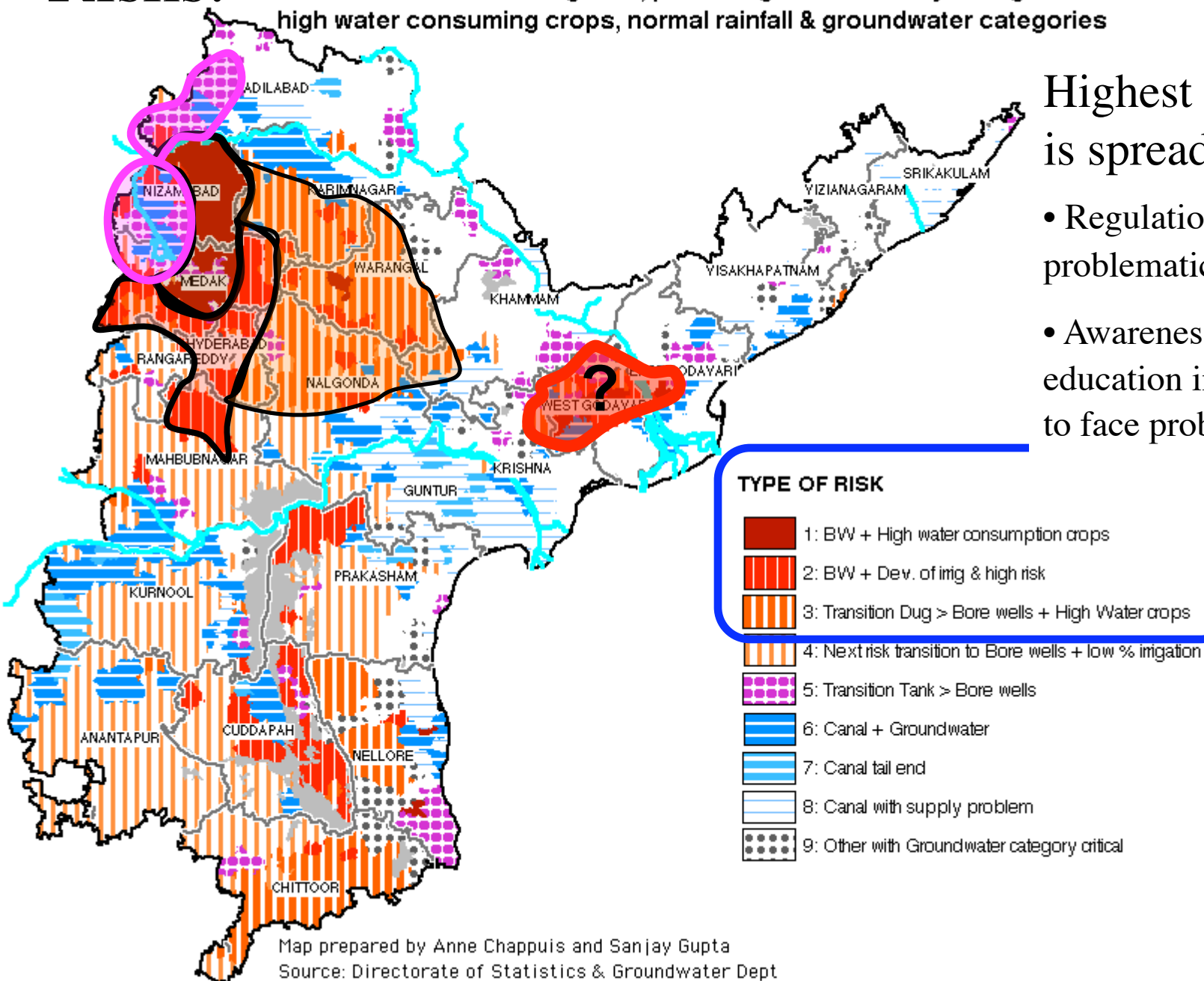


GW exploitation categories



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

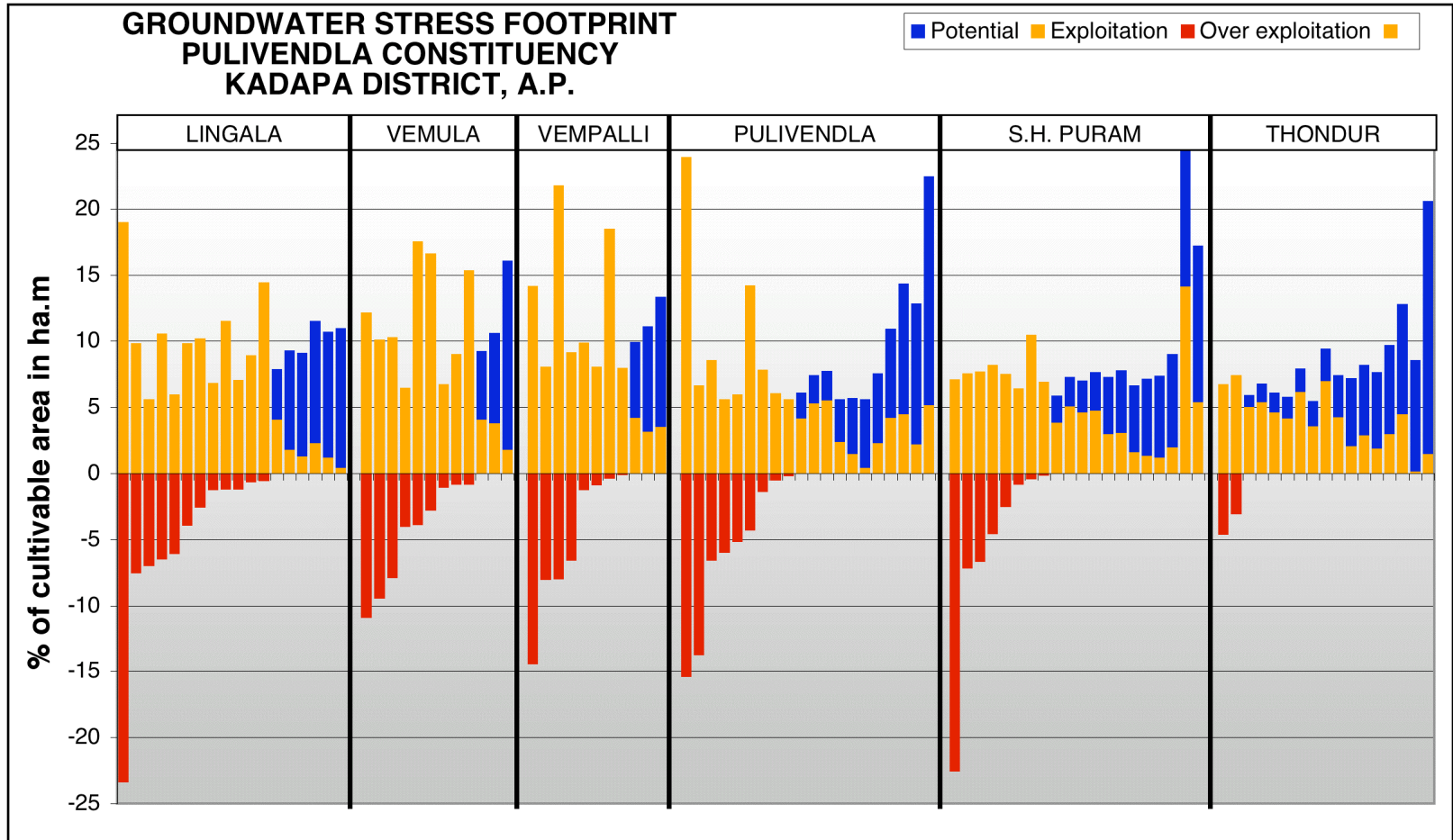
- Regulation in already problematic areas
- Awareness and education in areas soon to face problems

TYPE OF RISK

- 1: BW + High water consumption crops
- 2: BW + Dev. of irrig & high risk
- 3: Transition Dug > Bore wells + High Water crops
- 4: Next risk transition to Bore wells + low % irrigation
- 5: Transition Tank > Bore wells
- 6: Canal + Groundwater
- 7: Canal tail end
- 8: Canal with supply problem
- 9: Other with Groundwater category critical

Map prepared by Anne Chappuis and Sanjay Gupta
Source: Directorate of Statistics & Groundwater Dept

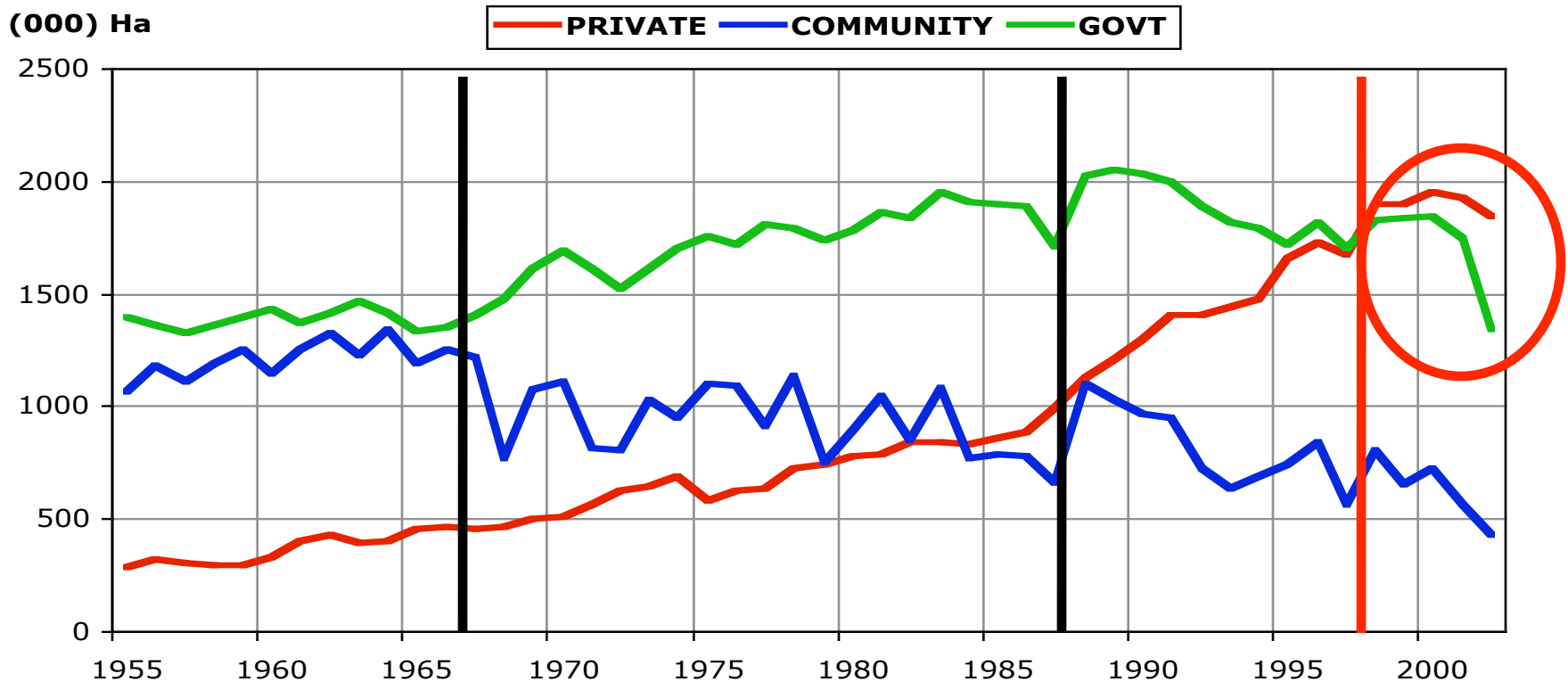
Groundwater stress



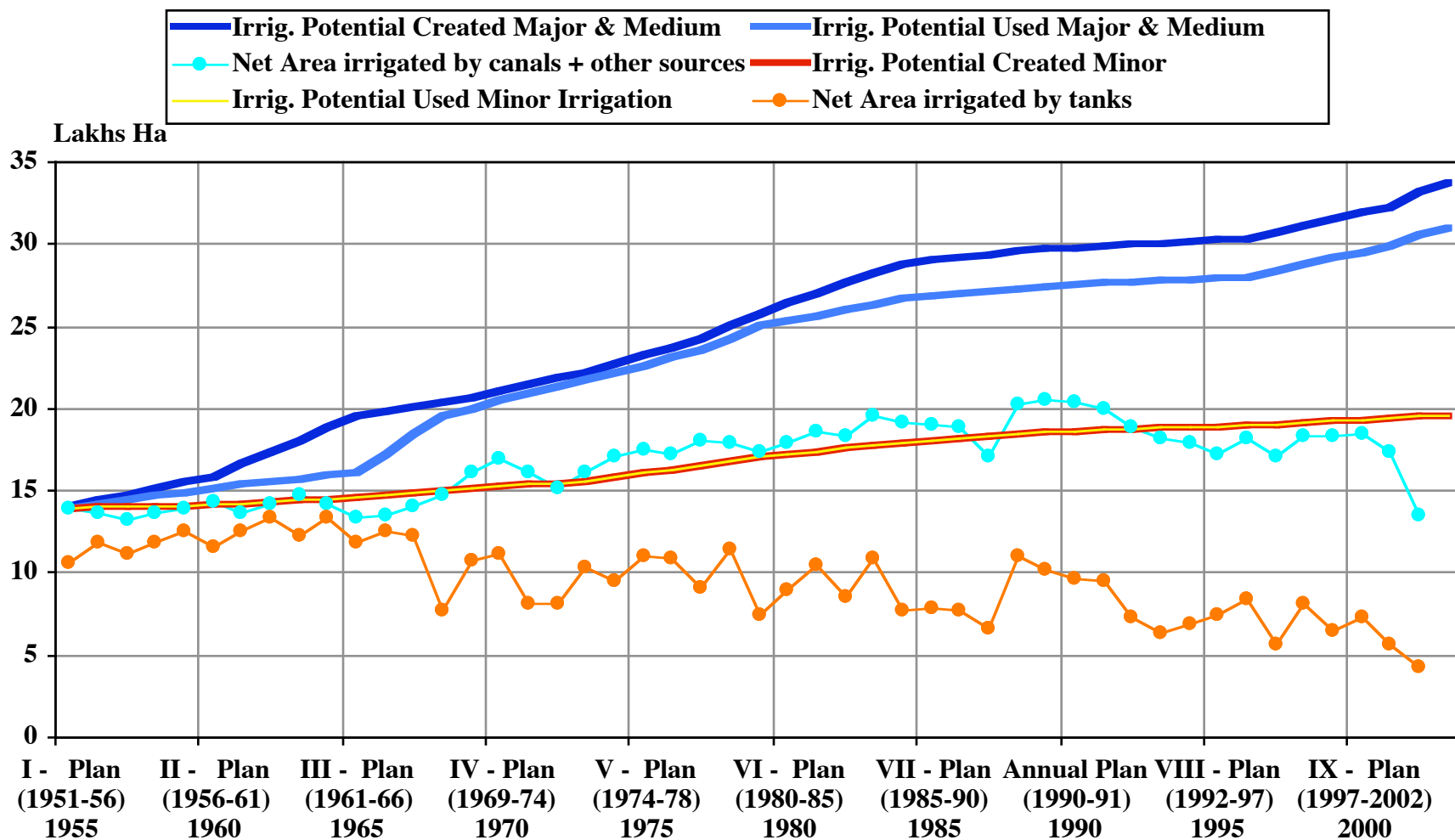
Source: Groundwater Department, Govt of A.P.

Overall investment pattern

- Up to 1967: Government and community equal, private small,
- 1967 - 1987: Increase in government and private, decrease in community,
- From 1987: Sharp increase in private, which becomes **first** in 1998, decrease in government and community.

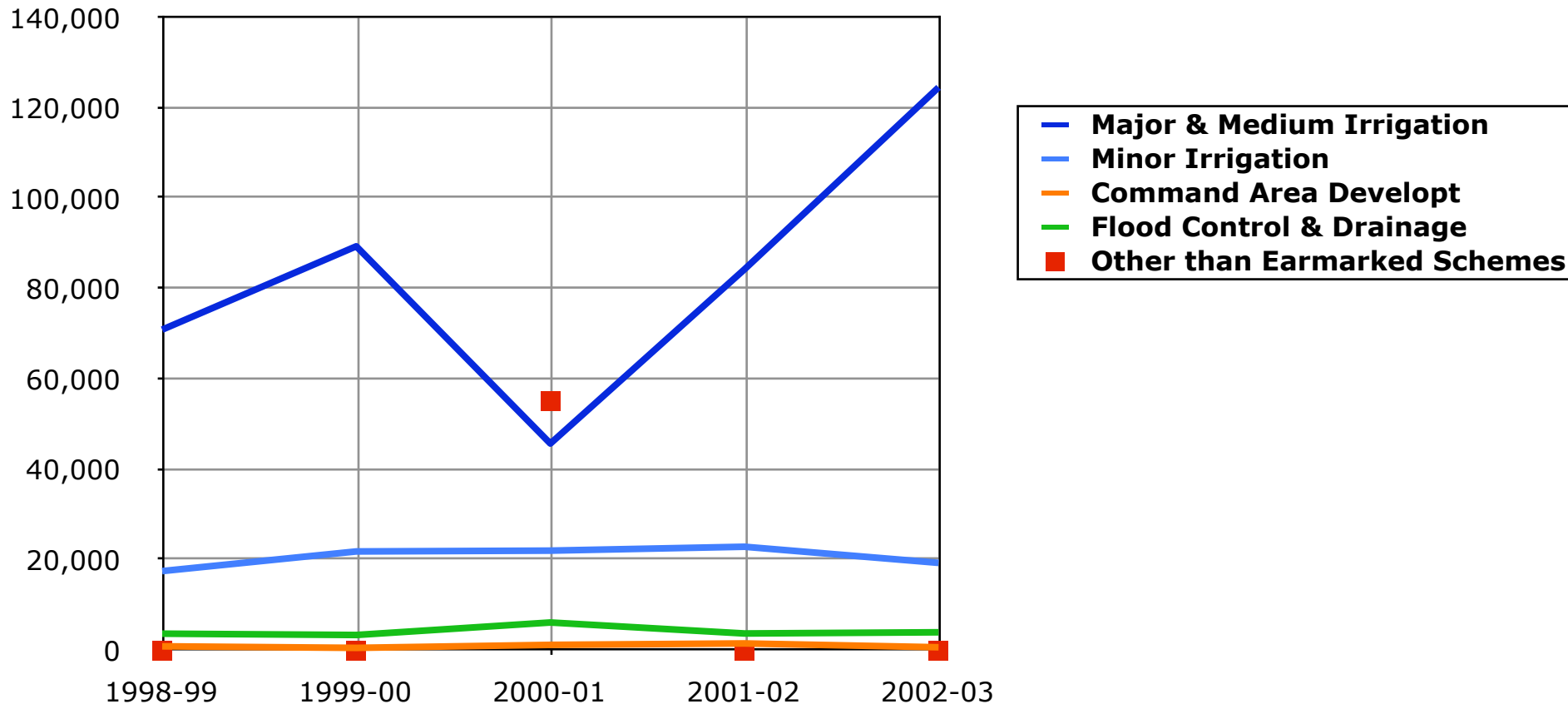


Irrigation potential created Plan wise and Net area irrigated



State investment pattern

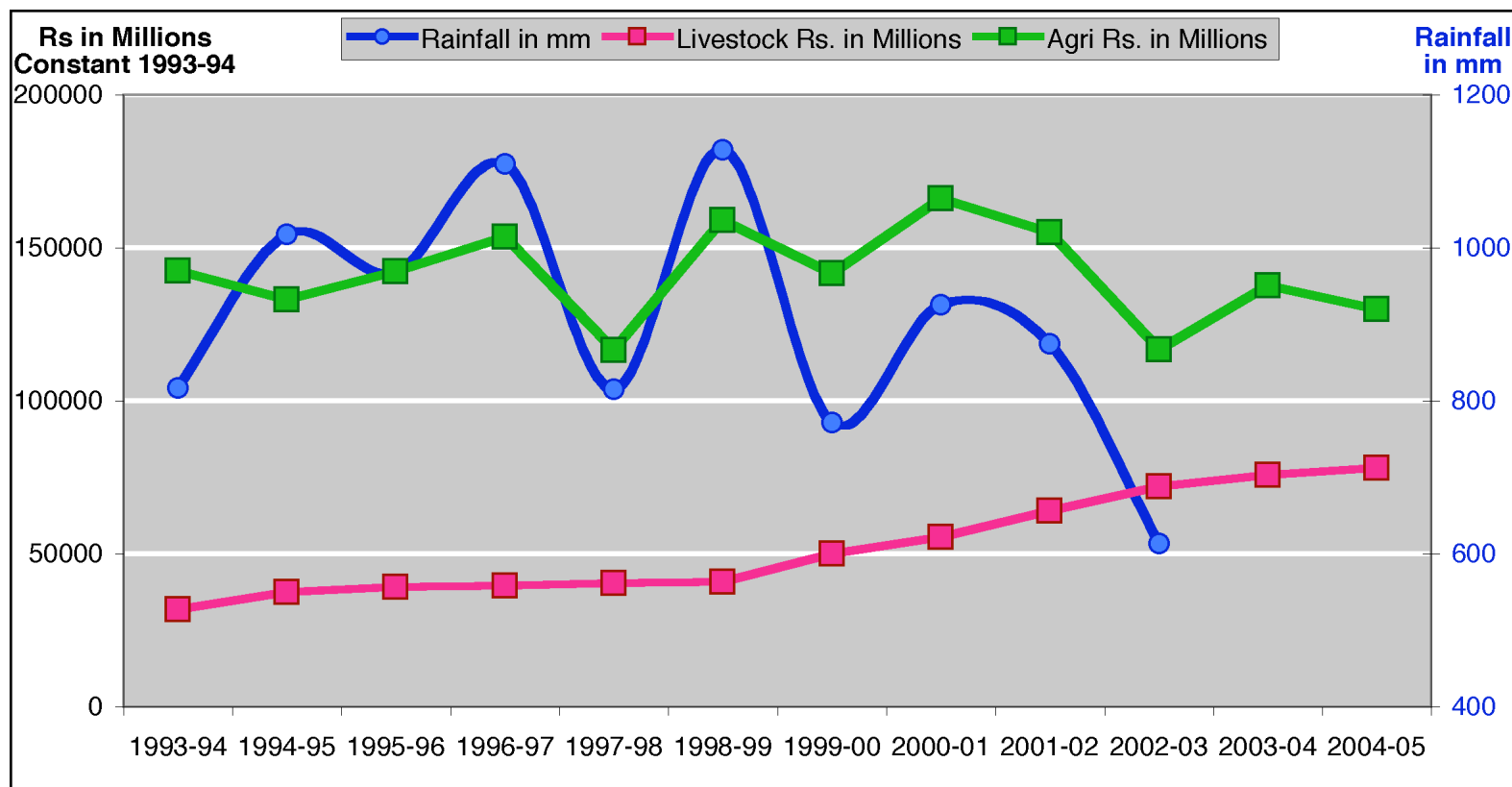
- A.P. State Plan Expenditure from 1998-99 to 2002-03



Source: Statistical abstract A.P. 2004, Directorate of Economics and Statistics

Where has investment gone?

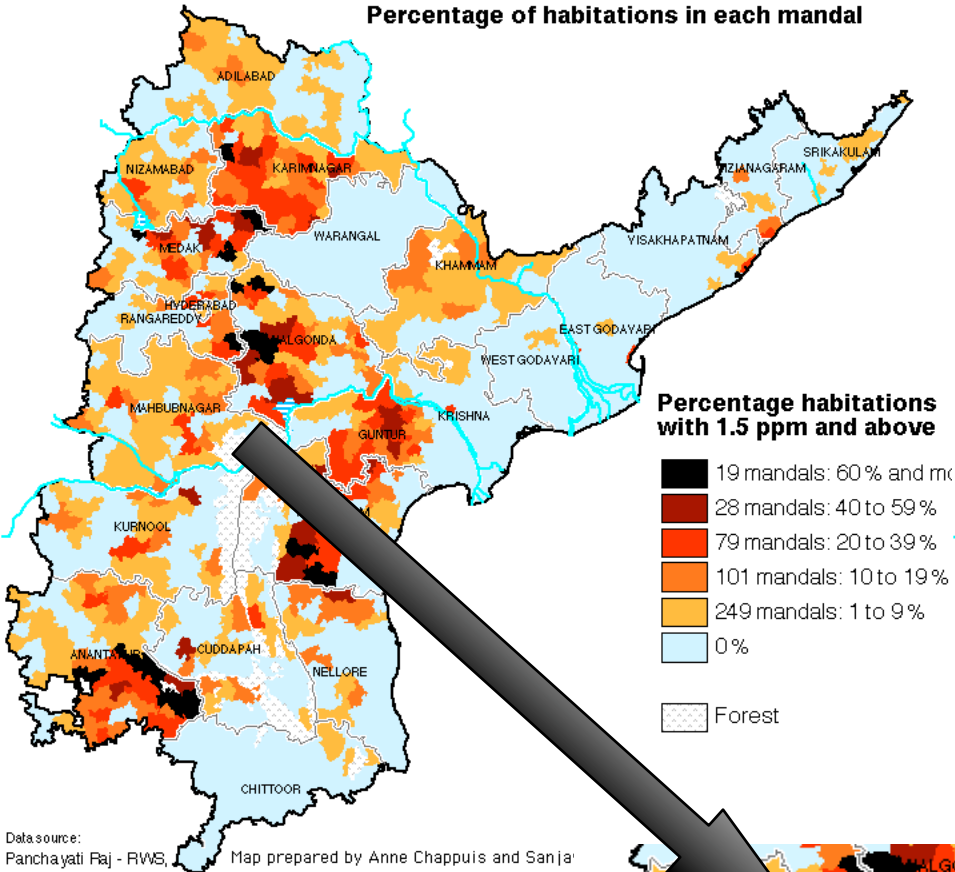
Evolution of GDP contribution from **agriculture** and **livestock** in Andhra Pradesh, India



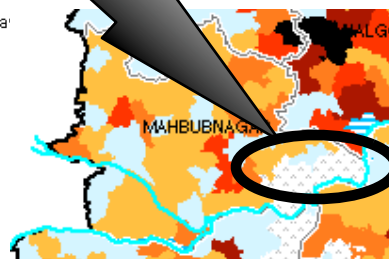
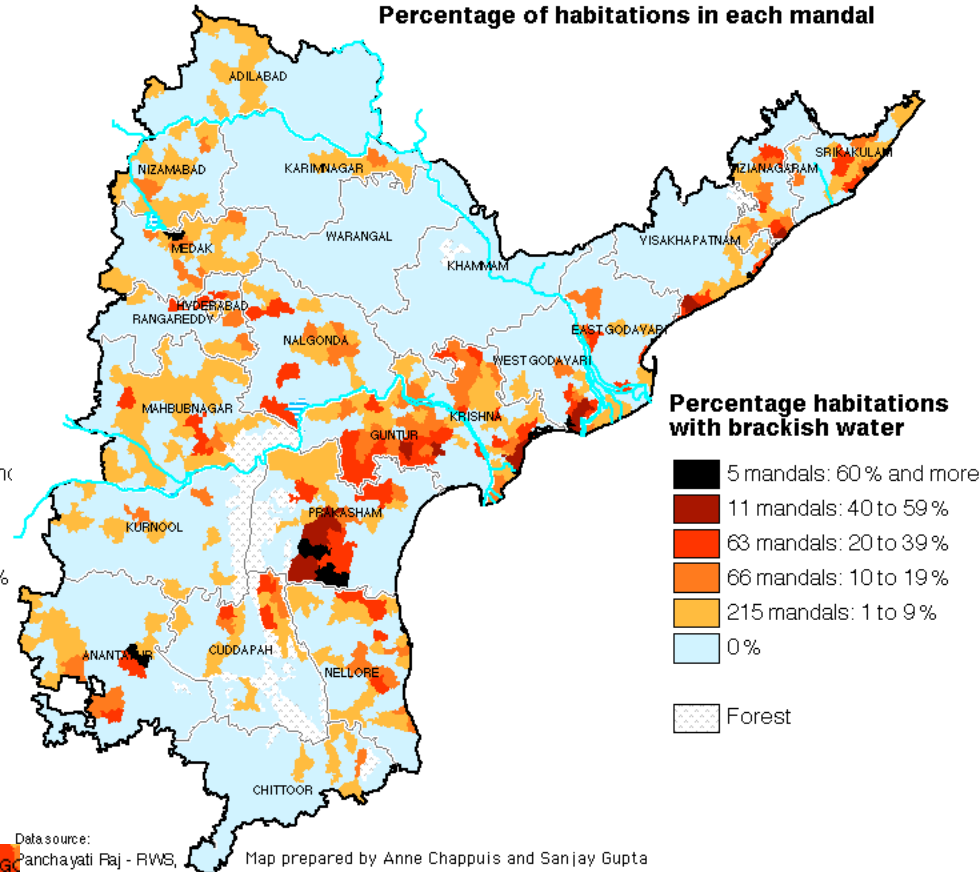
Source: Directorate of Economics and Statistics , Govt of A.P.

Quality of drinking water

ANDHRA PRADESH MANDAL WISE
FLUORIDE IN DRINKING WATER
HABITATIONS AFFECTED WITH 1.5 PPM AND MORE
Percentage of habitations in each mandal



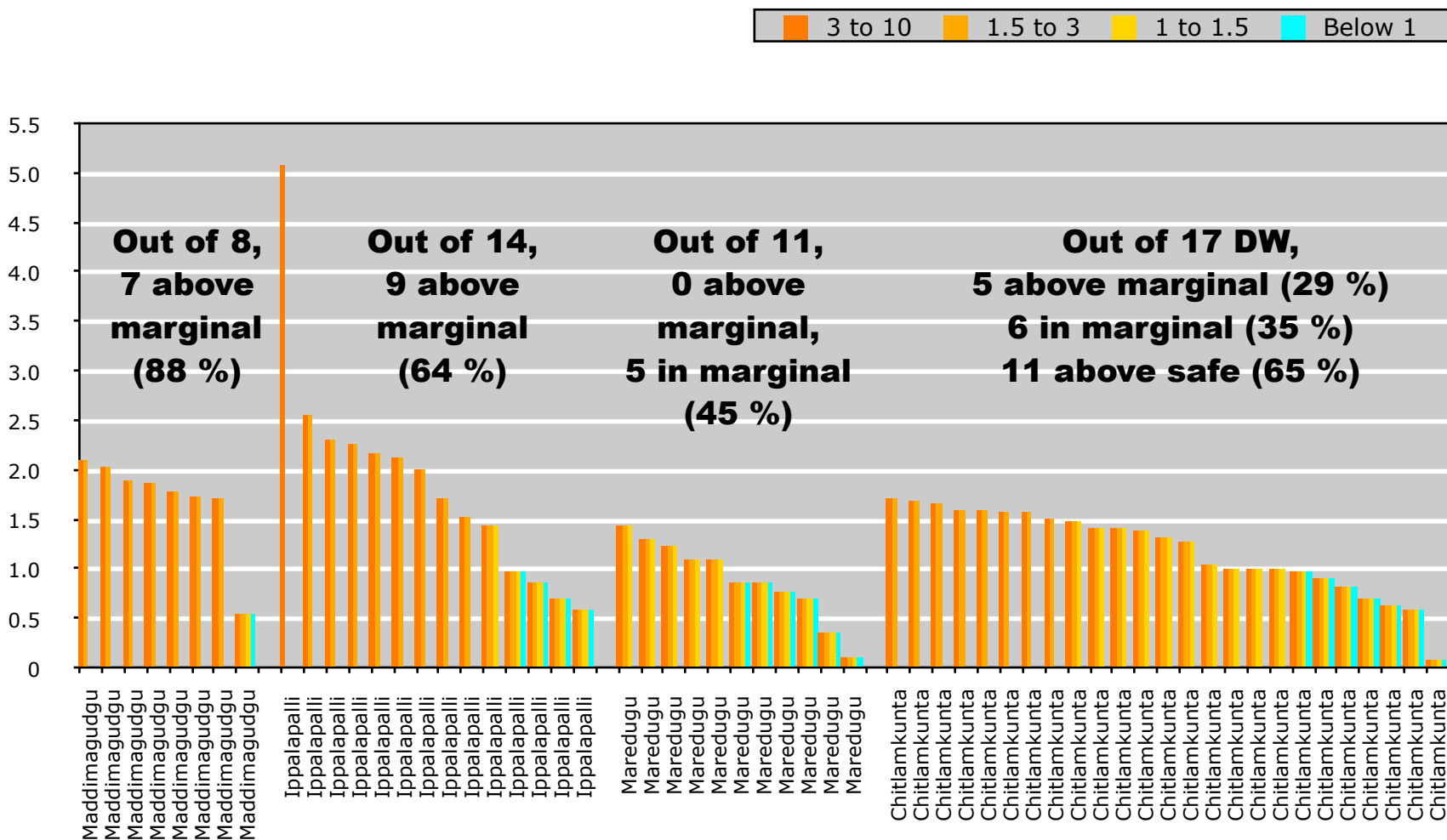
ANDHRA PRADESH MANDAL WISE
BRACKISH WATER
Percentage of habitations in each mandal



Amrabad mandal

Fluoride study Amrabad

**Out of 57 samples, 24 are above 1.5 ppm (42 %), 15 are 1 to 1.5 ppm (26 %),
total above 1 ppm is 39 (68 %)**

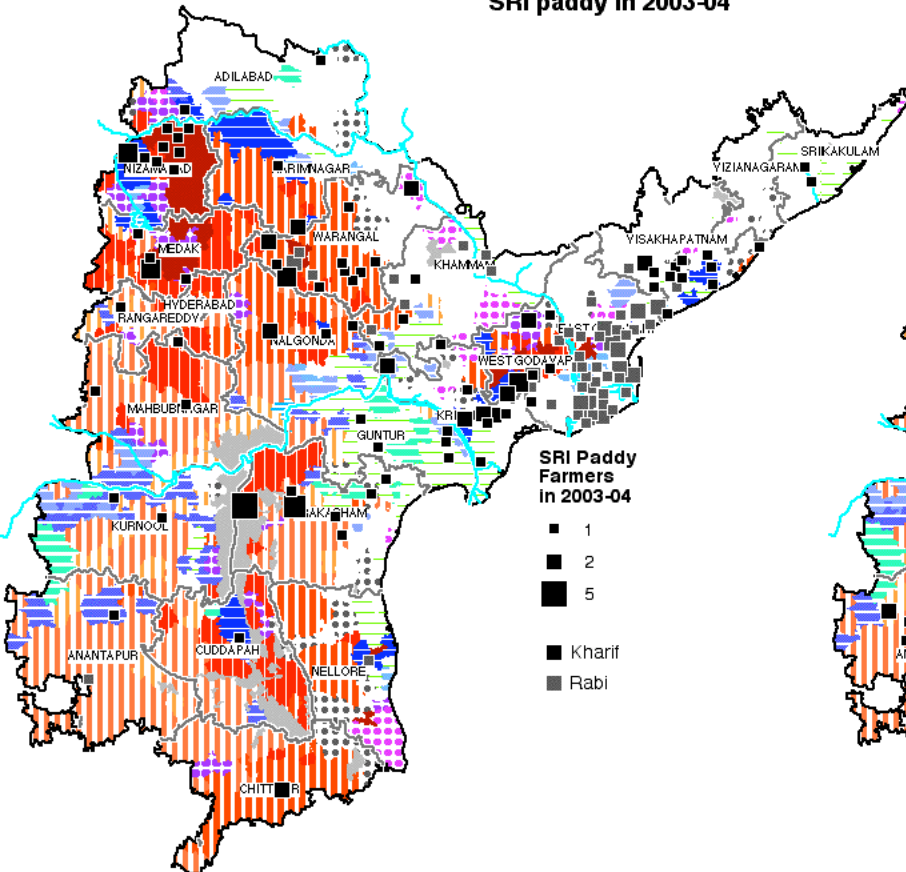


Possible Solutions

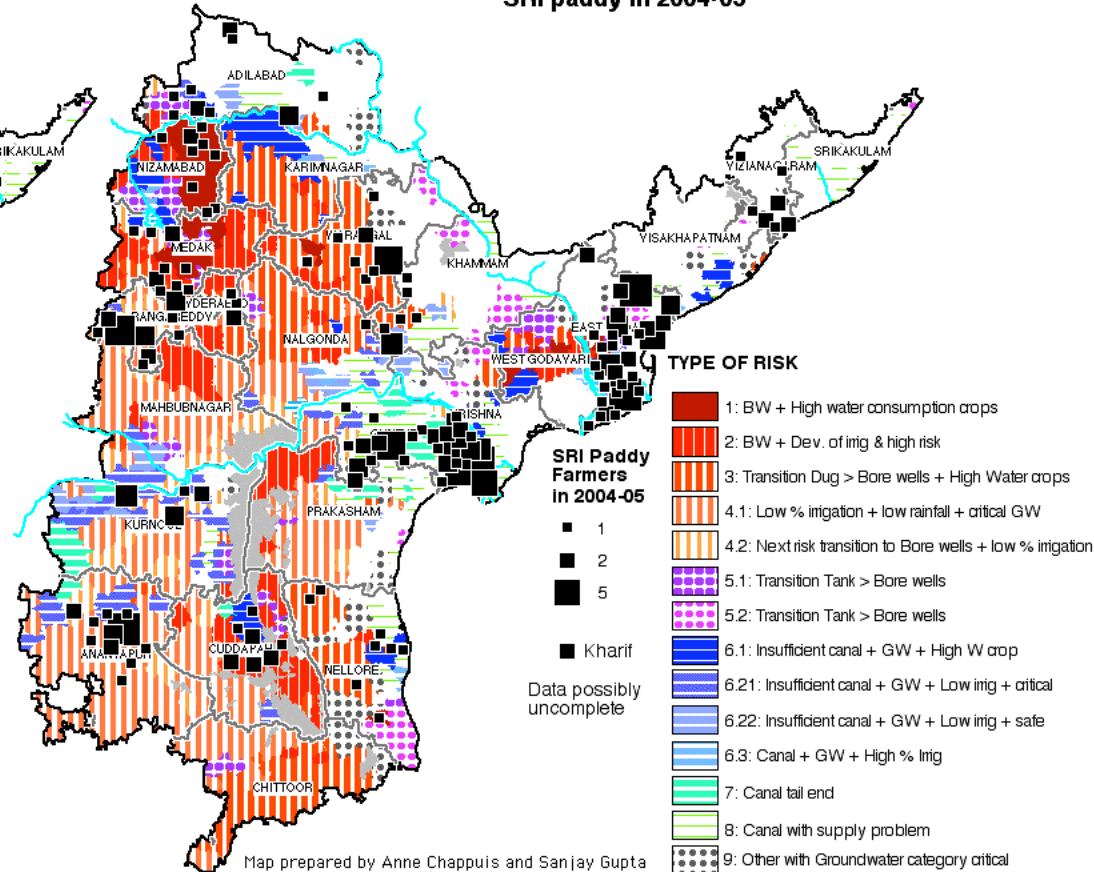
- Deficit basins and revival of tanks
- Implementing APWALTA
- Plasticulture
- Social Regulations
- SRI PADDY

Possible solutions

ANDHRA PRADESH MANDAL WISE
SRI paddy in 2003-04



ANDHRA PRADESH MANDAL WISE
SRI paddy in 2004-05



Map prepared by Anne Chappuis and Sanjay Gupta
Source: Directorate of Statistics & Groundwater Dept