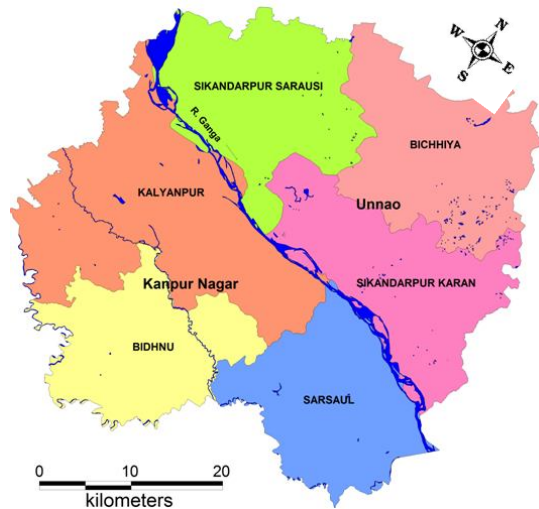


AQUIFER MAPPING AND GROUND WATER MANAGEMENT IN PARTS OF KANPUR NAGAR & UNNAO DISTRICT

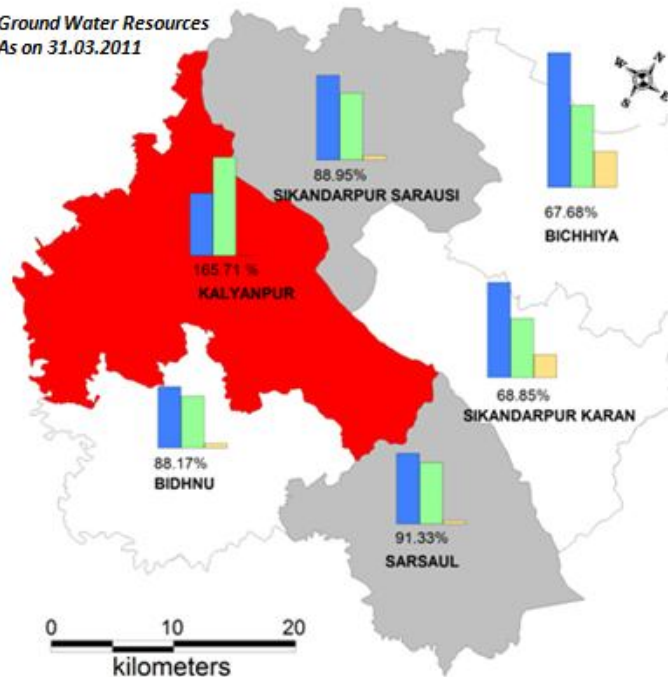


Area: 2958 Sq Km
Block: 03 (Kanpur Nagar)
Block: 03(Unnao)

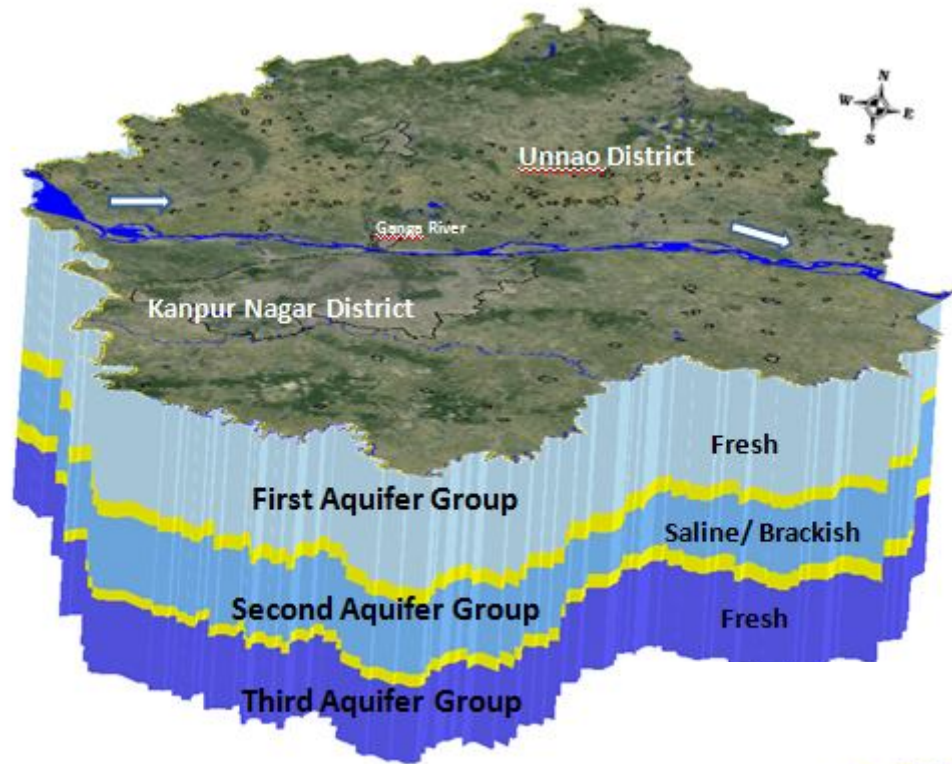
MAJOR ISSUES

- Decline in water level of Ground Water in Parts of the Area, which includes Kanpur City.
- First Aquifer having problems of F in parts of Unnao District.
- Organic pollution as reported in parts of Unnao and Kanpur district.
- Industrial Pollution in marginal parts of Kalyanpur Block in terms of Cr, Fe and Pb .
- Three out of six blocks are under Over-Exploited/ Critical category.
- Second Aquifer having inferior water quality in terms of salinity and Fluoride at places.
- Third Aquifer is being used for drinking water in urban area.

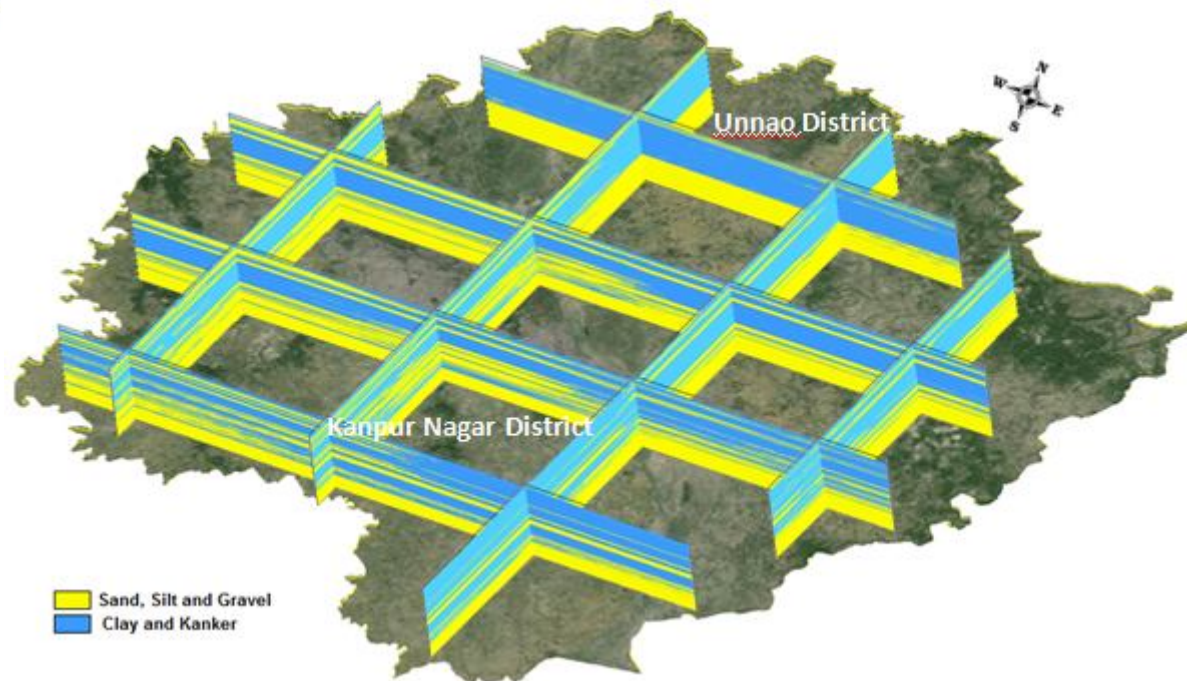
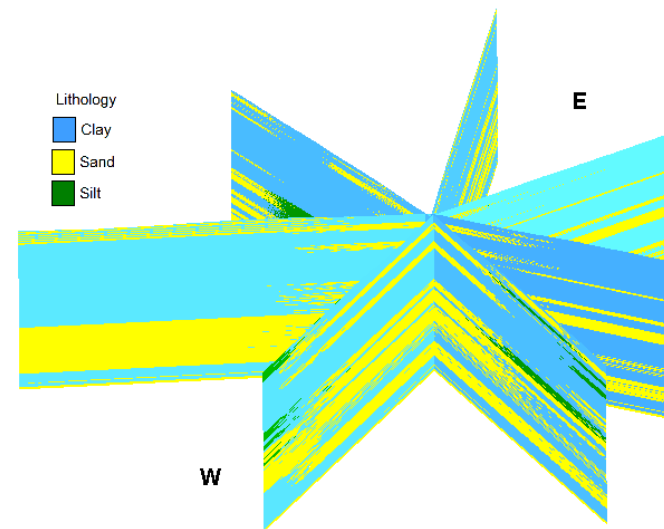
*Ground Water Resources
As on 31.03.2011*



AQUIFER DISPOSITIONS



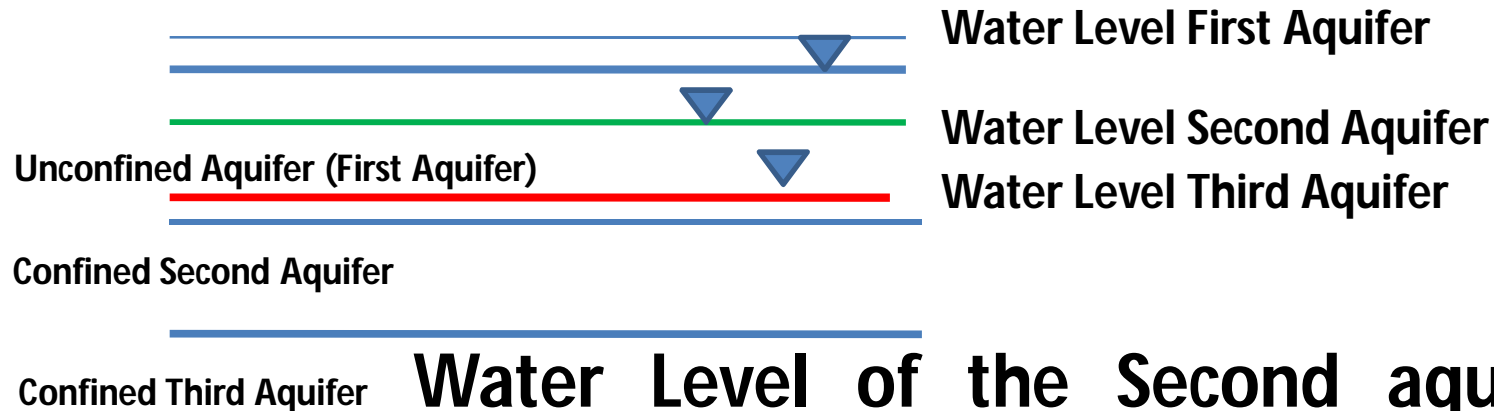
Total Thickness 300 m



Ground Water Resource in parts of Kanpur and Unnao district

Block Name	Area	Volume First Aquifer Grp. (MCM)	Volume Piezometric (MCM)	Second Aquifer Grp.	Total Second (MCM)	Total Third (MCM)	Total (MCM)
SIKANDARPUR SARAUSI	331	945	2.53	327	330	418	1693
BICHHIYA	326	791	0.71	443	444	303	1538
SIKANDARPUR KARAN	333	912	0.96	450	451	487	1850
KALYANPUR	484	1878	2.07	682	684	1183	3745
BIDHNU	279	1086	1.09	417	418	727	2231
SARSAUL	295	668	0.56	317	318	590	1576
Total	2048	6280	7.92	2636	2645	3708	12633

Water Level Management and their Impact on Aquifer System



Water Level of the Second aquifer below unconfined Aquifer else Second Saline Aquifer will start recharging and contaminating unconfined Aquifer.

And

Water Level of the Second aquifer below Third (Fresh) Aquifer else Second Saline Aquifer will start recharging Third (Fresh) Aquifer and start contaminating.

Water Level Management and their Impact on Aquifer System

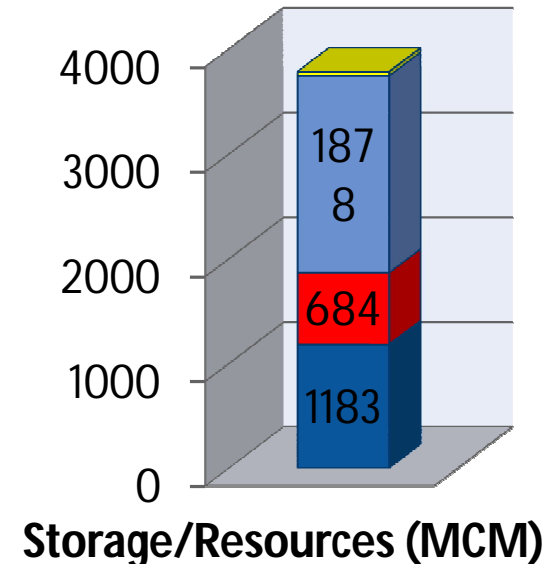
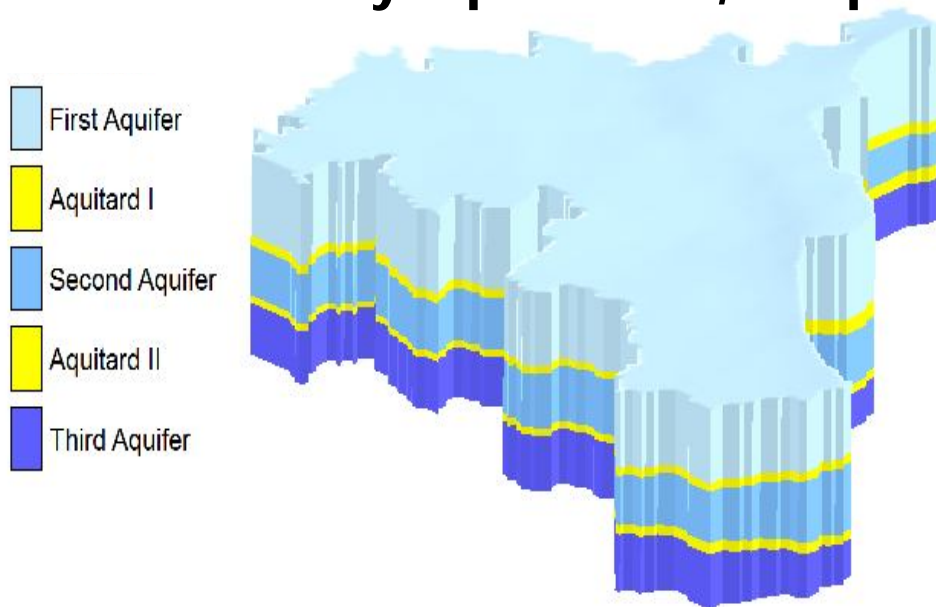
*For Effective Management of Water Level Proposal
(Decline in Piezometric head)*

$$\text{Conc. of the blended water} = \text{Conc. of Tubewell Water} \times \text{proportion of Tubewell Water} + \text{Con. of Canal Water} \times \text{proportion of Canal Water}$$

Limited and controlled quantity of Saline Water is put in canal to enhance supply in canal so water can reach upto tail ends. Will just cause blending without affecting EC of water beyond usable limit.
(This will enhance Water Resources of other area, where water will be supplied)

Limited and controlled quantity of Saline Water is mixed in canal and equal amount of water is taken out from canal to blend and use in field, hence increasing the water resources f the area and catchment.
(This will enhance Resources of the area)

Kalyanpur Block, Kanpur Nagar, Uttar Pradesh



2011 (Dynamic)	First Aq. (MCM)	Second Aquifer(MCM)	Third Aquifer (MCM)	Total
39	1878	684	1183	3745

Aquifer Details

	WL (mbgl)	Mean WL	EC	Thickness (m)
First	0.50 – 28.56	8.81	519 - 2704	97 - 150
Second	15 - 20		Approx 2500	41 - 112

Major Issues

- ❑ Declining Water Level in Urban Parts of the City.
- ❑ Salinity in the Second Aquifer. Withdrawal from the Third Aquifer.

Management Plan

- ❑ Drinking Water Supply can be from surface water.
- ❑ Blending with second aquifer water is proposed for Irrigation.
- ❑ Effective management of water losses during conveyance a must.

GW DEVELOPMENT BEFORE WUE					GW DEVELOPMENT AFTER WUE		
Net GW Availability	Draft Irrigation	Draft Domestic	Draft Total	Stage of GW	Draft Irrigation	Draft Total	Stage of GW
6394.84	3337.70	7259.31	10597.01	165.71	2336.39	9595.7	150.05

Thanks