

GONDA DISTRICT



Introduction

Hydrogeology

Long Term Water Level Trend

Ground Water Quality

Ground Water Potential

Ground Water Management

Basic Information

Geographical Area :	4425Sq. Km.	No. of Blocks:	16
Basin :	Ganga	Population:	2765754
Availability of Ground Water :	149847 ham.	Stage of G.W. development:	64.88%

Introduction

Gonda district is a part of Central Ganga Plain of the state covering an area of 4425 sq.km. and lies between North latitudes 26°46' and 27°27' and East longitudes 81°31' and 82°37' with total population of 2765754 as per 2001 census (density: 625 persons/sq.km.). The district is bounded by river Ghaghara in the south-west, Bahraich in NW, Basti and Siddharthnagar in the east and Balrampur in the north. Gonda in the west and the river Sai in the east. The entire district falling in Sai Sub-basin of Ganga basin represents flat topography. The irrigation in the district takes place through Sharda Canal network system and tubewells. About 70% of the district area is under cultivation. About 61% area of net sown area (278892 hectares) is irrigated by ground water through shallow and moderately deep tubewells. The economy of the district mainly depends upon Agriculture.

The district receiving a normal rainfall of 1151.80 mm with 49 rainy days experiences sub-humid climate. The district is mainly drained by river Ghaghra and its tributaries, Kuwano, Tehri and Bisuhi and all the rivers are perennial in nature.



Hydrogeology

The area is underlain by Quaternary alluvium consisting of clays, silt, occasional kankar, sand of various grades and gravels in different proportions. The results of 4 exploratory bore holes and two piezometers drilled by CGWB down to 200 m depth in and Gonda distt. and 11 exploratory boreholes drilled in adjoining distt. Balrampur down to 751 mbgl and a number of tubewells drilled by state agencies ranging depth from 65 to 100 mbgl . The four aquifer groups noticed in the distt.

I Aquifer Group	50-130	mbgl
II Aquifer Group	80 – 240	mbgl
III Aquifer Group	180 – 410	mbgl
IV Aquifer Group	Below 400	mbgl

The ground water occurs under unconfined to confined conditions. The pre-monsoon depth to water level ranges from 2.46 to 6.48 m.bgl while post-monsoon depth to water level varies from 1.12 to 5.6 m.bgl. The area experiencing water logging/prone to water logging/ prone to water logging lies mainly along the river Ghaghara and their tributaries. The areas having comparatively deeper water level lie in parts of Gonda central, Intiathok , Mankapur and Rupaidiha. The seasonal water level fluctuation shows rise from 0.81 to 3.48m.

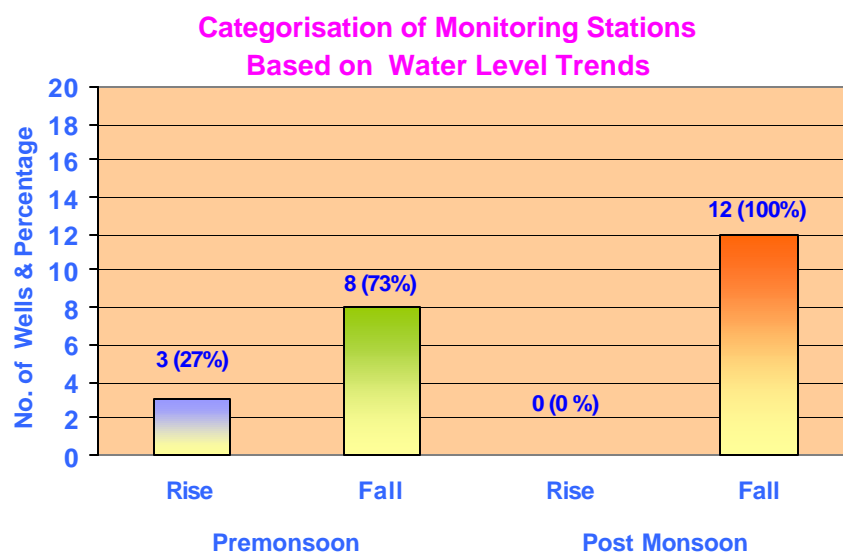
The southern part of Rapti river state tubewells have been constructed between depth ranging 65 to 100m. The tap about 30m. The piezometric head



of these tubewells range from 2.85 to 5.22 mbgl. The yield of tube well down to 200 m depth ranging from 2000 to 3000 Imp at 6m draw down

Long Term Water Level Trend

The water level data recorded from National Hydrograph Stations during the period 1980-2003 has been analysis both for Pre-monsoon and Post-monsoon. The number of NHS with their percentage in respect of Rise & fall has been graphically shown below:



The major part of the district experiences declining trend except the canal command area where rising trend is observed.

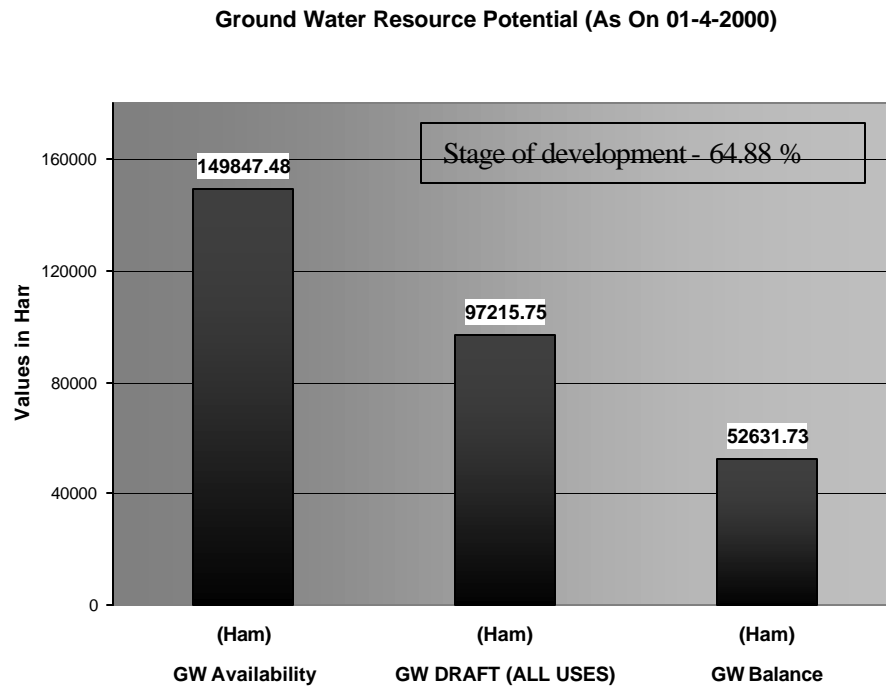
Ground Water Quality

The ground water quality of Gonda distt. is over all fresh and suitable for both domestic and irrigation purposes with some exceptions. Out of five water sample of Jhanjhari block only one sample of Khurasa village is showing slightly higher concentration of E.C. (2250), Mg(131), Cl(220) and total hardness and Caco3 (660). The bicarbonate of Amdahi village of Belsar block is also showing slightly higher concentration in the water . Both are showing higher concentration due to local effect.



Ground Water Resource Potential

The ground water resource potential has been estimated based on "GEC 1997 Methodology" as on 1.4.2000, which is graphically represented below.



Ground Water Management

The ground water development needs to be taken up in a planned manner in the district. The need for implementation for artificial recharge scheme in the block is imperative which would arrest the decline trend in water levels in due course of time. There is also need to adopt conjunctive water use strategy in the area experiencing very shallow water level conditions in the flood plains of Ghaghra and along canals. Water logging problem. The water levels should be closely monitored through need based piezometers. To establish geometry of deeper aquifer and its behaviour there should be ground water exploration through deep and shallow exploratory drilling in the district. Gonda specially in the central and southern part of the area where water level observed very shallow. The water level in the area is



generally very shallow in this situation . Concentration of canals may lead to water logging problem soil salinity and other associated problems.