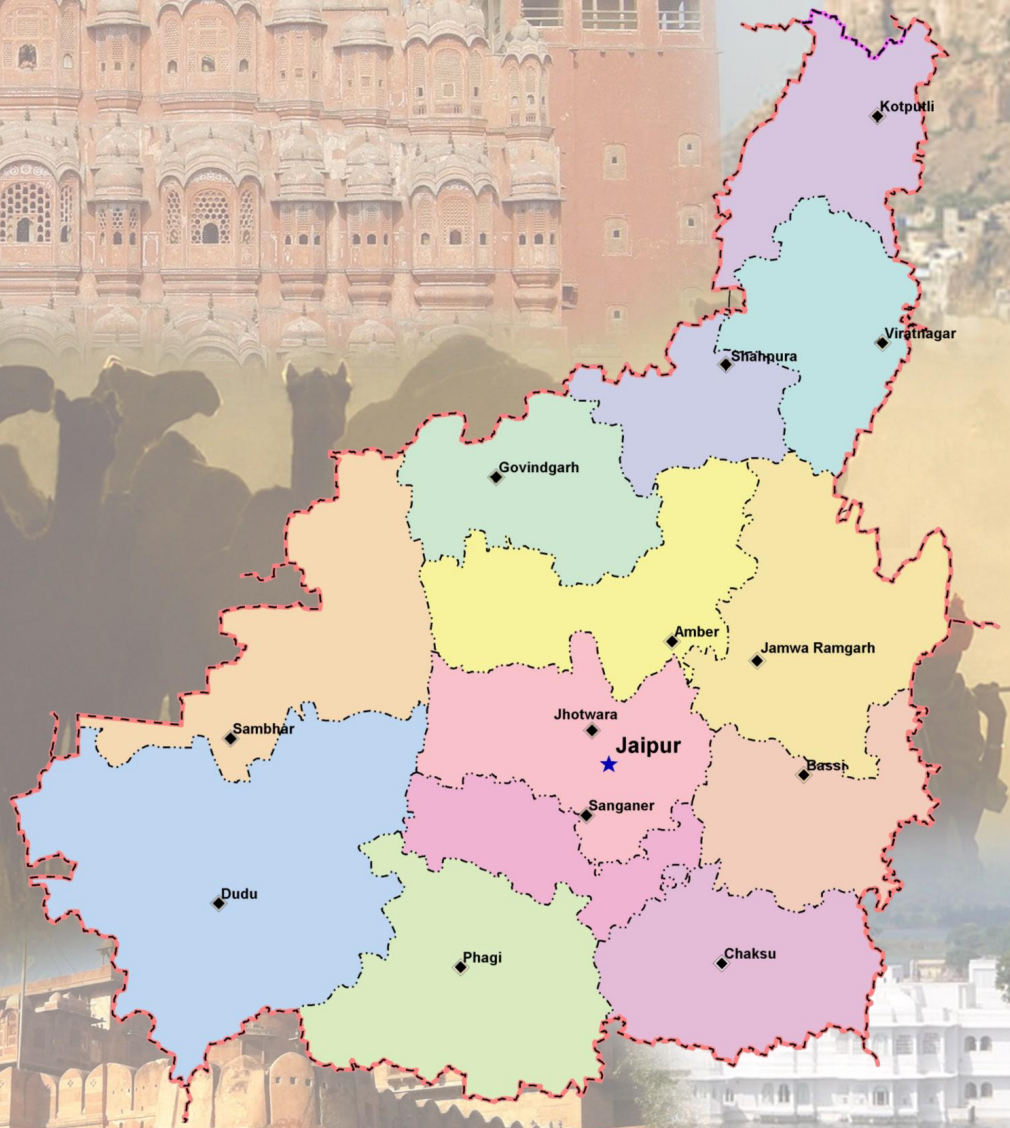
Ground Water Department,
Rajasthan

Hydrogeological Atlas of Rajasthan
Jaipur District

European Union
State Partnership Programme



2013

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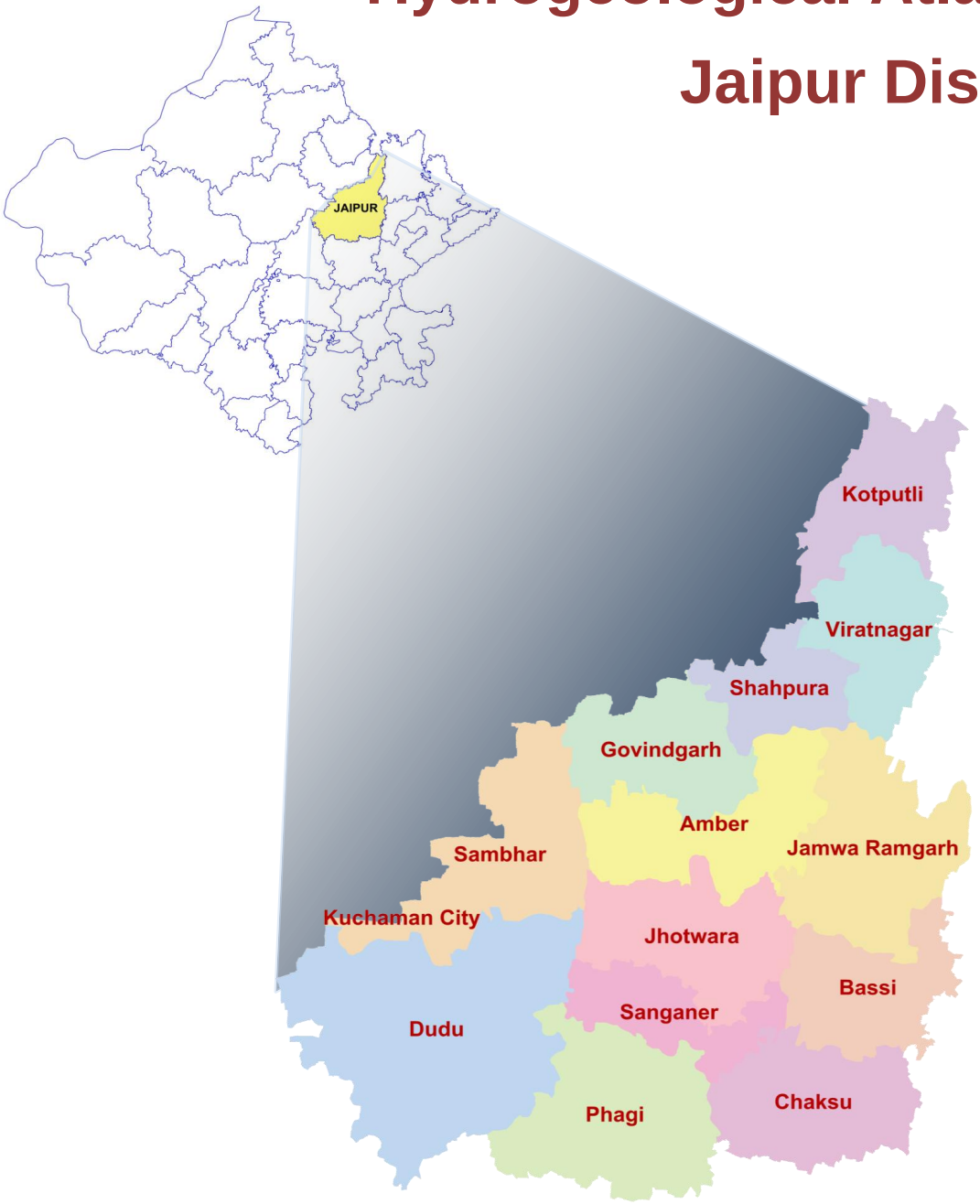
Hydrogeological Atlas of Rajasthan

Jaipur District



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2013

ADMINISTRATIVE SETUP

DISTRICT – JAIPUR

Location:

Jaipur district is located in the eastern part of Rajasthan. It is bounded in the north by Sikar district, in the east by Alwar and Dausa districts, in the south by Tonk districts and in the west by Ajmer and Nagaur districts. It stretches between 26° 26' 08.11" to 27° 51' 52.11" north latitude and 74° 54' 52.59'' to 76° 17' 34.36'' east longitude covering an approximate area of 11,136 sq kms. The district is drained by several rivers viz., Banganga, Banas, Sabi and Shekhawati rivers and streams like: Bandi, Mashi, Dhund, Morel, Mendha, Gumti ka Nala, Madhobini, Sota etc.

Administrative Set-up:

Administratively, Jaipur district is part of Jaipur division. This district is divided into 13 blocks. The following table summarizes the basic statistics of the district at block level.

S. No.	Block Name	Population (Based on 2001 census)	Area (sq km)	% of Block Area	Total Number of towns and Villages
1	Amber	2,62,029	845.7	7.6	196
2	Bassi	2,29,639	671.2	6.0	215
3	Chaksu	1,90,253	815.7	7.3	288
4	Dudu	2,72,517	1,923.5	17.3	229
5	Govindgarh	3,26,488	700.5	6.3	101
6	Jamwa Ramgarh	2,50,132	1,033.1	9.3	241
7	Jhotwara	5,08,724	825.8	7.4	74
8	Kotputli	2,68,634	665.3	6.0	122
9	Phagi	1,61,610	1,076.3	9.6	171
10	Sambhar	2,91,527	970.1	8.7	148
11	Sanganer	1,53,393	486.1	4.4	148
12	Shahpura	2,09,672	452	4.1	87
13	Viratnagar	2,23,656	670.9	6.0	122
Total		**33,48,274**	**11,136.2**	**100.0**	**2,142**

Jaipur district has 2,142 towns and villages, of which 13 towns also are block headquarters. Total population of the district is approximately 33,48,274.

Climate:

Jaipur district has a semi-arid climate. There are three distinct seasons in a year. The winter season encompassing four months from November to February are mild and pleasant, with average temperatures in the 15-18° C range and low humidity. December and January are the coldest months when temperature varies between 5 and 10°C. There are however, occasional cold waves that lead to significant reduction of temperatures. March is a pleasant transition month to summer. The summer months of April to June record average daily temperature of around 35°C. May and June are the hottest months in Jaipur district. Temperature reaches up to 48°C in these months. Most of the annual rainfall is received in the monsoon months between June (end of June) and September.

Ground Water Department,
Rajasthan

European Union
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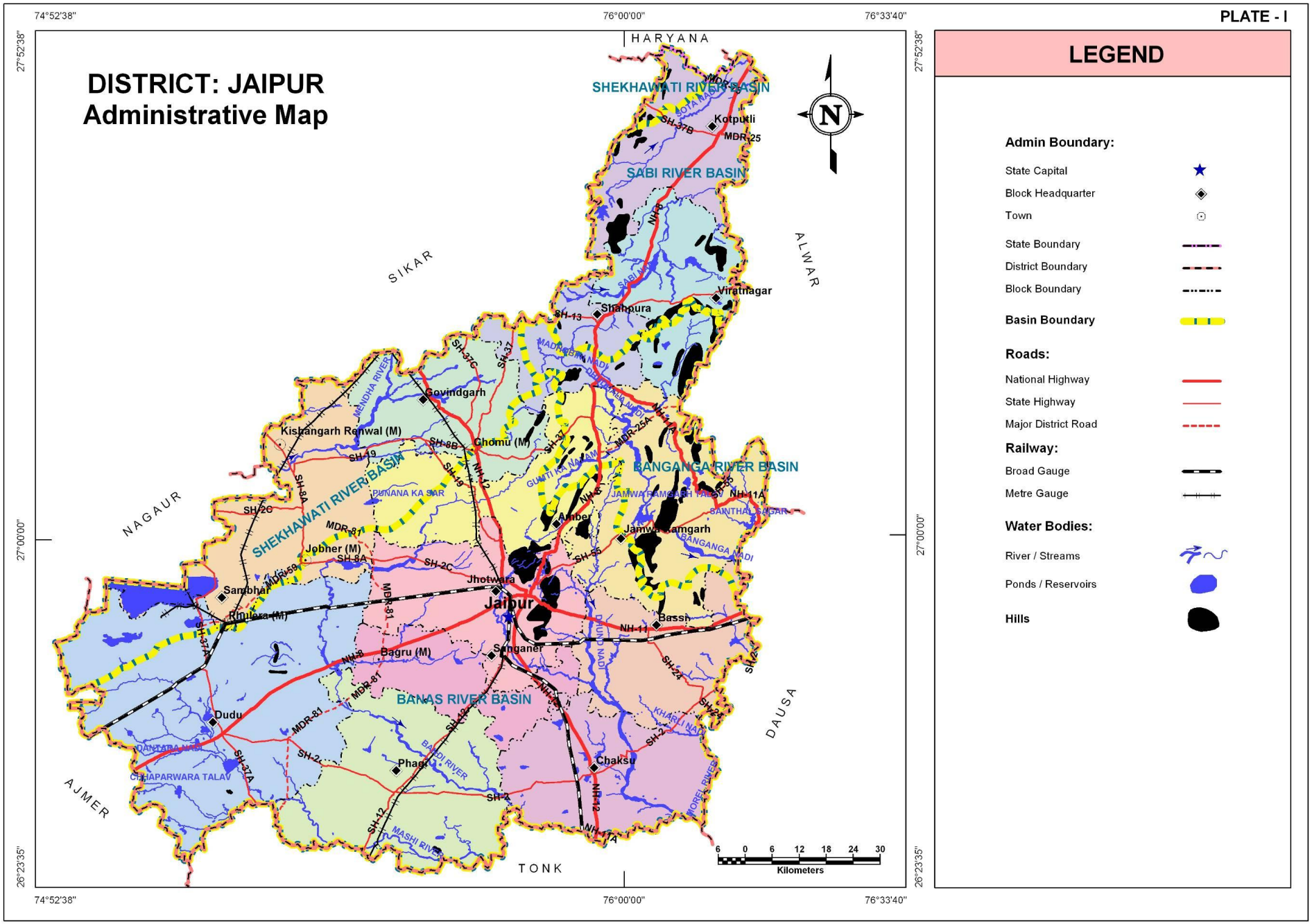
PLATE - I



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**

Roads:

- National Highway
- State Highway
- Major District Road

Railway:

- Broad Gauge
- Metre Gauge

Water Bodies:

- River / Streams
- Ponds / Reservoirs
- **Hills**

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TOPOGRAPHY

DISTRICT – JAIPUR

The topography of Jaipur district is undulating in broad sense with largely even in the central and western parts but occasional hills in the east and north. The general topographic elevations in the district are between 300m to 400m above mean sea level. The narrow elongated hills rise above the adjacent plains and attain elevations to the extent of 750m amsl as a result escarpments of 100m to 200m are widely seen in the hilly regions which trend NE-SW. Hills are predominant in Jamwa Ramgarh, Shahpur, Viratnagar and Jaipur whereas the topography of rest of the district is undulating with occasional hills only.

S. No.	Block Name	Min. Elevation (m amsl)	Max. Elevation (m amsl)
1	Amber	374.1	645.4
2	Bassi	306.8	583
3	Chaksu	271.3	348.9
4	Dudu	316.5	631.6
5	Govindgarh	413.7	784.8
6	Jamwa Ramgarh	321.4	670.1
7	Jhotwara	346	619.7

S. No.	Block Name	Min. Elevation (m amsl)	Max. Elevation (m amsl)
8	Kotputli	318.7	746.4
9	Phagi	280.8	409.6
10	Sambhar	353.8	525.7
11	Sanganer	322.3	425.8
12	Shahpura	422.9	730.1
13	Viratnagar	368.4	755.8

RAINFALL

The rainfall is however low, but has one of the high rainfall districts in Rajasthan. The general distribution of rainfall across can be visualized from isohyets presented in the Plate III. Interestingly, the eastern part receives more rainfall as compared to western part and it gradually reduces from east to west. The average annual rainfall was 823.2 mm based on the data of available blocks while highest average annual rainfall was 942.3 mm in Viratnagar block. Minimum annual rainfall was lowest in Kotputli block (540.6 mm). Kotputli block has received highest maximum annual rainfall of about 1,038.0 mm.

Table: Block wise annual rainfall statistics (derived from year 2010 meteorological station data)

Block Name	Minimum Annual Rainfall (mm)	Maximum Annual Rainfall (mm)	Average Annual Rainfall (mm)
Amber	701.3	945.8	797.1
Bassi	811.1	955.8	910.4
Chaksu	761.6	974.4	884.7
Dudu	576.2	798.6	686.0
Govindgarh	702.9	878.2	787.9
Jamwa Ramgarh	793.4	1,035.4	935.2
Jhotwara	701.3	852.9	739.6
Kotputli	540.6	1,038.0	874.2
Phagi	713.2	809.7	783.1
Sambhar	562.3	728.0	676.5
Sanganer	712.1	867.0	763.4
Shahpura	857.4	976.3	921.8
Viratnagar	896.9	992.6	942.3

PLATE - II

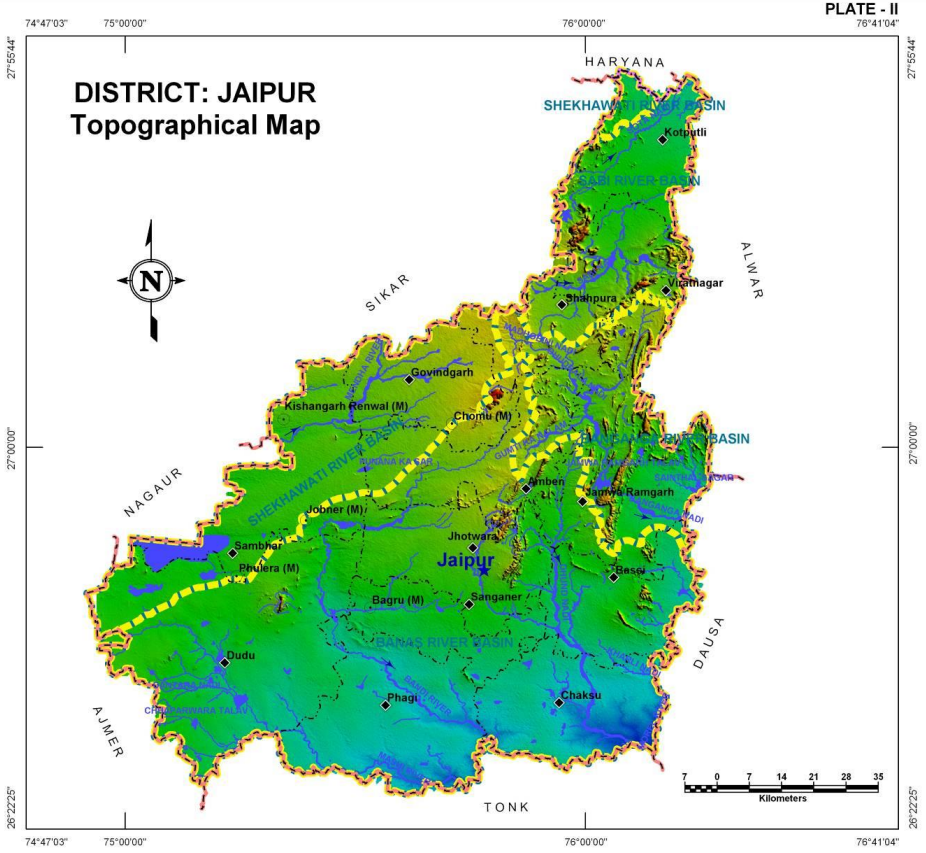
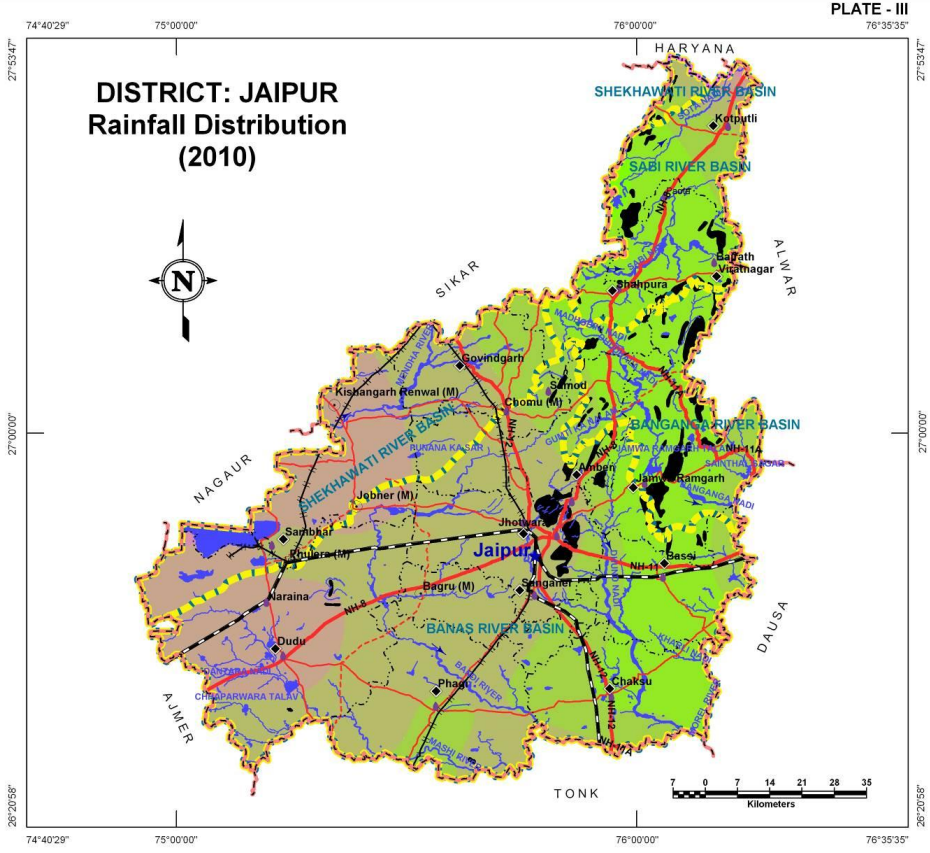


PLATE - III



LEGEND

Admin Boundary:
- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies:
- River / Streams
- Ponds / Reservoirs

Elevation (m amsl):
785, 750, 625, 500, 375, 271

Source : SRTM DEM

LEGEND

Admin Boundary:
- State Capital
- Block Headquarter
- Town
- Raingauge Stations
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Roads:
- National Highway
- State Highway
- Major District Road

Railway:
- Broad Gauge
- Metre Gauge

Water Bodies:
- River / Streams
- Ponds / Reservoirs

Hills

Isohyets (mm):
- 500-600
- 600-700
- 700-800
- 800-900
- 900-1000
- > 1000

GEOLOGY

DISTRICT – JAIPUR

Geologic succession of Jaipur district is quite wide ranging in terms of age and rocks from Archean to Recent age are present in the area. Most of the north eastern part of the district is covered by younger and older alluvium which is predominantly sandy and clayey in nature. In some parts of western Jaipur eolian sand is also present as a thin cover above the alluvium sediments. Some parts in the northeastern region also show presence of Delhi Super Group quartzites, schists, phyllites and marbles. Most of the southern half of the district is occupied by Gneisses and schists of Bhilwara Super Group.

Table: Geologic succession

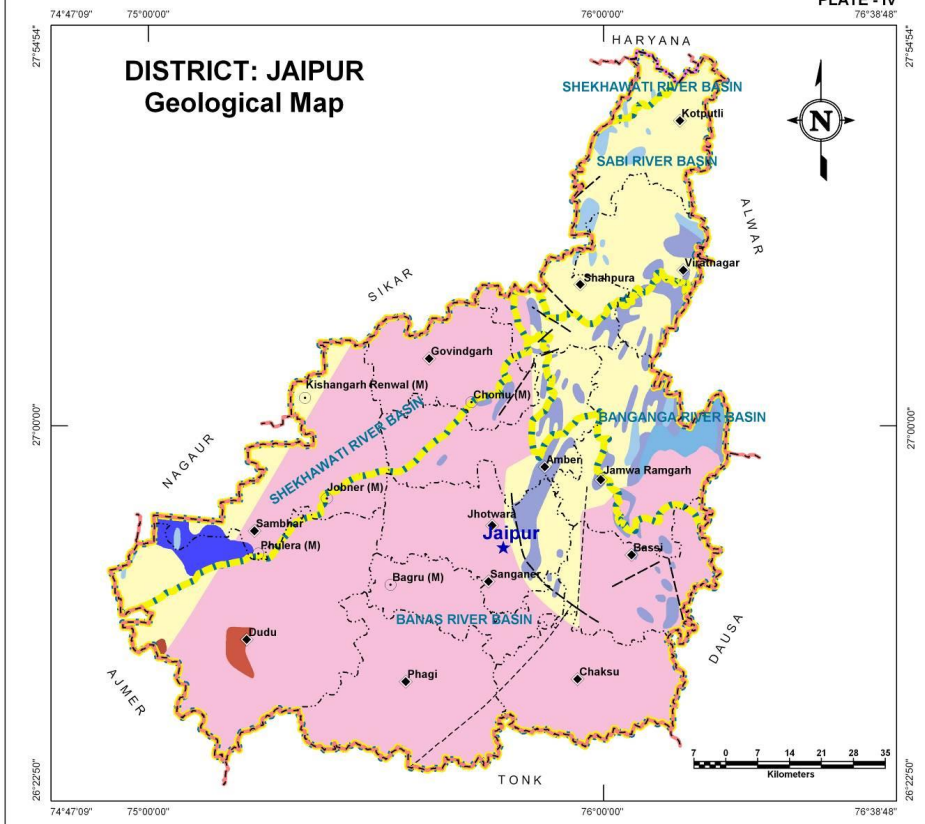
Super Group	Group	Formation
	Recent to sub-Recent	Sand, clay, clay Kankar etc.
Post Delhi		Granite, Pegmatite, amphobolite (Intrusive)
Delhi	Ajabgarh	Schists, Phyllites, Marble and Quartzite
	Alwar	Quartzite, Conglomerate and Schists
	Raialo	Dolomitic marble and Quartzite
-------X--------X--------X--------X--------X---Unconformity---X--------X--------X--------X--------X-----		
Bhilwara		Gneisses, Schists and Migmatites

GEOMORPHOLOGY

Table: Geomorphologic units, their description and distribution

Origin	Landform Unit	Description of Lithology
Aeolian	Eolian Plain	Formed by aeolian activity, with sand dunes of varying height, size, slope. Long stretches of sand sheet. Gently sloping flat to undulating plain, comprised of fine to medium grained sand and silt. Also scattered xerophytic vegetation.
	Sandy Plain	Formed of aeolian activity, wind-blown sand with gentle sloping to undulating plain, comprising of coarse sand, fine sand, silt and clay.
Denudational	Buried Pediment	Pediment covers essentially with relatively thicker alluvial, colluvial or weathered materials.
	Pediment	Broad gently sloping rock flooring, erosional surface of low relief between hill and plain, comprised of varied lithology, criss-crossed by fractures and faults.
	Intermontane valley	Depression between mountains, generally broad & linear, filled with colluvial deposits.
Fluvial	Alluvial Plain (Sandy)	Flat to gentle undulating plain formed due to fluvial activity, mainly consists of gravels, sand, silt and clay with unconsolidated material of varying lithology, predominantly sand along river.
	Alluvial plain	Mainly undulating landscape formed due to fluvial activity, comprising of gravels, sand, silt and clay. Terrain mainly undulating, produced by extensive deposition of alluvium.
	Valley fill	Formed by fluvial activity, usually at lower topographic locations, comprising of boulders, cobbles, pebbles, gravels, sand, silt and clay. The unit has consolidated sediment deposits.
	Flood Plain	The surface or strip of relatively smooth land adjacent to a river channel formed by river and covered with water when river over flows its bank. Normally subject to periodic flooding.
	Ravine	Small, narrow, deep, depression, smaller than gorges, larger than gulley, usually carved by running water.
	Palaeochannel	Mainly buried on abandoned stream/river courses, comprising of coarse textured material of variable sizes.
	Salt Encrustation/Playa	Topographical depression comprising of clay, silt, sand and soluble salts, usually undrained and devoid of vegetation.
Hills	Structural Hills	Linear to arcuate hills showing definite trend-lines with varying lithology associated with folding, faulting etc.

PLATE - IV



LEGEND

Admin Boundary:

- Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies

Structural Features:

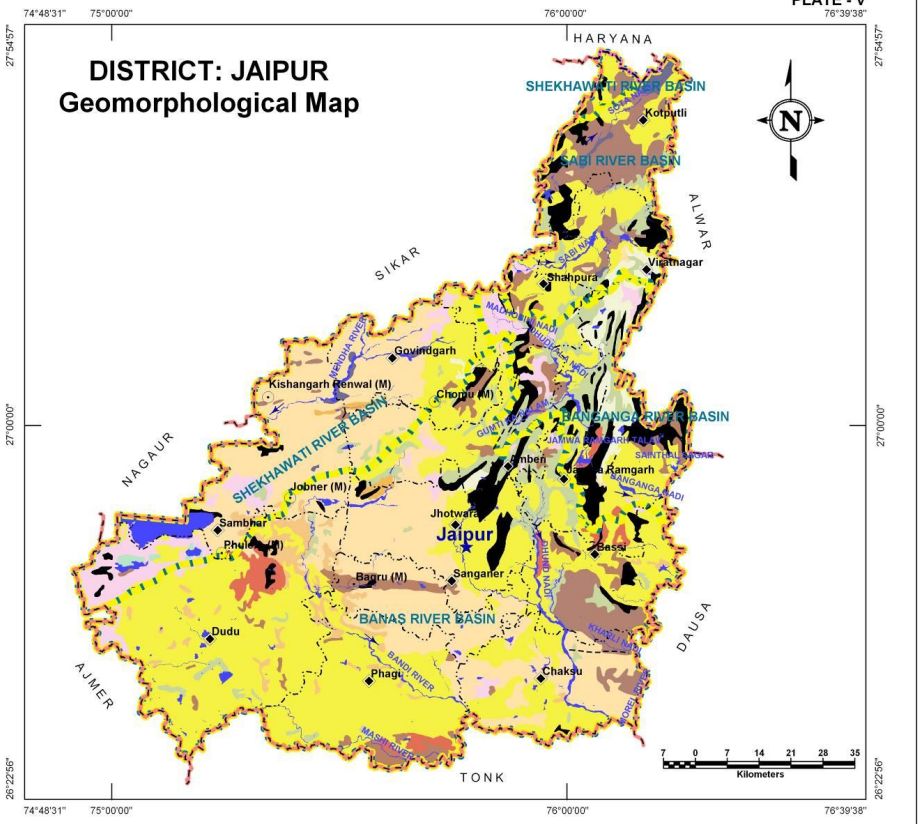
- Fault
- Lineament

Geology:

- Alluvium and wind blown sand
- Ajabgarh Group
- Alwar Group
- Raialo Group
- Mangalwar Complex
- Sand Mata Complex
- Kishangarh Syenite
- Acidic Rocks

Source: District Resource Map of Rajasthan - GSI

PLATE - V



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies:

- River/Ponds/Reservoirs

Structural Features:

- Fault/Fractures/Lineament

Hills:

- Structural/Denudational/ Linear Ridge

Landform Units:

Fluvial Origin:

- Alluvial Plain
- Alluvial Plain (Sandy)
- Valley Fill
- Flood Plain
- Ravine
- Palaeochannel
- Salt Encrustation/Playa

Aeolian Origin:

- Sandy Plain
- Eolian Plain

Denudational Origin:

- Burried Pediment
- Pediment
- Intermontane Valley

Source: Source: Ground Water Atlas of Rajasthan - SRSAC & GWD, Rajasthan

AQUIFERS

DISTRICT – JAIPUR

Ground water in the district is contained in several different lithologic units ranging in age from Younger alluvium to old Gneisses. Important aquifers are formed in Younger alluvium (which occupies about 39% area of all the aquifers in the district) followed by Older alluvium, Gneiss, Schist, Quartzite and partly in Granite. Some parts of these aquifers are saline also.

Table: Block wise area of aquifer potential zones and their description

Aquifer in Potential Zone	Area (sq km)	% age of total	Description of the unit/Occurrence
Younger Alluvium	4,322.8	38.8	Younger and Older Alluvium mainly composed of unconsolidated to semi consolidated clay, sand gravel, pebble in varying proportions. Thickness of the litho unit varies considerably due to undulating bed rock topography. Younger alluvium is widespread in occurrence and dominates in northern part of the district beyond Jaipur while Older alluvium is predominant in southern part of alluvial spread i.e., between Bassi-Jaipur-Kishangarh Renwal and extends till the beginning of hard rock aquifers.
Older Alluvium	2,919.6	26.2	
Younger Alluvium Saline Area	16.2	0.1	Lithology is same as their fresh water counter parts. The alluvial areas containing saline ground water occur mainly in the south of Bagru along the fringe of alluvial belt.
Older Alluvium Saline Area	216.2	1.9	
Schist	712.7	6.4	Medium to fine grained compact rock. The litho-units are soft, friable and have closely spaced cleavage. This forms major water bearing formation under weathered/fractured conditions and found south of Sambhar, northeast of Jamwa Ramgarh, and north and south of Chaksu.
Schist Saline Area	17.2	0.2	A small patch of Schist contains saline water north of Chaksu along the side of Dhund Nadi.
Quartzite	710.5	6.4	Medium to coarse grained and varies from feldspathic grit to sericitic quartzite. It forms aquifer in the west of Chaksu, between Bassi and Viratnagar, around Amber and in the northwest as a strip west of Kotputli and Shahpur.
Granite	49.0	0.4	Light grey to pink colour, medium to coarse grained, and characteristically have porphyritic texture occurring along the northeastern edge of Jamwa-Ramgarh block.
Gneiss	1,551.0	13.9	Grey to dark coloured, medium to coarse grained rocks. Its weathered and fractured part constitutes aquifers in the southwestern part of the district occupying most of Dudu and Phagi blocks.
Gneiss Saline Area	270.3	2.4	A part of the Gneissic aquifer is saline, mostly occurring around Phagi.
Non Potential Zone (Hills)	350.9	3.2	Hills
Total	**11,136.2**	**100.0**	

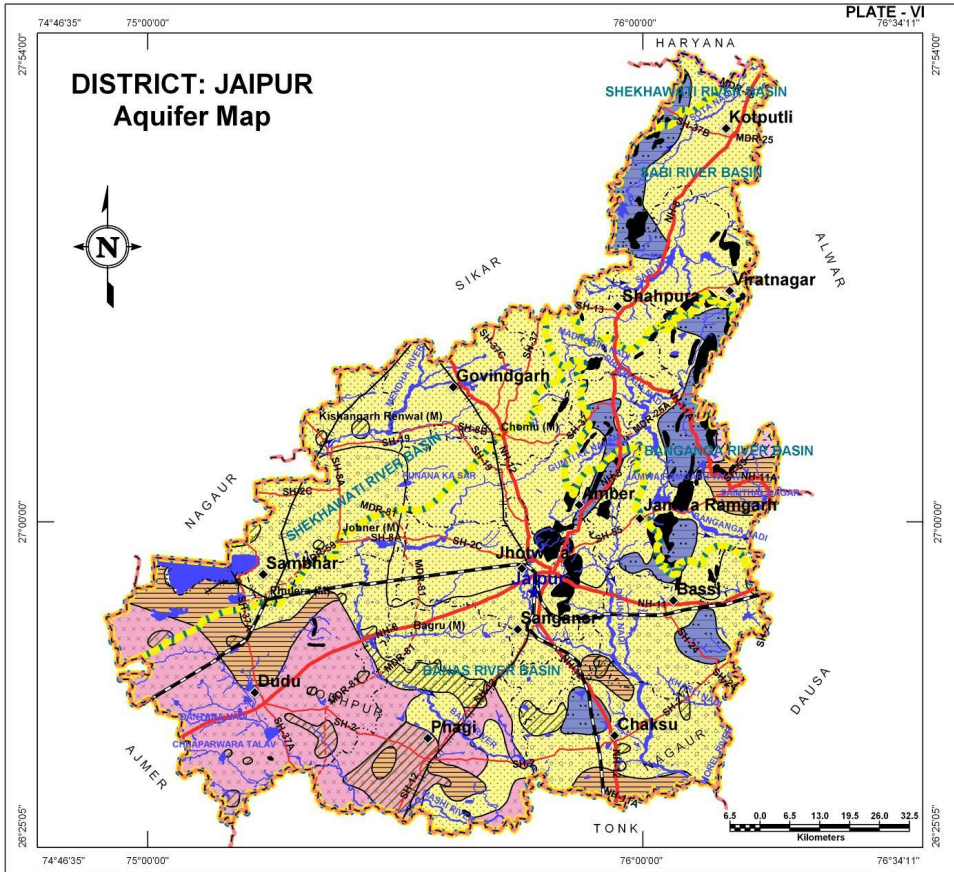
STAGE OF GROUND WATER DEVELOPMENT

Ground water resource assessment in the state revealed the current status of exploitation and based on the extent of development of resource with respect to available. All the blocks in the district are have shown that the ground water is under severe stress with just one block falling into 'Critical' category where exploitation is equal to recharge the rest are being over exploited and seven of the blocks are under 'Notified' category implying that no more development is permitted.

Categorization on the basis of stage of development of ground water	Block Name
Critical	Phagi
Over Exploited	Dudu, Kotputli, Viratnagar, Jamwa Ramgarh, Chaksu
Over Exploited (Notified)	Bassi, Shahpura, Govindgarh, Sanganer, Sambhar, Amber, Jhotwara

Basis for categorization: Ground water development >90% and <=100% - Critical; >100% - Over-Exploited. In Notified blocks development of GW is not permitted any more.

PLATE - VI



LEGEND

Admin Boundary:
- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**

Roads:
- National Highway
- State Highway
- Major District Road

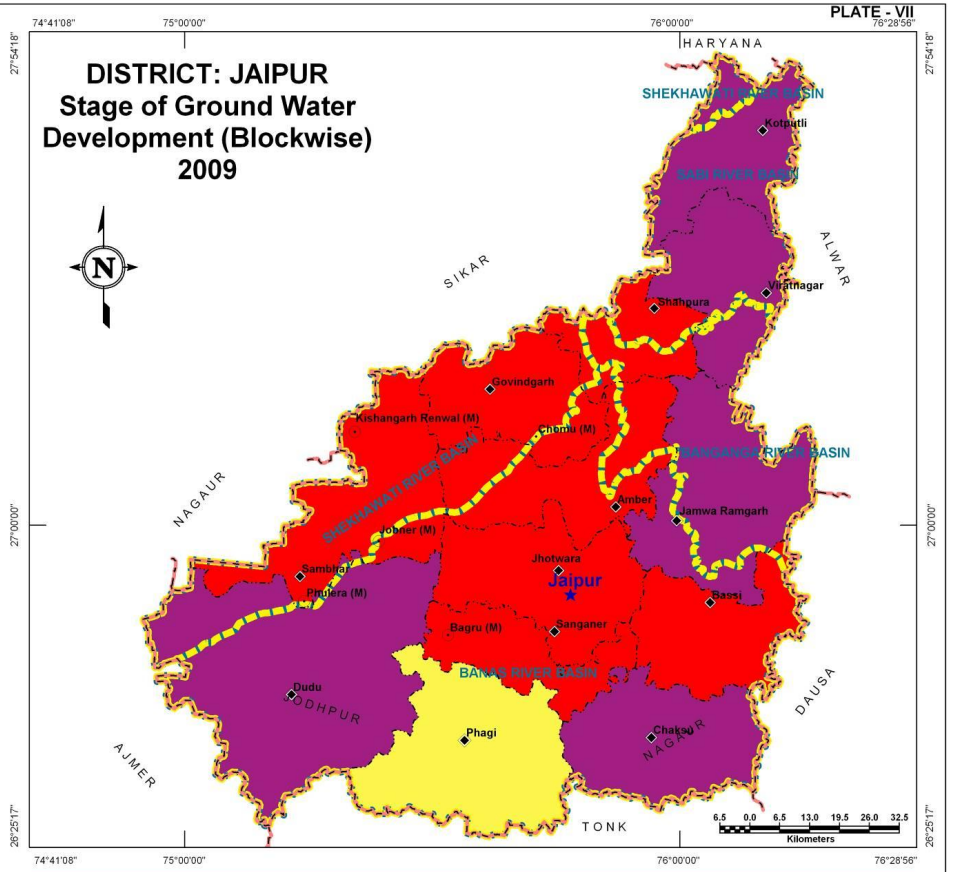
Railway:
- Broad Gauge
- Metre Gauge

Water Bodies:
- River / Streams
- Ponds / Reservoirs
- **Hills**
- **Saline Area**

Aquifer:
- Younger Alluvium
- Older Alluvium
- Schist
- Quartzite
- Granite
- Gneiss

Source: Ground Water Potential Zone Map - GWD, Rajasthan

PLATE - VII



LEGEND

Admin Boundary:
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- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**

***Stage of Ground water Development:**
- Critical
- Over-Exploited
- Notified (As on Year 2011)

Source: Ground Water Department, Rajasthan

LOCATION OF EXPLORATORY AND GROUND WATER MONITORING WELLS DISTRICT – JAIPUR

The district has a well distributed network of large number of exploratory wells (174) and ground water monitoring stations (236) in the district owned by RGWD (62 and 163 respectively) and CGWB (112 and 73 respectively). Benchmarking and optimization studies suggest that ground water levels are being fairly well monitored through existing network and in three blocks 13 additional wells are recommended to be added whereas for better monitoring of ground water quality only 121 additional well need to be added.

Table: Block wise count of wells (existing and recommended)

Block Name	Exploratory Wells			Ground Water Monitoring Stations			Recommended additional wells for optimization of monitoring network	
	CGWB	RGWD	Total	CGWB	RGWD	Total	Water Level	Water Quality
Amber	12	3	**15**	6	4	**10**	3	**0**
Bassi	8	6	**14**	5	10	**15**	0	**27**
Chaksu	4	2	**6**	5	17	**22**	0	**23**
Dudu	4	5	**9**	7	19	**26**	0	**6**
Govindgarh	19	5	**24**	7	14	**21**	0	**0**
Jamwa Ramgarh	9	3	**12**	8	9	**17**	8	**3**
Jhotwara	18	9	**27**	15	27	**42**	0	**12**
Kotputli	4	7	**11**	3	6	**9**	0	**2**
Phagi	2	4	**6**	4	17	**21**	0	**3**
Sambhar	14	4	**18**	3	14	**17**	0	**27**
Sanganer	11	4	**15**	6	7	**13**	0	**17**
Shahpura	7	3	**10**	1	12	**13**	0	**0**
Viratnagar	-	7	**7**	3	7	**10**	2	**1**
Total	**112**	**62**	**174**	**73**	**163**	**236**	**13**	**121**

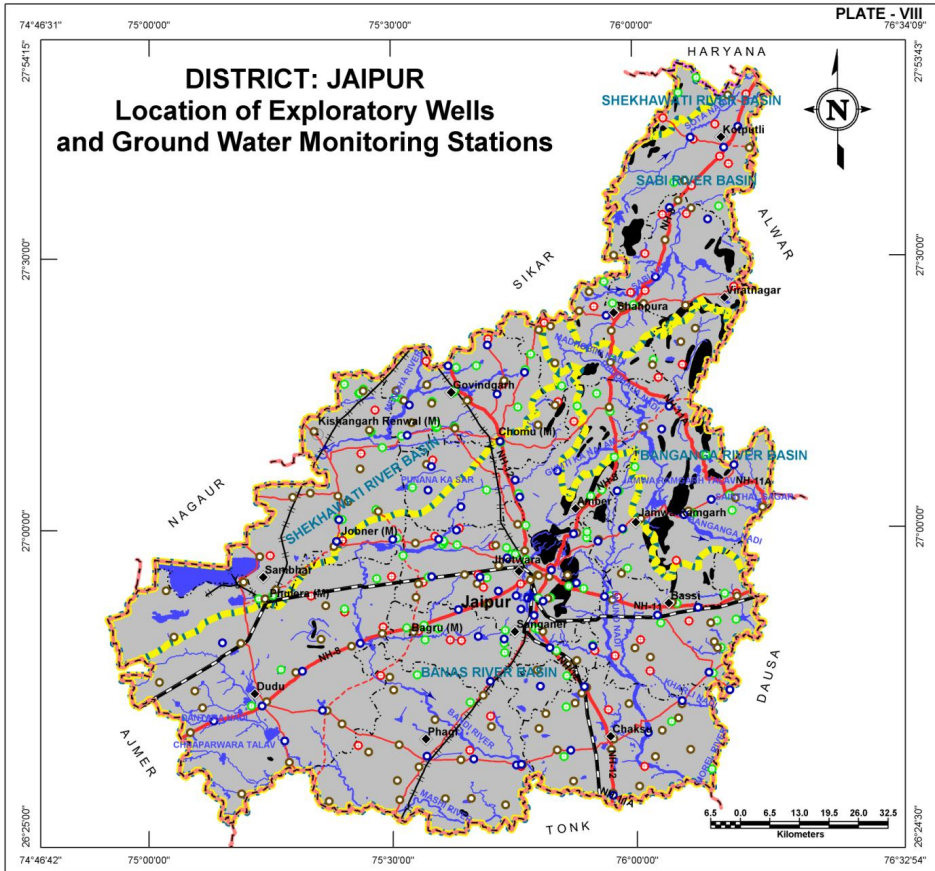
DEPTH TO WATER LEVEL (PRE MONSOON – 2010)

10m interval has been adopted to depict the depth to ground water levels in Jaipur district as shown in Plate – IX. Depth to water level varies significantly from less than 10m below ground level to more than 70m bgl. Central part of the district i.e., Jaipur-Sanganer-Phulera-Govingarh-Shahpura region shows deeper water levels of 40m - 60m bgl in general, and reaching upto >70m bgl. Northwards, the water level is moderately deep (about 20-30m bgl) but in down south, in Dudu-Phagi-Chaksu blocks, the water level is quite shallow occurring 10m-20m bgl occasionally even less than 10m bgl.

Depth to water level (m bgl)	Block wise area coverage (sq km) *													Total Area (sq km)
	Amber	Bassi	Chaksu	Dudu	Govindgarh	Jamwa Ramgarh	Jhotwara	Kotputli	Phagi	Sambhar	Sanganer	Shahpura	Viratnagar	
< 10	-	-	-	15.2	-	-	-	-	-	-	-	-	-	**15.2**
10-20	0.1	-	255.6	1,270.3	-	79.8	20.2	14.7	766.3	67.8	0.1	0.2	91.4	**2,566.5**
20-30	54.2	191.0	521.5	344.9	81.9	560.2	46.5	459.9	273.8	350.2	63.9	103.6	454.8	**3,506.4**
30-40	408.2	412.4	38.6	124.0	252.0	275.5	64.4	148.3	34.9	522.3	259.1	199.9	35.4	**2,775.0**
40-50	279.9	67.5	-	146.3	184.5	23.2	311.2	9.3	-	29.9	151.2	127.2	-	**1,330.2**
50-60	45.8	-	-	19.2	98.4	-	299.8	-	-	-	11.8	2.4	-	**477.4**
60-70	3.8	-	-	-	60.8	-	31.6	-	-	-	-	-	-	**96.2**
> 70	-	-	-	-	18.6	-	-	-	-	-	-	-	-	**18.6**
Total	**792.0**	**670.9**	**815.7**	**1,919.9**	**696.2**	**938.7**	**773.7**	**632.2**	**1,075.0**	**970.2**	**486.1**	**433.3**	**581.6**	**10,785.5**

* The area covered in the derived maps is less than the total district area since the hills have been excluded from interpolation/contouring.

PLATE - VIII



LEGEND

Admin Boundary:
- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**

Roads:
- National Highway
- State Highway
- Major District Road

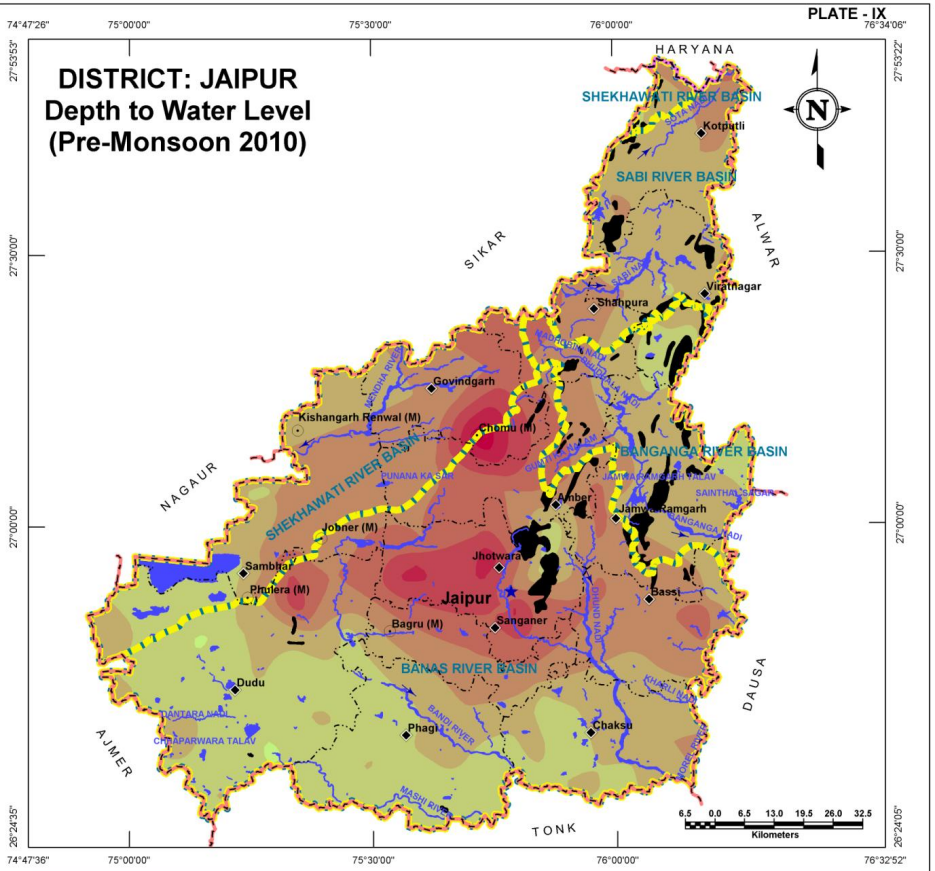
Railway:
- Broad Gauge
- Metre Gauge

Water Bodies:
- River / Streams
- Ponds / Reservoirs
- **Hills**

Exploratory Wells:
- CGWB
- RGWD

Ground Water Monitoring Stations:
- CGWB
- RGWD

PLATE - IX



LEGEND

Admin Boundary:
- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**

Water Bodies:
- River / Streams
- Ponds / Reservoirs
- **Hills**

Depth to Water Level (m bgl):
- < 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- >70

WATER TABLE ELEVATION (PRE MONSOON – 2010) DISTRICT – JAIPUR

General flow direction of ground water (Plate – X) is from northwest to southeast within major part of the district. The northernmost part (around Kotputli block) however, the flow assumes a northerly direction. Elevation of ground water table varies between 280m above mean sea level to more than 440m amsl. The ground water appears to flow into the district from Govindgarh-Shahpura region and leave in the southeast along the exit point of Dhundh Nadi. In Kotputli area the ground water flows in the same direction as Sota Nadi.

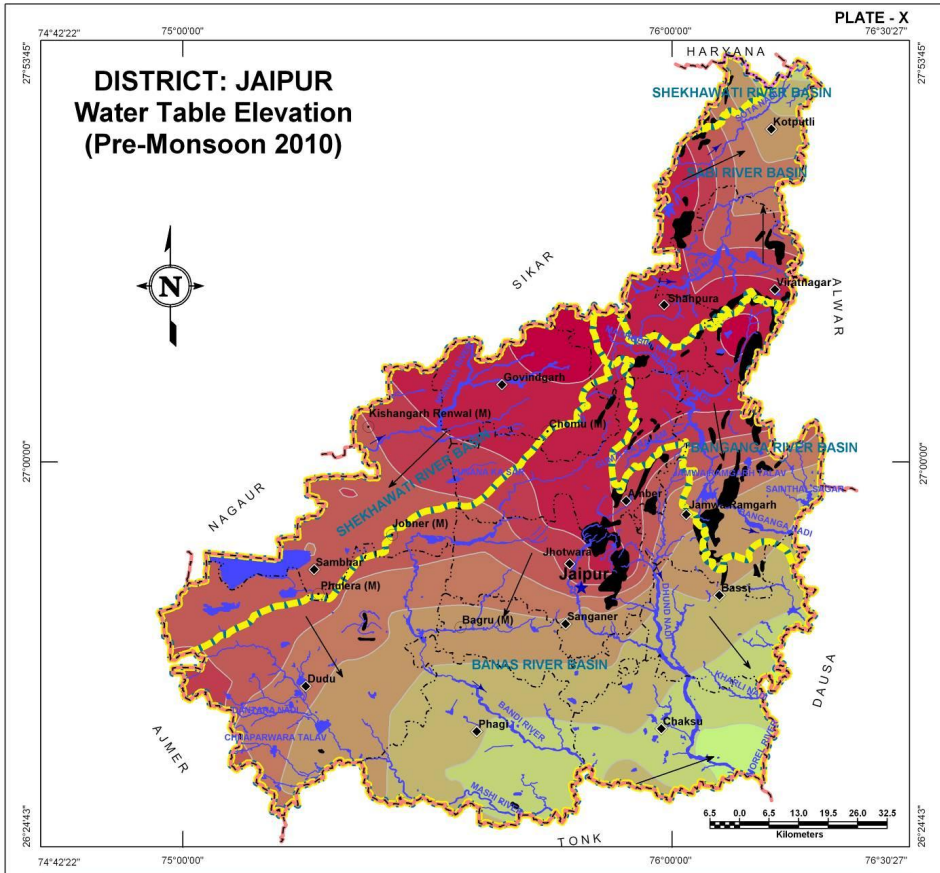
Water table elevation Range (m amsl)	Block wise area coverage (sq km)													Total Area (sq km)
	Amber	Bassi	Chaksu	Dudu	Govindgarh	Jamwa Ramgarh	Jhotwara	Kotputli	Phagi	Sambhar	Sanganer	Shahpura	Viratnagar	
< 280	-	12.1	141.9	-	-	-	-	-	-	-	-	-	-	**154.0**
280-300	-	162.9	451.7	-	-	-	-	13.1	430.3	-	-	-	-	**1,058.0**
300-320	-	411.4	222.1	69.4	-	48.2	0.5	70.0	558.9	-	147.9	-	-	**1,528.4**
320-340	-	79.9	-	511.4	-	319.3	121.9	153.6	85.8	-	297.5	-	-	**1,569.4**
340-360	0.6	4.6	-	608.0	-	208.4	222.5	172.8	-	4.2	40.7	-	21.5	**1,283.3**
360-380	57.1	-	-	654.4	-	172.7	207.2	62.5	-	650.8	-	-	132.5	**1,937.2**
380-400	311.8	-	-	76.7	2.9	93.8	156.5	56.0	-	235.4	-	-	164.2	**1,097.3**
400-440	422.5	-	-	-	552.8	96.3	65.1	99.1	-	79.8	-	327.7	218.4	**1,861.7**
> 440	-	-	-	-	140.5	-	-	5.1	-	-	-	105.6	45.0	**296.2**
Total	**792.0**	**670.9**	**815.7**	**1,919.9**	**696.2**	**938.7**	**773.7**	**632.2**	**1,075.0**	**970.2**	**486.1**	**433.3**	**581.6**	**10,785.5**

WATER LEVEL FLUCTUATION (PRE TO POST MONSOON 2010)

Ground water fluctuation varies from -4m to +18m as seen in Plate – XI. The –ve fluctuation areas (indicated by brown, pink and red regions) are the areas where overexploitation is taking place and even after monsoon recharge water level has not risen and has actually gone down with respect to pre-monsoon levels. Govindgarh-Jaipur-Sanganer region, Bassi, Jamwa Ramgarh and north of Viratnagar are prominent areas where negative fluctuation is noticed. The rest of the area, in general, has shown rise of ground water by 2-8 meters. There are also localized pockets around Phagi, Chaksu and Dudu where ground water level rise has been more than 10m reaching upto 18m.

Water level fluctuation Range (m)	Block wise area coverage (sq km)													Total Area (sq km)
	Amber	Bassi	Chaksu	Dudu	Govindgarh	Jamwa Ramgarh	Jhotwara	Kotputli	Phagi	Sambhar	Sanganer	Shahpura	Viratnagar	
< -4	-	-	-	-	-	6.1	-	-	-	-	-	-	-	**6.1**
-4 – -2	-	29.7	-	-	-	19.2	6.2	-	-	-	2.9	-	-	**58.0**
-2 – 0	259.3	102.1	25.4	2.2	360.9	64.8	295	128.7	3.1	-	46	35.3	108.3	**1,431.1**
0 – 2	252.4	224.1	276.1	72.3	312.5	496.5	356.3	332	53.7	364.9	160.7	380.2	400.8	**3,682.5**
2 – 4	152.4	263.4	262.1	207.9	22.7	245.5	91.3	105.4	164.2	471	90.1	17.8	67.6	**2,161.4**
4 – 6	62.5	47.2	202.9	555.9	-	60.4	15.5	39.1	293.4	128.9	55.3	-	4.9	**1,466.0**
6 – 8	36.1	3.6	44.1	409.9	-	31.9	7.6	18.6	180	5.2	42.9	-	-	**779.9**
8 – 10	14	0.9	4.9	357.6	-	14.1	1.9	7.5	192.3	-	65.6	-	-	**658.8**
10 – 12	12.1	-	-	237.3	-	0.3	-	1.1	89.8	-	21	-	-	**361.6**
12 – 14	3.2	-	-	45.9	-	-	-	0	51.9	-	1.7	-	-	**102.7**
14 – 16	-	-	-	28.1	-	-	-	-	29	-	-	-	-	**57.1**
16 – 18	-	-	-	2.7	-	-	-	-	14.2	-	-	-	-	**16.9**
> 18	-	-	-	-	-	-	-	-	3.4	-	-	-	-	**3.4**
Total	**792.0**	**671.0**	**815.5**	**1,919.8**	**696.1**	**938.8**	**773.8**	**632.4**	**1,075.0**	**970.0**	**486.2**	**433.3**	**581.6**	**10,785.5**

PLATE - X



LEGEND

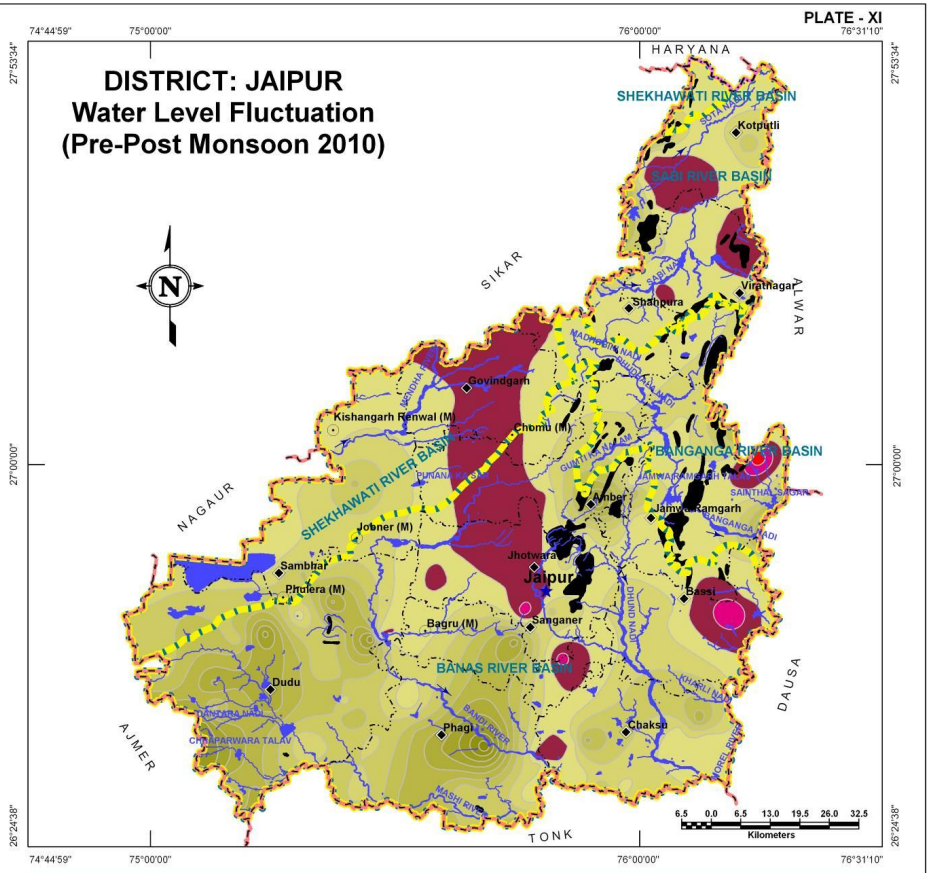
Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Water Bodies:**
- River / Streams
- Ponds / Reservoirs
- **Hills**
- **Water Table Elevation**

Water Table Elevation (m amsl):

- < 280
- 280 - 300
- 300 - 320
- 320 - 340
- 340 - 360
- 360 - 380
- 380 - 400
- 400 - 440
- > 440

PLATE - XI



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Water Bodies:**
- River / Streams
- Ponds / Reservoirs
- **Hills**

Water Level Fluctuation (m):

- < -4
- -4 to -2
- -2 to 0
- 0 to 2
- 2 to 4
- 4 to 6
- 6 to 8
- 8 to 10
- 10 to 12
- 12 to 14
- 14 to 16
- 16 to 18
- > 18

GROUND WATER ELECTRICAL CONDUCTIVITY DISTRIBUTION — DISTRICT – JAIPUR

Average of EC values observed during Pre-Monsoon season between years 2005-09 are plotted and presented in Plate – XII. Yellow coloured regions show EC values below 2000 µS/cm at 25°C occupying significant area which indicates that largely ground water is fresh and suitable for drinking purpose and other uses. Central and northern parts of the district largely fall under this class. High EC areas (>4000 µS/cm at 25°C) are limited in extent and found in southwest and western parts of the district around Sambhar, Dudu, Phagi and Kishangarh Renwal; small areas around Chaksu and Bassi are also present. Dudu, Sambhar, Phagi and parts of Chaksu and Bassi are the blocks where most of the areas are covered by green or red colour indicating >2000 µS/cm of EC of ground water.

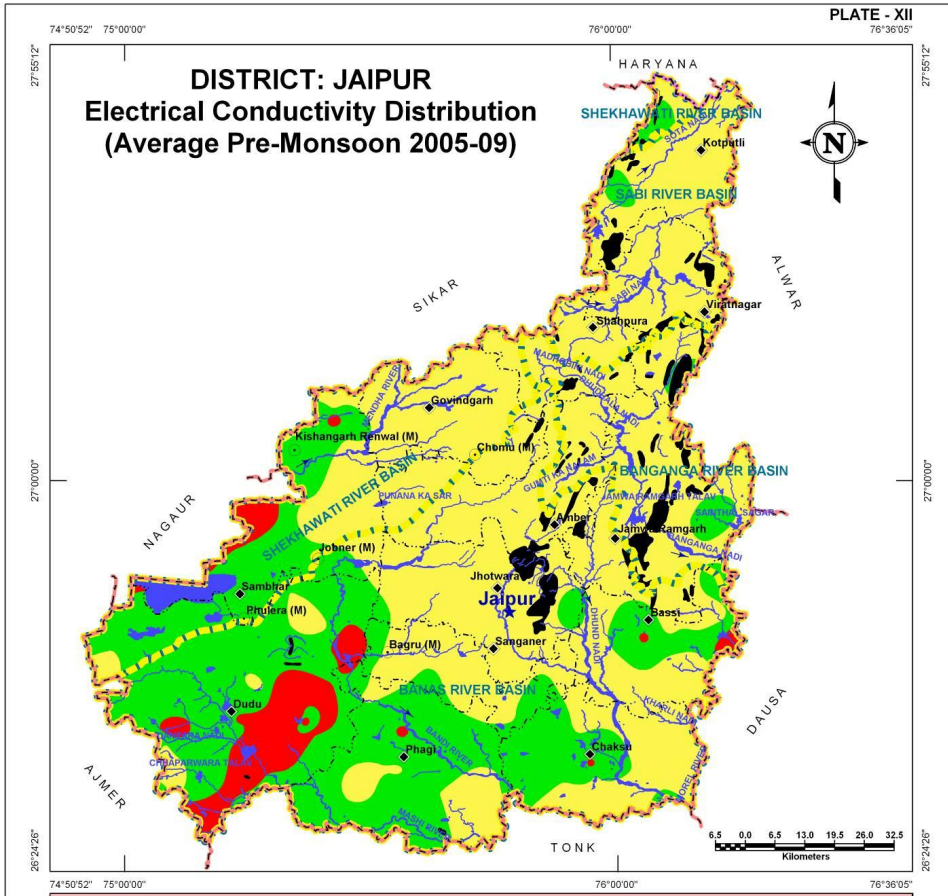
Electrical Conductivity Ranges (µS/cm at 25°C) (Ave. of years 2005-09)	Block wise area coverage (sq km)																								Total Area (sq km)
	Amber		Bassi		Chaksu		Dudu		Govindgarh		Jamwa Ramgarh		Jhotwara		Kotputli		Phagi		Sambhar		Sanganer		Shahpura		Viratnagar		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 2000	792.0	100.0	414.2	61.7	460.7	56.5	128.8	6.7	693.9	99.7	871.9	92.9	725.9	93.8	556.7	88.0	260.6	24.2	331.6	34.2	364.8	75.0	433.3	100.0	571.8	98.3	**6,606.3**
2000-4000	-	-	233.1	34.8	353.3	43.3	1,360.1	70.8	2.2	0.3	66.8	7.1	47.8	6.2	75.6	12.0	803.7	74.8	545.4	56.2	120.5	25.0	-	-	9.7	1.7	**3,618.2**
> 4000	-	-	23.7	3.5	1.7	0.2	431.0	22.5	-	-	-	-	-	-	-	-	10.7	1.0	93.1	9.6	0.8	-	-	-	-	-	**561.0**
Total	**792.0**	**100.0**	**671.0**	**100.0**	**815.7**	**100.0**	**1,919.9**	**100.0**	**696.1**	**100.0**	**938.7**	**100.0**	**773.7**	**100.0**	**632.3**	**100.0**	**1,075.0**	**100.0**	**970.1**	**100.0**	**486.1**	**100.0**	**433.3**	**100.0**	**581.5**	**100.0**	**10,785.5**

GROUND WATER CHLORIDE DISTRIBUTION

The Plate – XIII shows Chloride distribution in Jaipur district. The areas in yellow colour represent Chloride concentration below 250mg/l in ground water. Such areas are present in central and northern part of the district. Rest of the district showed higher levels of chloride in ground water with more than 250- 1000 mg/l (in green colour) and red colour (>1000 mg/l). The southwestern part (covered in Dudu, Phagi and Chaksu blocks), western part (Sambhar block) and parts of Bassi, Jamwa Ramgarh and Kotputli show significant to large areas where high chloride concentration in ground water is found.

Chloride Concentration Range (mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																								Total Area (sq km)
	Amber		Bassi		Chaksu		Dudu		Govindgarh		Jamwa Ramgarh		Jhotwara		Kotputli		Phagi		Sambhar		Sanganer		Shahpura		Viratnagar		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 250	718.2	90.7	320.6	47.8	268.6	32.9	17.8	0.9	664.8	95.5	616.9	65.7	668.4	86.4	303.8	48.0	42.2	3.9	250.5	25.8	280.8	57.8	431.7	99.6	455.8	78.4	**5,040.0**
250-1000	73.8	9.3	328.3	48.9	544.0	66.7	1,568.0	81.7	31.3	4.5	321.8	34.3	105.3	13.6	328.5	52.0	1,032.9	96.1	672.6	69.3	205.3	42.2	1.6	0.4	125.7	21.6	**5,339.1**
> 1000	-	-	22.1	3.3	3.1	0.4	334.1	17.4	-	-	-	-	-	-	-	-	-	-	47.0	4.9	0.1	-	-	-	-	-	**406.4**
Total	**792.0**	**100.0**	**671.0**	**100.0**	**815.7**	**100.0**	**1,919.9**	**100.0**	**696.1**	**100.0**	**938.7**	**100.0**	**773.7**	**100.0**	**632.3**	**100.0**	**1,075.1**	**100.0**	**970.1**	**100.0**	**486.2**	**100.0**	**433.3**	**100.0**	**581.5**	**100.0**	**10,785.5**

PLATE - XII



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies:

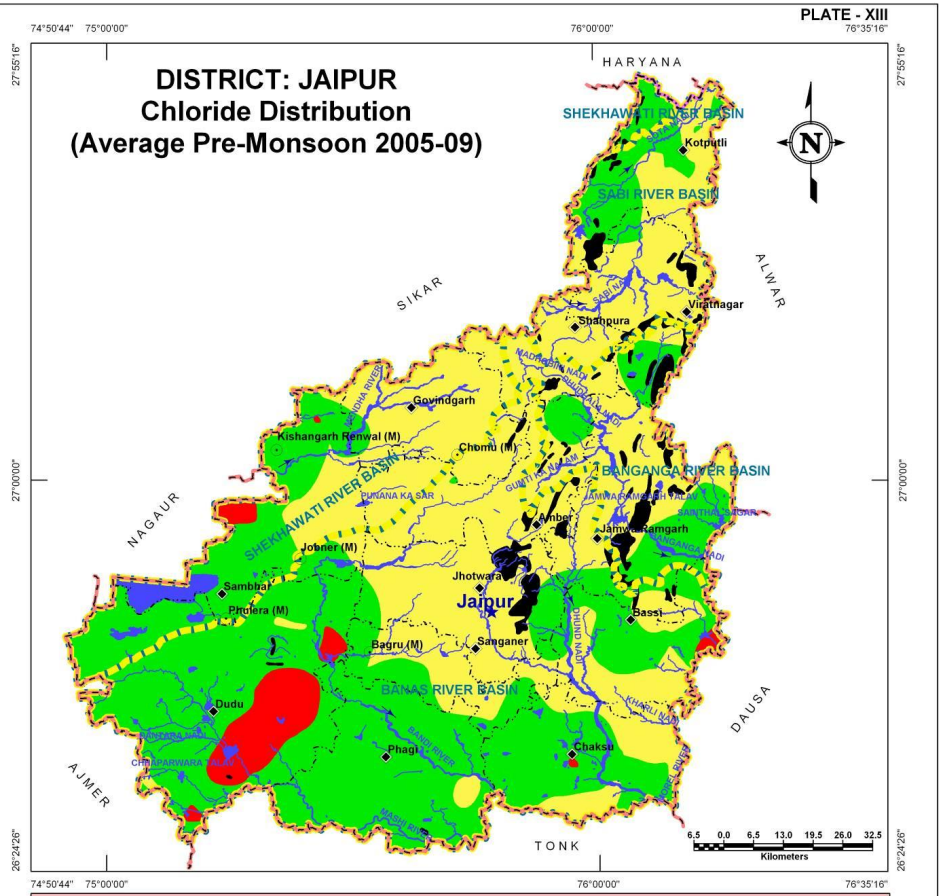
- River / Streams
- Ponds / Reservoirs

Hills

Electrical Conductivity (µS/cm at 25°C):

- < 2000
- 2000-4000
- >4000

PLATE - XIII



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies:

- River / Streams
- Ponds / Reservoirs

Hills

Chloride Concentration (mg/l):

- < 250
- 250 - 1000
- > 1000

GROUND WATER FLUORIDE DISTRIBUTION

DISTRICT – JAIPUR

It is interesting to see that areas with high fluoride concentration in ground water (>1.5 mg/l) are present mostly in the southwestern part of the district southwards of Jaipur, Jobner and Govindgarh. The central and northern parts of the district are generally seen to have less than 1.5 mg/l of Fluoride in ground water occasionally reaching upto 3 mg/l around Viratnagar and Kotputli.

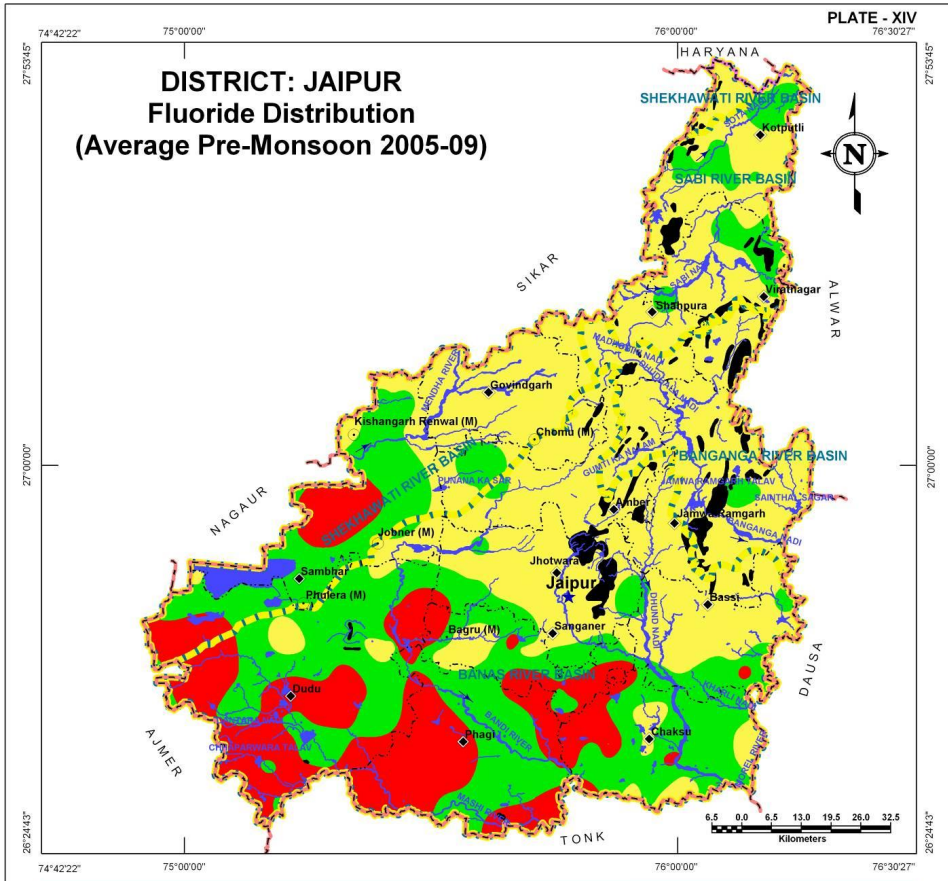
Fluoride Concentration range (mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																								Total Area (sq km)
	Amber		Bassi		Chaksu		Dudu		Govindgarh		Jamwa Ramgarh		Jhotwara		Kotputli		Phagi		Sambhar		Sanganer		Shahpura		Viratnagar		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
<1.5	700.8	88.5	473.2	70.5	132.5	16.2	93.0	4.8	694.3	99.7	907.9	96.7	582.0	75.2	461.2	73.0	5.0	0.5	229.6	23.7	112.2	23.0	425.4	98.2	463.5	79.7	**5,280.6**
1.5-3.0	91.2	11.5	191.7	28.6	535.3	65.7	956.6	49.9	1.9	0.3	30.8	3.3	181.9	23.5	171.0	27.0	481.0	44.7	567.5	58.5	223.3	46.0	7.9	1.8	118.1	20.3	**3,558.2**
>3.0	-	-	6.0	0.9	147.9	18.1	870.3	45.3	-	-	-	-	9.8	1.3	-	-	589.0	54.8	173.1	17.8	150.6	31.0	-	-	-	-	**1,946.7**
Total	**792.0**	**100.0**	**670.9**	**100.0**	**815.7**	**100.0**	**1,919.9**	**100.0**	**696.2**	**100.0**	**938.7**	**100.0**	**773.7**	**100.0**	**632.2**	**100.0**	**1,075.0**	**100.0**	**970.2**	**100.0**	**486.1**	**100.0**	**433.3**	**100.0**	**581.6**	**100.0**	**10,785.5**

GROUND WATER NITRATE DISTRIBUTION

The district in general, has low ground water nitrate concentration (<50 mg/l) to moderate levels (50-100 mg/l). The blocks – Bagru, western part of Jaipur, eastern part of Chaksana, Govindgarh, Jamwa Ramgarh and the Shahpura-Viratnagar-Kotputli region are low in ground water Nitrate. Pockets in Sambhar-Dudu-Phagi region, Amber-Kishangarh Renwal region, and around Bassi and Kotputli are prominent with high Nitrate concentration measuring >100 mg/l.

Nitrate Concentration range (mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																								Total Area (sq km)
	Amber		Bassi		Chaksu		Dudu		Govindgarh		Jamwa Ramgarh		Jhotwara		Kotputli		Phagi		Sambhar		Sanganer		Shahpura		Viratnagar		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
<50	266.4	33.6	254.0	37.9	445.1	54.6	615.2	32.1	119.0	17.1	230.6	24.6	303.3	39.2	135.5	21.4	383.1	35.6	419.5	43.2	135.4	28.0	153.0	35.3	171.9	29.6	3,632.0
50-100	78.3	9.9	187.8	28.0	87.3	10.7	632.4	32.9	2.8	0.4	33.3	3.5	17.1	2.2	41.7	6.6	79.4	7.4	283.2	29.2	-	-	2.5	0.6	26.4	4.5	1,472.2
>100	447.3	56.5	229.1	34.1	283.3	34.7	672.3	35.0	574.4	82.5	674.8	71.9	453.3	58.6	455.0	72.0	612.5	57.0	267.5	27.6	350.7	72.0	277.8	64.1	383.3	65.9	5,681.3
Total	792.0	100.0	670.9	100.0	815.7	100.0	1,919.9	100.0	696.2	100.0	938.7	100.0	773.7	100.0	632.2	100.0	1,075.0	100.0	970.2	100.0	486.1	100.0	433.3	100.0	581.6	100.0	10,785.5

PLATE - XIV



LEGEND

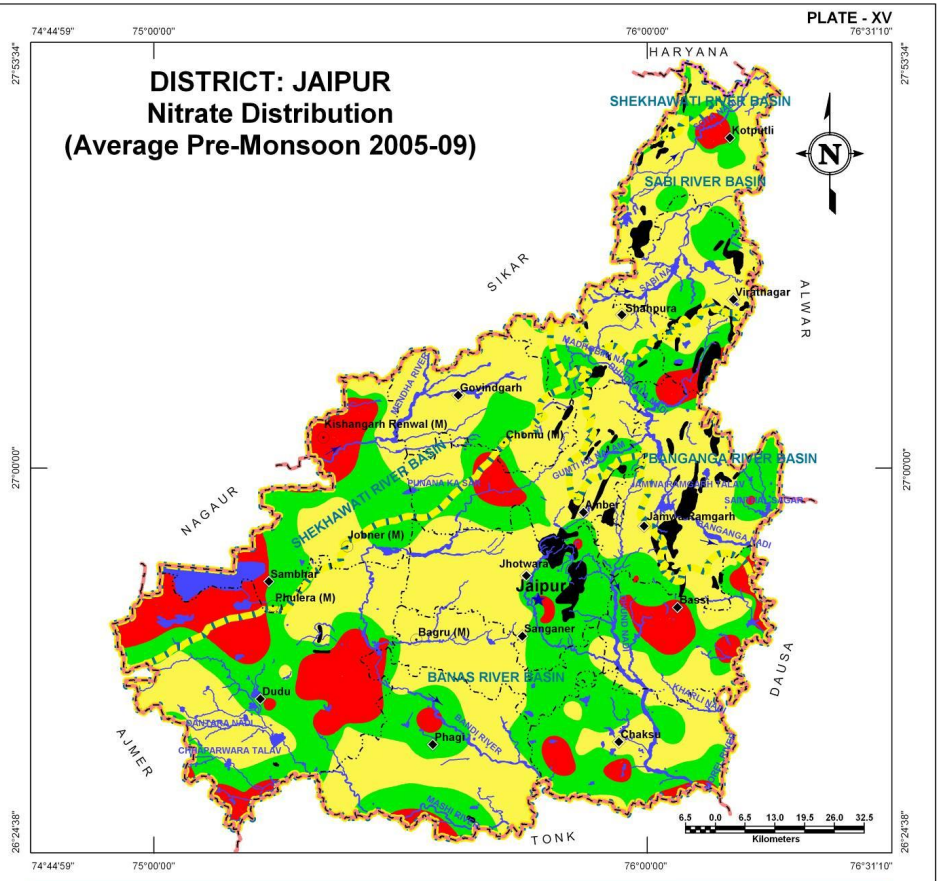
Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Water Bodies:**
- River / Streams
- Ponds / Reservoirs
- **Hills**

Fluoride Concentration (mg/l):

- < 1.5
- 1.5-3.0
- >3.0

PLATE - XV



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Water Bodies:**
- River / Streams
- Ponds / Reservoirs
- **Hills**

Nitrate Concentration (mg/l):

- < 50
- 50-100
- >100

DEPTH TO BEDROCK

DISTRICT – JAIPUR

Plate – XVI depicts the bedrock depth from ground level in Jaipur district. The beginning of massive bedrock has been considered to define top of bedrock surface. It varies from less than 20 below ground level to more than 80m bgl. The major rocks types constituting the bedrock are granites, granitic gneisses; quartzites slates and schist/phyllite of Delhi Super Group. These rocks are overlain by alluvial deposits of sand, clay, silt and admixture of these in different proportions and thicknesses. The map of depth to bedrock reveals that the bedrock surface is quite undulating and varies from very shallow near hardrock exposures to more than 80m below ground level. Southern part of the district i.e., in Dudu, Phagi, Chaksu and Bassi blocks, the bedrock depth is less, ranging between <20 to 40 m bgl and often reaching depth of upto 60m bgl. In the eastern blocks viz. Jamwa Ramgarh, Viratnagar and Kotputli the bedrock depth often reaches 60m and more. Deepest bedrock has been encountered in Jaipur, Govindgarh, western part of Amber, significant part of Sambhar district and part of Kotputli blocks.

Depth to bedrock (m bgl)	Block wise area coverage (sq km)																								Total Area (sq km)
	Amber		Bassi		Chaksu		Dudu		Govindgarh		Jamwa Ramgarh		Jhotwara		Kotputli		Phagi		Sambhar		Sanganer		Shahpura		Viratnagar		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 20	-	-	-	-	-	-	94.4	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**94.4**
20-40	88.1	11.1	172.4	25.7	187.9	23.0	804.4	41.9	-	-	62.2	6.6	5.1	0.7	0.3	-	541.7	50.4	-	-	182.0	37.4	-	-	-	-	**2,044.1**
40-60	290.5	36.7	498.5	74.3	627.8	77.0	931.1	48.5	41.4	6.0	876.5	93.4	208.2	26.9	435.7	68.9	533.3	49.6	270.1	27.8	280.1	57.7	339.1	78.3	581.6	100.0	**5,913.9**
60-80	283.7	35.8	-	-	-	-	84.2	4.4	557.3	80.0	-	-	422.6	54.6	165.7	26.3	-	-	665.9	68.7	24.0	4.9	94.2	21.7	-	-	**2,297.6**
> 80	129.7	16.4	-	-	-	-	5.8	0.3	97.5	14.0	-	-	137.8	17.8	30.5	4.8	-	-	34.2	3.5	-	-	-	-	-	-	**435.5**
Total	**792.0**	**100.0**	**670.9**	**100.0**	**815.7**	**100.0**	**1,919.9**	**100.0**	**696.2**	**100.0**	**938.7**	**100.0**	**773.7**	**100.0**	**632.2**	**100.0**	**1,075.0**	**100.0**	**970.2**	**100.0**	**486.1**	**100.0**	**433.3**	**100.0**	**581.6**	**100.0**	**10,785.5**

UNCONFINED AQUIFER

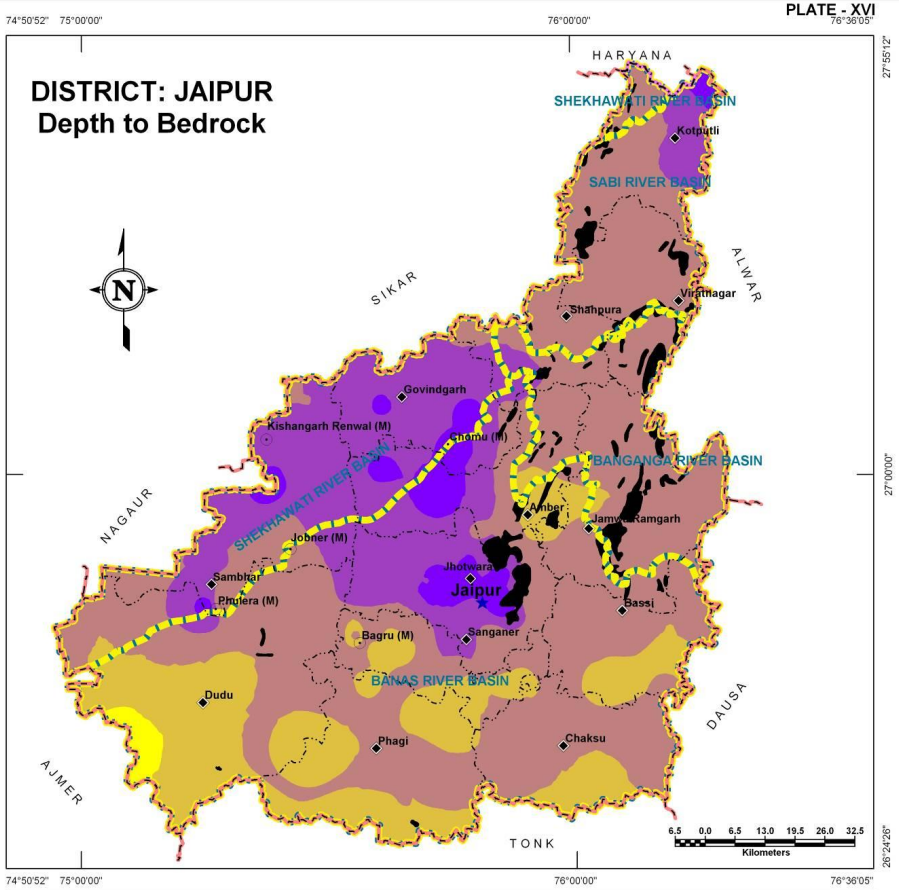
Unconfined aquifer in alluvial areas

Unconfined aquifer Thickness (m)	Block wise area coverage (sq km)													Total Area (sq km)
	Amber	Bassi	Chaksu	Dudu	Govindgarh	Jamwa Ramgarh	Jhotwara	Kotputli	Phagi	Sambhar	Sanganer	Shahpura	Viratnagar	
< 10	463.8	545.8	602	340.6	393.1	385.5	629.3	177.5	265.9	569.8	339	433	433.5	**5,578.8**
10-20	115.5	93.6	11.6	-	184.8	156.3	99	223.8	112	243.1	90.9	0	58	**1,388.6**
20-30	80.4	13.6	-	-	99.5	-	34.9	55.9	38.1	148.1	41.7	-	0.4	**512.6**
30-40	38.2	3.3	-	-	18.8	-	7.2	5.3	-	2.1	1.7	-	-	**76.6**
> 40	3.4	-	-	-	-	-	-	-	-	-	-	-	-	**3.4**
Total	**701.3**	**656.3**	**613.6**	**340.6**	**696.2**	**541.8**	**770.4**	**462.5**	**416**	**963.1**	**473.3**	**433**	**491.9**	**7,560.0**

Unconfined aquifer hardrock areas

Unconfined aquifer Thickness (m)	Block wise area coverage (sq km)													Total Area (sq km)
	Amber	Bassi	Chaksu	Dudu	Govindgarh	Jamwa Ramgarh	Jhotwara	Kotputli	Phagi	Sambhar	Sanganer	Shahpura	Viratnagar	
<10	59.3	0.2	80.9	663.6	-	314.5	-	55.1	44.8	-	0.1	0.1	38.3	**1,256.9**
10-20	29.3	3.4	86.2	362	-	33.3	1.8	91.3	382.2	-	2.5	0.2	51.4	**1,043.6**
20-30	2.1	9.1	26.7	201.8	-	49.1	1.5	23.3	164.5	0.2	3.7	-	0	**482.0**
30-40	-	1.9	6.2	245.2	-	-	-	-	22.1	6.9	2.9	-	-	**285.2**
40-50	-	-	2.1	82.8	-	-	-	-	25.1	0	3.6	-	-	**113.6**
> 50	-	-	-	23.9	-	-	-	-	20.3	0	-	-	-	**44.2**
Total	**90.7**	**14.6**	**202.1**	**1,579.3**	**-**	**396.9**	**3.3**	**169.7**	**659.0**	**7.1**	**12.8**	**0.3**	**89.7**	**3,225.5**

PLATE - XVI



LEGEND

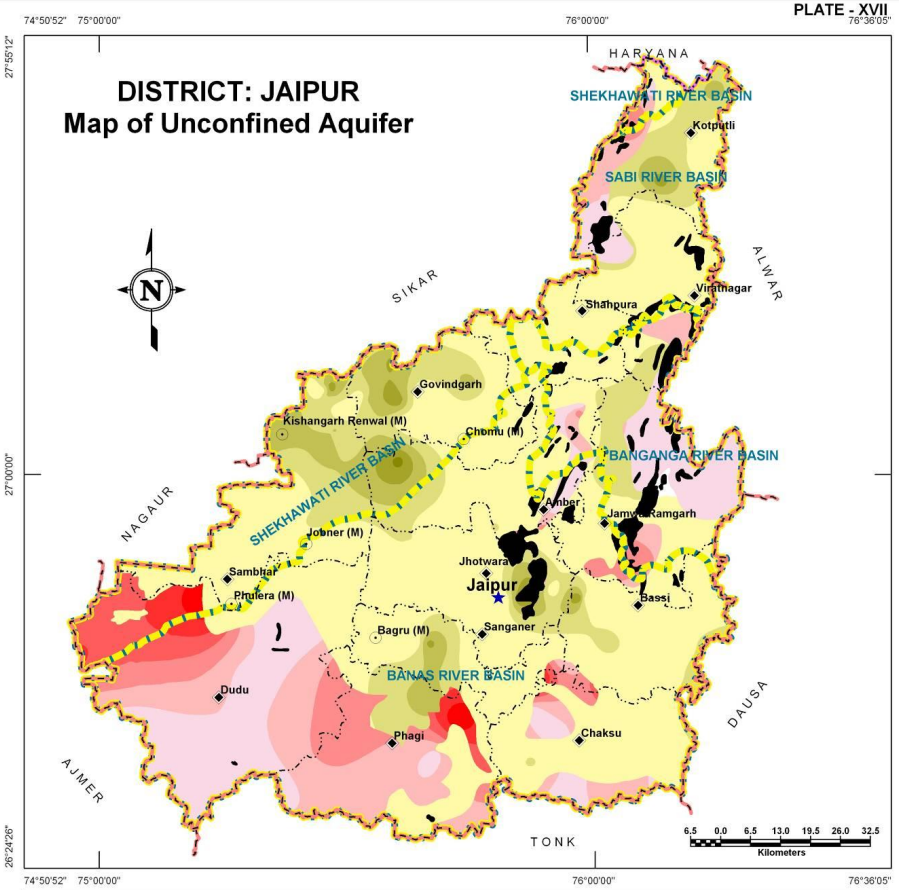
Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Hills**

Depth to Bedrock(m bgl):

- < 20
- 20-40
- 40-60
- 60-80
- > 80

PLATE - XVII



LEGEND

Admin Boundary:

- State Capital
- Block Headquarter
- Town
- State Boundary
- District Boundary
- Block Boundary
- **Basin Boundary**
- **Hills**

Aquifer Thickness(m):

Alluvial Areas	Weathered & Fractured Zone in Hardrock Area
< 10	< 10
10-20	10-20
20-30	20-30
30-40	30-40
> 40	40-50
	> 50

Glossary of terms

S. No.	Technical Terms	Definition
1	AQUIFER	A saturated geological formation which has good permeability to supply sufficient quantity of water to a Tube well, well or spring.
2	ARID CLIMATE	Climate characterized by high evaporation and low precipitation.
3	ARTIFICIAL RECHARGE	Addition of water to a ground water reservoir by man-made activity
4	CLIMATE	The sum total of all atmospheric or meteorological influences principally temperature, moisture, wind, pressure and evaporation of a region.
5	CONFINED AQUIFER	A water bearing strata having confined impermeable overburden. In this aquifer, water level represents the piezometric head.
6	CONTAMINATION	Introduction of undesirable substance, normally not found in water, which renders the water unfit for its intended use.
7	DRAWDOWN	The drawdown is the depth by which water level is lowered.
8	FRESH WATER	Water suitable for drinking purpose.
9	GROUND WATER	Water found below the land surface.
10	GROUND WATER BASIN	A hydro-geologic unit containing one large aquifer or several connected and interrelated aquifers.
11	GROUND WATER RECHARGE	The natural infiltration of surface water into the ground.
12	HARD WATER	The water which does not produce sufficient foam with soap.
13	HYDRAULIC CONDUCTIVITY	A constant that serves as a measure of permeability of porous medium.
14	HYDROGEOLOGY	The science related with the ground water.
15	HUMID CLIMATE	The area having high moisture content.
16	ISOHYET	A line of equal amount of rainfall.
17	METEOROLOGY	Science of the atmosphere.
18	PERCOLATION	It is flow through a porous substance.
19	PERMEABILITY	The property or capacity of a soil or rock for transmitting water.
20	pH	Value of hydrogen-ion concentration in water. Used as an indicator of acidity (pH < 7) or alkalinity (pH > 7).
21	PIEZOMETRIC HEAD	Elevation to which water will rise in a piezometers.
22	RECHARGE	It is a natural or artificial process by which water is added from outside to the aquifer.
23	SAFE YIELD	Amount of water which can be extracted from ground water without producing undesirable effect.
24	SALINITY	Concentration of dissolved salts.
25	SEMI-ARID	An area is considered semiarid having annual rainfall between 10-20 inches.
26	SEMI-CONFINED AQUIFER	Aquifer overlain and/or underlain by a relatively thin semi-pervious layer.
27	SPECIFIC YIELD	Quantity of water which is released by a formation after it's complete saturation.
28	TOTAL DISSOLVED SOLIDS	Total weight of dissolved mineral constituents in water per unit volume (or weight) of water in the sample.

(Contd…)

S. No.	Technical Terms	Definition
29	TRANSMISSIBILITY	It is defined as the rate of flow through an aquifer of unit width and total saturation depth under unit hydraulic gradient. It is equal to product of full saturation depth of aquifer and its coefficient of permeability.
30	UNCONFINED AQUIFER	A water bearing formation having permeable overburden. The water table forms the upper boundary of the aquifer.
31	UNSATURATED ZONE	The zone below the land surface in which pore space contains both water and air.
32	WATER CONSERVATION	Optimal use and proper storage of water.
33	WATER RESOURCES	Availability of surface and ground water.
34	WATER RESOURCES MANAGEMENT	Planned development, distribution and use of water resources.
35	WATER TABLE	Water table is the upper surface of the zone of saturation at atmospheric pressure.
36	ZONE OF SATURATION	The ground in which all pores are completely filled with water.
37	ELECTRICAL CONDUCTIVITY	Flow of free ions in the water at 25C mu/cm.
38	CROSS SECTION	A Vertical Projection showing sub-surface formations encountered in a specific plane.
39	3-D PICTURE	A structure showing all three dimensions i.e. length, width and depth.
40	GWD	Ground Water Department
41	CGWB	Central Ground Water Board
42	CGWA	Central Ground Water Authority
43	SWRPD	State Water Resources Planning Department
44	EU-SPP	European Union State Partnership Programme
45	TOPOGRAPHY	Details of drainage lines and physical features of land surface on a map.
46	GEOLOGY	The science related with the Earth.
47	GEOMORPHOLOGY	The description and interpretation of land forms.
48	PRE MONSOON SURVEY	Monitoring of Ground Water level from the selected DKW/Piezometer before Monsoon (carried out between 15th May to 15th June)
49	POST-MONSOON SURVEY	Monitoring of Ground Water level from the selected DKW/Piezometer after Monsoon (carried out between 15th October to 15th November)
50	PIEZOMETER	A non-pumping small diameter bore hole used for monitoring of static water level.
51	GROUND WATER FLUCTUATION	Change in static water level below ground level.
52	WATER TABLE	The static water level found in unconfined aquifer.
53	DEPTH OF BED ROCK	Hard & compact rock encountered below land Surface.
54	G.W. MONITORING STATION	Dug wells selected on grid basis for monitoring of state water level.
55	EOLIAN DEPOSITS	Wind-blown sand deposits

Ground Water Department,
Rajasthan

European Union
State Partnership Programme

भूजल में घुले मुख्य तत्वों की अधिकता का मानव शरीर पर दुष्प्रभाव

- बोरोन-स्नायु तन्त्र पर प्रभाव
- क्लोराइड-सोडियम के साथ मिलकर उच्च रक्त चाप
- कैल्शियम-जोड़ों में कड़ापन
- आर्सेनिक-त्वचा रोग, कैंसर
- लेड-बच्चों के शारीरिक व मानसिक विकास में बाधा वयस्कों में गुर्दे के रोग
- फ्लोराइड - दंत क्षरण
- सोडियम-हृदय, गुर्दा व रक्त परिसंचरण रोगों से ग्रसित लोगों को हानिकारक
- नाइट्रेट-नवजात शिशुओं में ब्लू बेबी बीमारी (मेथमोग्लोबिनिमिया)
- सल्फेट-अधिकता में मैग्नेशियम के साथ मिलकर दस्तावर
- आयरन-आयरन जीवाणु से आमाशय संबंधी रोग
- फ्लोराइड-जोड़ों में अकड़न, हड्डियों में मुड़ाव

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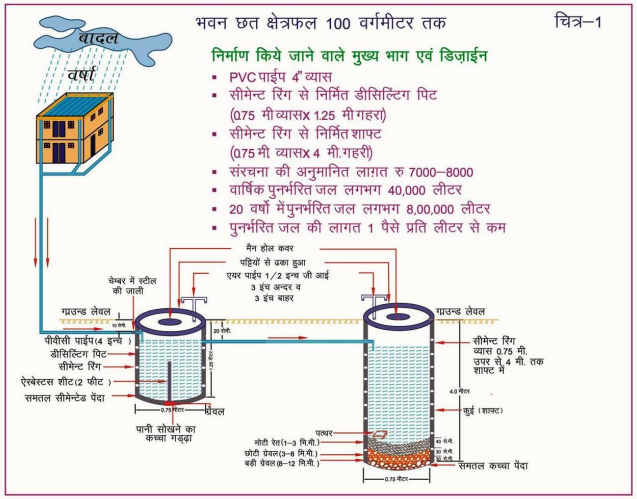
भूजल अमूल्य है इसे प्रदूषित न करें।

चित्र–1 भवन छत क्षेत्रफल 100 वर्गमीटर तक

निर्माण किये जाने वाले मुख्य भाग एवं डिज़ाईन

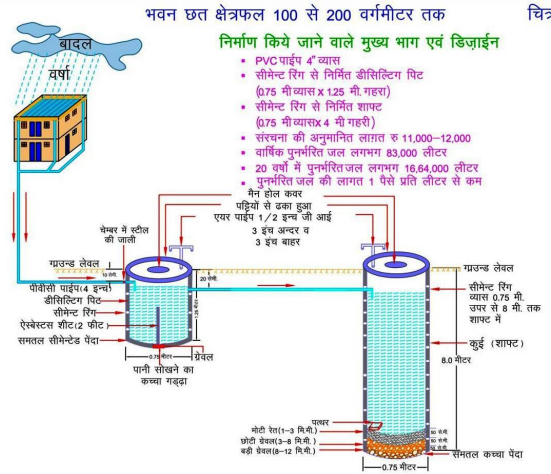
- PVC पाईप 4" व्यास
- सीमेन्ट रिंग से निर्मित डीसिल्टिंग पिट (0.75 मी.व्यास x 1.25 मी.गहरा)
- सीमेन्ट रिंग से निर्मित शाफ्ट (0.75 मी.व्यास x 4 मी.गहरी)
- संरचना की अनुमानित लाग़त रु 7000–8000
- वार्षिक पुनर्भरित जल लगभग 40,000 लीटर
- 20 वर्षों में पुनर्भरित जल लगभग 8,00,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम



चित्र–2 भवन छत क्षेत्रफल 100 से 200 वर्गमीटर तक

निर्माण किये जाने वाले मुख्य भाग एवं डिज़ाईन

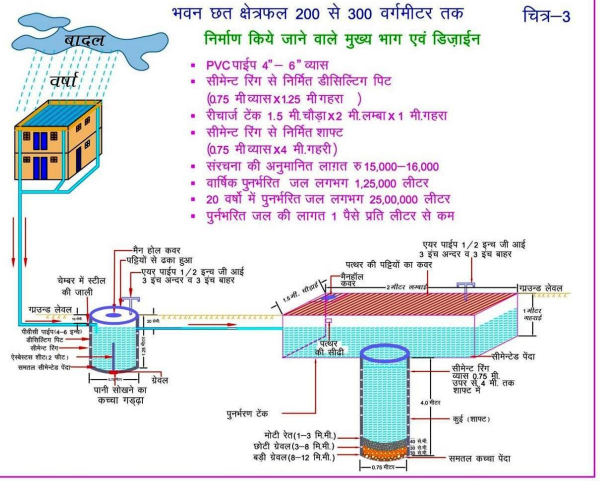
- PVC पाईप 4" व्यास
- सीमेन्ट रिंग से निर्मित डीसिल्टिंग पिट (0.75 मी.व्यास x 1.25 मी.गहरा)
- सीमेन्ट रिंग से निर्मित शाफ्ट (0.75 मी.व्यास x 4 मी.गहरी)
- संरचना की अनुमानित लाग़त रु 11,000–12,000
- वार्षिक पुनर्भरित जल लगभग 83,000 लीटर
- 20 वर्षों में पुनर्भरित जल लगभग 16,64,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम



चित्र–3 भवन छत क्षेत्रफल 200 से 300 वर्गमीटर तक

निर्माण किये जाने वाले मुख्य भाग एवं डिज़ाईन

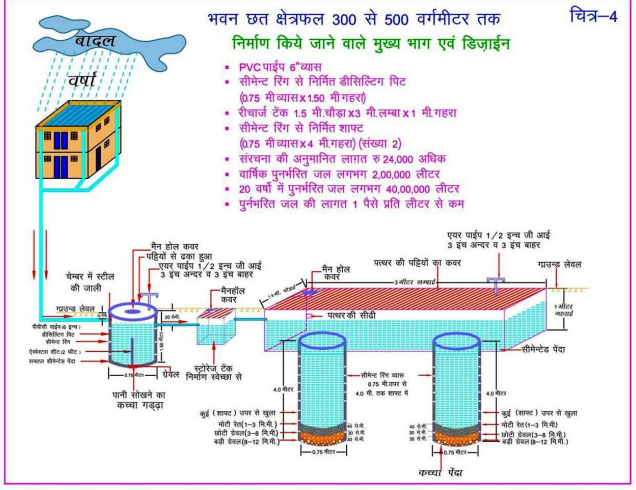
- PVC पाईप 4"– 6" व्यास
- सीमेन्ट रिंग से निर्मित डीसिल्टिंग पिट (0.75 मी.व्यास x 1.25 मी.गहरा)
- रीचार्ज टेंक 1.5 मी.चौड़ा x 2 मी.लम्बा x 1 मी.गहरा
- सीमेन्ट रिंग से निर्मित शाफ्ट (0.75 मी.व्यास x 4 मी.गहरी)
- संरचना की अनुमानित लाग़त रु 15,000–16,000
- वार्षिक पुनर्भरित जल लगभग 1,25,000 लीटर
- 20 वर्षों में पुनर्भरित जल लगभग 25,00,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम



चित्र–4 भवन छत क्षेत्रफल 300 से 500 वर्गमीटर तक

निर्माण किये जाने वाले मुख्य भाग एवं डिज़ाईन

- PVC पाईप 6" व्यास
- सीमेन्ट रिंग से निर्मित डीसिल्टिंग पिट (0.75 मी.व्यास x 1.50 मी.गहरा)
- रीचार्ज टेंक 1.5 मी.चौड़ा x 3 मी.लम्बा x 1 मी.गहरा
- सीमेन्ट रिंग से निर्मित शाफ्ट (0.75 मी.व्यास x 4 मी.गहरा) (संख्या 2)
- संरचना की अनुमानित लाग़त रु 24,000 अधिक
- वार्षिक पुनर्भरित जल लगभग 2,00,000 लीटर
- 20 वर्षों में पुनर्भरित जल लगभग 40,00,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम



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Myths and Facts about Ground Water

S No	Myths	Facts
1	What is Ground Water • an underground lake • a net work of underground rivers • a bowl filled with water	Water which occurs below the land in geological formations/rocks is Ground water
2	Ground Water occurs everywhere beneath the Land Surface	Not really, it depends on the nature of rock formation
3	There is a relationship between ground water and surface water	Not all the places. Near streams/rivers there is relation
4	Groundwater is not renewable resource	It is renewable source and every year it is being recharged through rain/applied irrigation etc
5	Ground water is unlimited and deeper you drill more discharge	It is limited to annual recharge from rain/applied irrigation. The discharge may not increase if you go deeper
6	Ground Water moves rapidly	The movement of ground water is very slow
7	Ground water pumped from wells is thousands of years old	Generally the ground water being tapped through wells is a few years old
8	If water taste good—it is safe to drink	It may have other chemicals e.g. fluoride, nitrates etc which are harmful
9	Water from free flowing tube wells is very pure	This water can also be contaminated so test before use
10	If I recharge my TW/DW/HP it will not benefit me	It will also benefit you and also adjoing wells
11	There is no static ground water resources in Rajasthan	Rajasthan is also having Static GW resources, and being tapped in most of areas as GW annual withdrawal is more than annual recharge
12	I cannot meet annual cooking and drinking water requirement by rain water harvesting	The water requirement for drinking and cooking is only 8 lit/day. You can harvest this water for family of 5 persons from roof top or paved area of 75 Sq m to meet annual requirement
13	You can increase ground water recharge	This can be done by harvesting the rain water and storing in sub surface reservoir (GW) by constructing the recharge structures
14	You cannot use abandoned TW/HP/DW for ground water recharge	These should be used as recharge structures as harvested rain water is directly put into GW reservoir
15	Putting waste near HP/TW will not cause any problem	Such actions will pollute wells and water

ROLTA

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