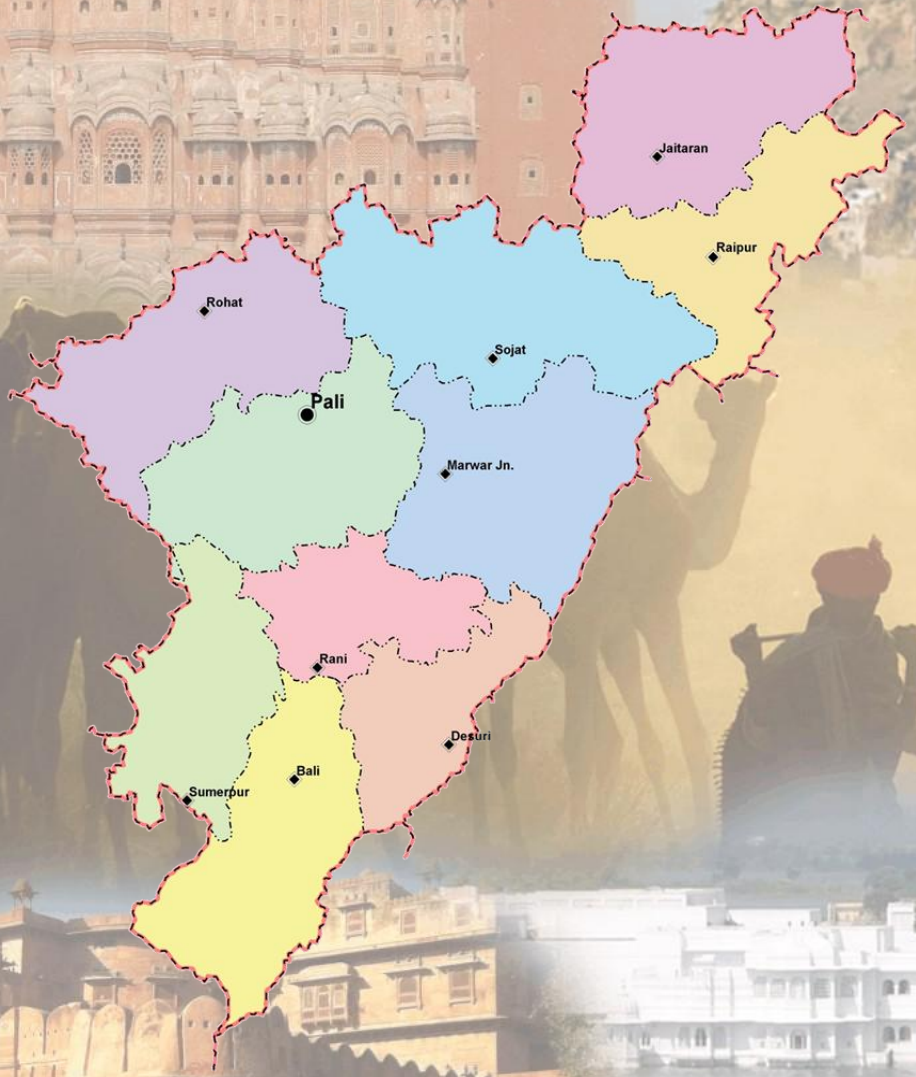
Ground Water Department,
Rajasthan

Hydrogeological Atlas of Rajasthan

Pali District

European Union
State Partnership Programme



2013

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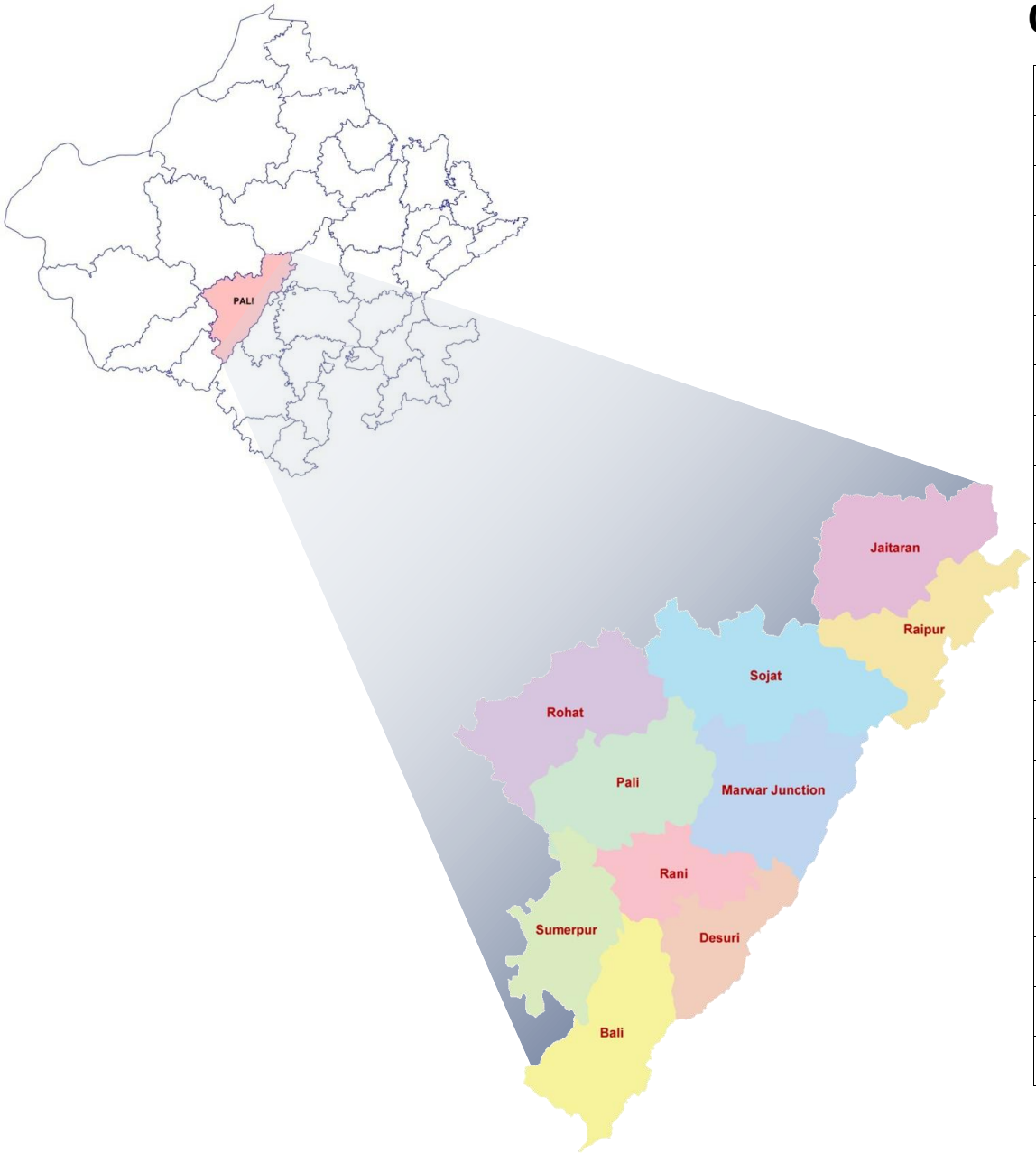
Hydrogeological Atlas of Rajasthan

Pali District



Contents:

2013

ADMINISTRATIVE SETUP

DISTRICT – PALI

Location:

Pali district is located in the central part of Rajasthan. It is bounded in the north by Nagaur district, in the east by Ajmer and Rajsamand districts, south by Udaipur and Sirohi districts and in the West by Jalor, Barmer and Jodhpur districts. It stretches between 24° 44' 35.60" to 26° 27' 44.54" north latitude and 72° 45' 57.82'' to 74° 24' 25.28'' east longitude covering area of 12,378.9 sq km. The district is part of 'Luni River Basin' and occupies the western slopes of Aravali range.

Administrative Set-up:

Pali district is administratively divided into ten 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 District Area	Total Number of Towns and Villages
1	Bali	2,23,027	1,350.3	10.9	93
2	Desuri	1,26,658	807.0	6.5	79
3	Jaitaran	2,06,266	1,352.2	10.9	109
4	Marwar Junction	2,03,159	1,488.4	12	144
5	Pali	2,77,580	1,338.8	10.9	83
6	Raipur	1,82,004	1,090.8	8.8	113
7	Rani	1,18,896	771.8	6.2	77
8	Rohat	1,02,599	1,420.1	11.5	79
9	Sojat	1,94,772	1,732.3	14	116
10	Sumerpur	1,85,290	1,027.2	8.3	67
Total		**18,20,251**	**12,378.9**	**100.0**	**960**

Pali district has 960 towns and villages, of which ten are block headquarters as well.

Climate:

The climatic conditions of Pali district are marginally different from the typical arid western Rajasthan. Although, basically the summer season raises the temperature to 46 - 47 °C during peak (May-June)months, a large variation in temperature is found due to adjoining green and hilly areas. Winters are moderately cool during December-January when the mercury dips to 4 - 5 °C range. Monsoon brings respite from long drawn summers and the rains during the months of July-October result into average rainfall of450.7 mmin the district.

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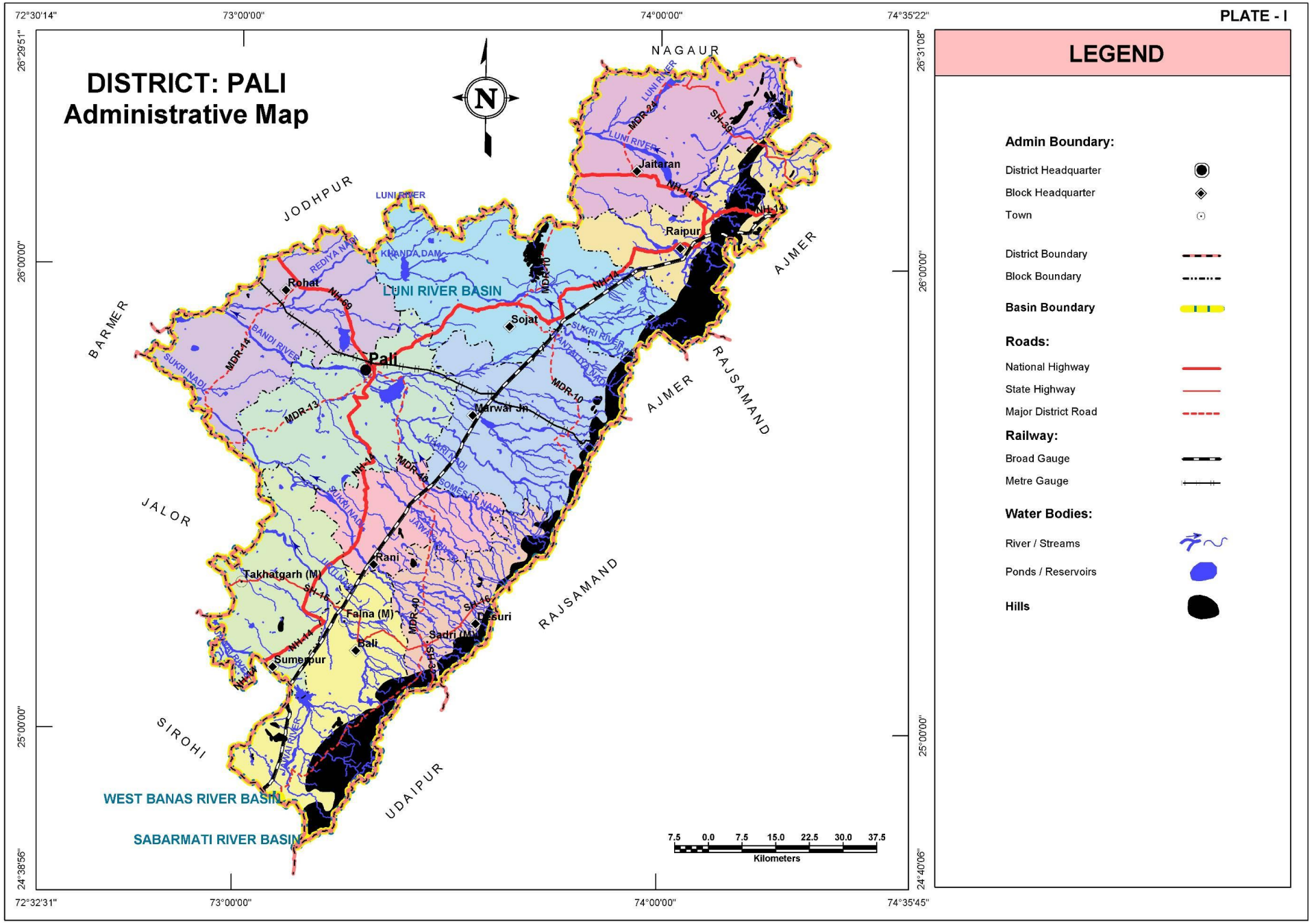
PLATE - I



LEGEND

Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- 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

Topography of the district is quite varied. Central part of the district is relatively flat and undulating while the Aravalli ranges constitute hills in the eastern fringe and link the district with Ajmer, Rajsamand, and Udaipur districts. Maximum part of the district falls under Luni river basin, where negligibly small parts in the south fall within West Banas and Sabarmati river basins. The general topographic elevation in the district ranges broadly between 150 m to 300 m above mean sea level. The lowestelevation of 149.3m amsl is noticed in Rohat block in the western part of the district whereas the highest elevation of 1,068 m above mean sea level In Bali in southern part of the district.

Table: Block wise minimum and maximum elevation

S. No.	Block Name	Min. Elevation (m amsl)	Max. Elevation (m amsl)
1	Bali	261.9	1,068.0
2	Desuri	282.2	999.2
3	Jaitaran	272.4	530.4
4	Marwar Junction	230.6	915.1
5	Pali	177.1	522.5
6	Raipur	283.1	685.5
7	Rani	220.0	377.2
8	Rohat	149.3	491.7
9	Sojat	206.1	612.0
10	Sumerpur	197.2	589.2

RAINFALL

The rainfall is very fairly good but erratic. The general distribution of rainfall across can be visualized from isohyets presented in the Plate – III where most of the district received rainfall in the range of 500-600 mm in year 2010. The average rainfall was 653.4 mm based on the data of available blocks. Desuri block received highest rainfall (967 mm) whereas lowest was in Raipur block (358 mm). Highest average annual rainfall was received in Bali block about 879.7 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)
Bali	701.7	1,013.70	879.7
Desuri	645	1,069.10	776.2
Jaitaran	427.6	806.1	577.7
Marwar Junction	552.9	747.2	695.7
Pali	465.9	636.8	538.2
Raipur	358	958.6	689.2
Rani	582.8	737.9	648.4
Rohat	455.7	541.6	498.6
Sojat	397.8	809.7	593.4
Sumerpur	551.6	785.5	637

Ground Water Department,
Rajasthan

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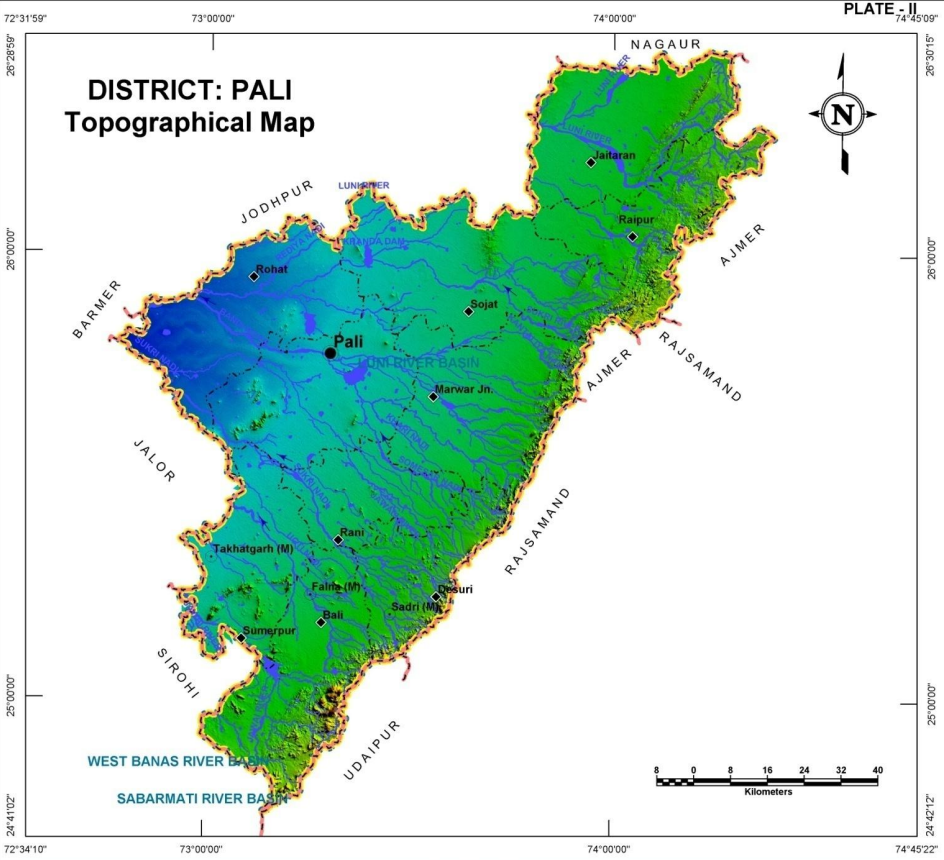
State Partnership Programme

PLATE - II



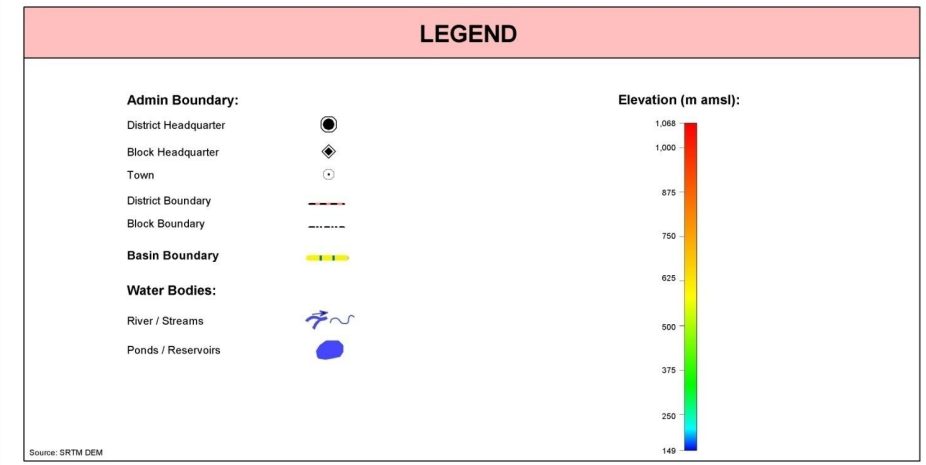
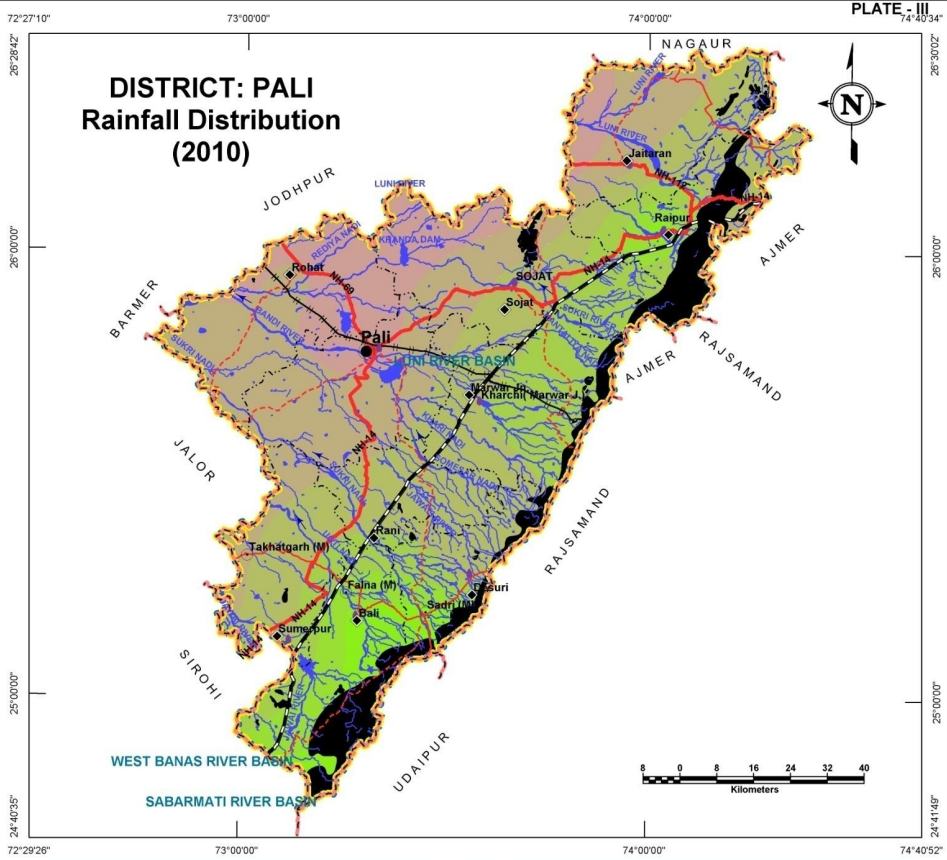
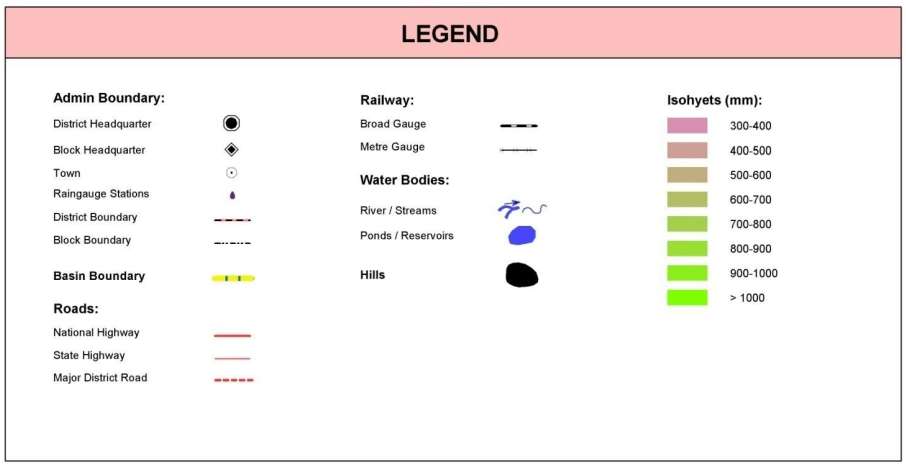


PLATE - III





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GEOLOGY

DISTRICT – PALI

Geologically, the district belongs to Delhi Super Group and Marwar Super Group. The Delhi Super Group comprises of Kumbhalgarh, Phulad Ophiolite sute, Sendra-Ambaji granite, Sirohi and Punagarh Group. The DelhiSuper Groupisoverlaid by a sequence of unmetamorphosed sedimentary rocks consisting of sandstone, limestone, siltstone and gypsum beds. The MarwarSuper Group is divided into Jodhpur and Bilara Group which consistsof sandstone, shale and limestone rocks. The DelhiSuper Grouprocks are intruded by granites and rhyolite. The predominant intrusive is the Erinpura Granite. The Delhi Super Group is mainly exposed in NNE parts of the district while Marwar Super Group is exposed in northern part in Jaitaran and Sojat blocks. Erinpura granite & gneiss occupied almost 50 % area of the district and exposed mainly in central, southern and southeastern parts of the district.

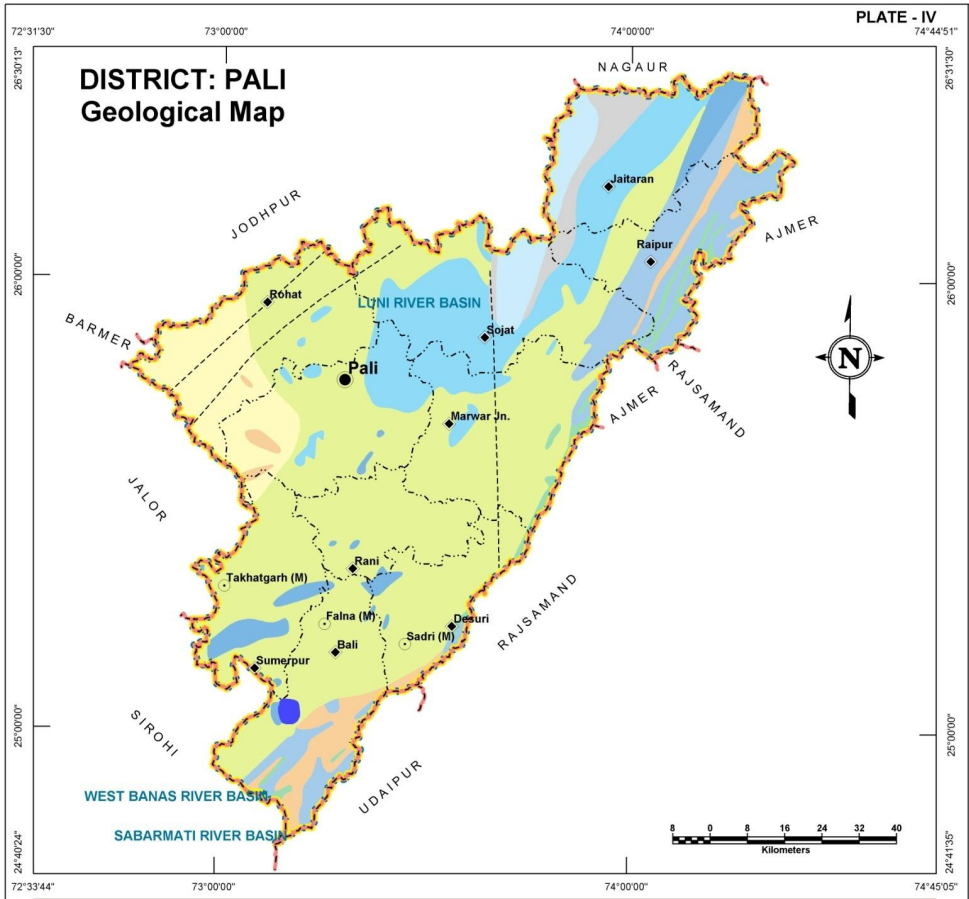
Super Group	Group	Formation
	Recent to Sub-Recent	Alluvium & wind blown
Marwar	Bilara	Limestone
	Jodhpur	Sandstone, shale, boulders and chert.
Intrusive (Post Delhi)	Malani Igneous Suite	Granite (Jolor type), Rhyolite &pyroclastics with dykes of granophyre
	Erinpura Granite	Granite and gneiss
Delhi	Punagarh	Basic volcanic with pillow lava, meta tuff, quartzite, shale, slate phyllite, bedded chert
	Sirohi	Phyllite, mica schist, biotite schist, dolomitic marble, migmatite& gneisses epidiorite, Hornablende
	Sendra-Ambaji Granite	Granite and gneiss
	PhuladOphiolite Suite	Hornblends schist, amphibolite, pyroxene granulite, gabbro &ultramafics.
	Kumbhalgarh	Calc schist, marble, granite schist/amphibolite, biotite schist, quartzite, mica schist and migmatite

GEOMORPHOLOGY

Table: Geomorphologic units, their description and distribution

Origin	Landform Unit	Description
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.
	Pediplain	Coalescence and extensive occurrence of pediment.
Fluvial	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.
	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.
	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.
	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.
	Salt Encrustation/Playa	Topographical depression comprising of clay, silt, sand and soluble salts, usually undrained and devoid of vegetation.
Hills	Denudational, Structural Hill, Linear Ridge	Steep sided, relict hills undergone denudation, comprising of varying lithology with joints, fractures and lineaments. Linear to arcuate hills showing definite trend-lines with varying lithology associated with folding, faulting etc. Long narrow low-lying ridge usually barren, having high run off may form over varying lithology with controlled strike.

PLATE - IV



LEGEND

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

Basin Boundary

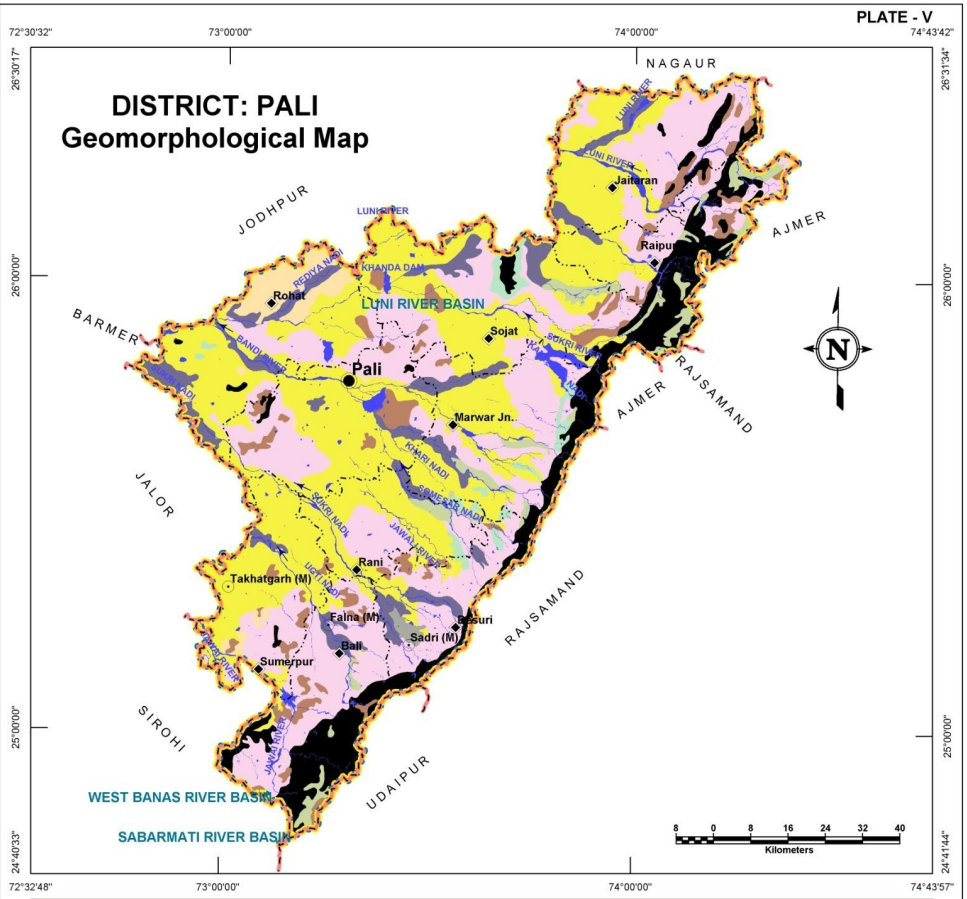
Water Bodies

Structural Features:
- Lineament

Geology:
- Alluvium and Wind blown sand
- Bilara Group
- Jodhpur Group
- Punagarh Group
- Sirohi Group
- Kumbhalgarh Group
- Volcanic Suite
- Erinpura Granite & Gneiss
- Sendra-Ambaji Granite & Gneiss
- Phulad Ophiolite Suite

Source: District Resource Map of Rajasthan - GSI

PLATE - V



LEGEND

Admin Boundary:
- District Headquarter
- Block Headquarter
- Town
- 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
- Salt Encrustation/Playa

Denudational Origin:
- Pediment
- Burried Pediment
- Pediplain

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

AQUIFERS

Pali district has quite large areas where aquifers are formed hardrocks. Weathered, fractured and jointed hardrocks constitute good aquifers of which Granite (37% area) is most prominent, followed by Phyllites which account for about 17% of district's aquifers and Gneisses and limestones also form good aquifers. In alluvial aquifers, both Younger and Older alluvium together form about 17% of aquifer area in the district. Sand and silt of fluvial and aeolian origin along with some gravel and pebbles within clay form locales for storage of ground water.

Table: aquifer potential zones their area and their description

Aquifer in Potential Zone	Area (sq km)	% age of district	Description of the unit/Occurrence
Younger Alluvium	447.0	3.6	It is largely constituted of Aeolian and Fluvial sand, silt, clay, gravel and pebbles in varying proportions.
Older Alluvium	2,893.4	23.4	This litho unit comprises of mixture of heterogeneous fine to medium grained sand, silt and kankar.
Limestone	319.7	2.6	In general, it is fine to medium grained, grey, red yellowish, pink or buff in colour.
Phyllite	2,151.0	17.4	These include meta sediments and represented by carbonaceous phyllite.
Granite	4,630.6	37.4	Light grey to pink colour, medium to coarse grained, and characteristically have porphyritic texture.
Gneiss	823.1	6.6	Comprises of porphyritic and non-porphyritic gneissic complex.
Hills	1,114.1	9.0	
Total	**12,378.9**	**100.0**	

STAGE OF GROUND WATER DEVELOPMENT

Categorization of blocks on the basis of stage of development derived from ground water assessment studies reveal that the Pali Block falls within the 'Semi Critical stage where ground water development is between 70-90% of available resources. Apart from this block, the Rohat and Sumerpur block are highly stressed as they fall within 'Critical' category implying nearly 100% development of ground water resources. All the remaining 7 blocks are in 'Over Exploited' category which means that the dynamic ground water resources are already exhausted. Interestingly, the blocks where development is less than 100% are the areas where the ground water is largely saline and all the blocks in the eastern side fringing the Aravali range that contain good quality water are the ones that are over-exploited.

Categorization on the basis of stage of development of GW	Block Name
Semi-Critical	Pali
Critical	Rohat,Sumerpur
Over Exploited	Jaitaran,Raipur,Sojat,Marwar Junction,Desuri,Bali,Rani

Basis for categorization: Ground water development <= 70 – 90% Semi critical, <=100% - Critical and >100% - Over-Exploited.

PLATE - VI

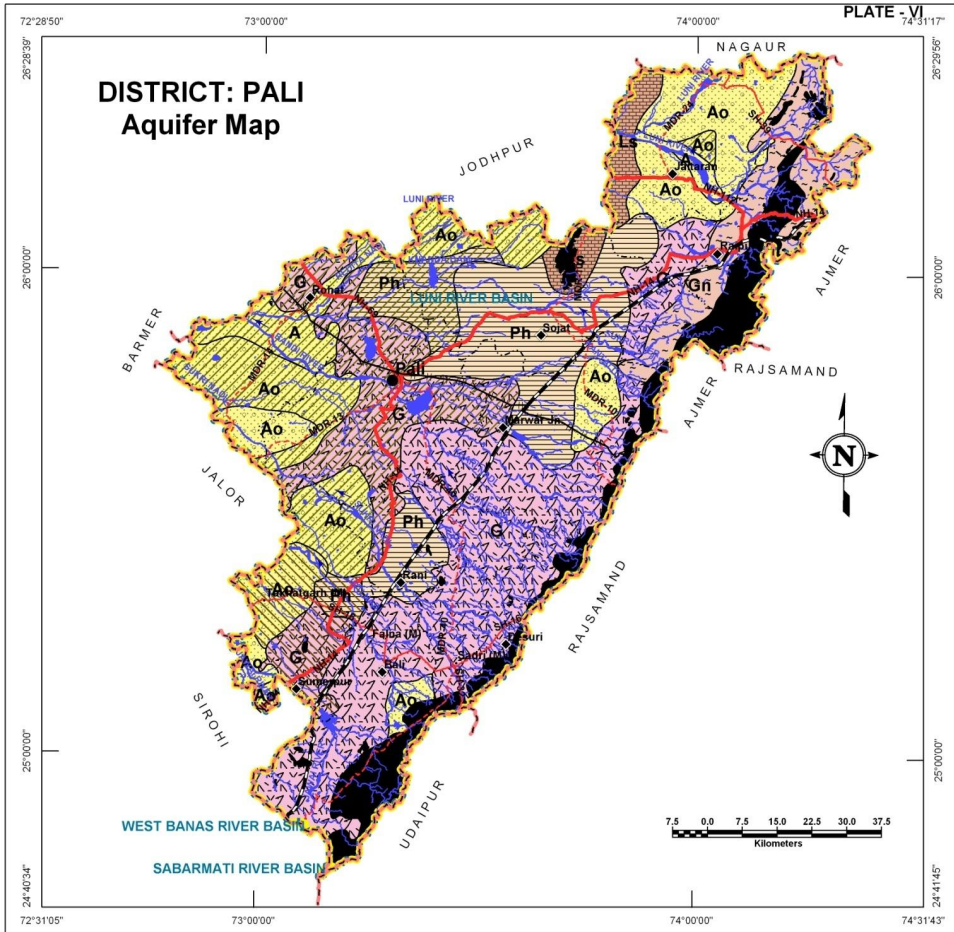
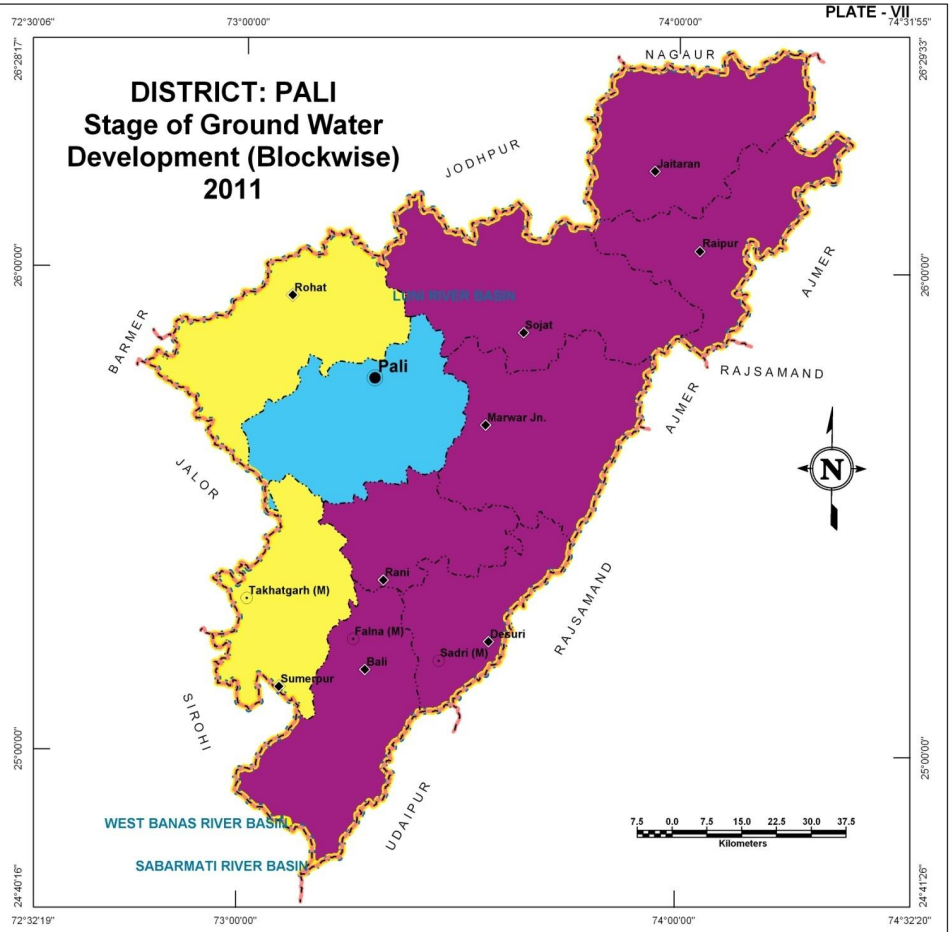


PLATE - VII



LEGEND

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- Town
- 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**
- **Command Area**
- **Saline Area**

Aquifer:
- Younger Alluvium
- Older Alluvium
- Limestone
- Phyllite
- Granite
- Gneiss

Source: Ground Water Potential Zone Map - GWD, Rajasthan

LEGEND

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

Stage of Ground Water Development:
- Semi-Critical
- Critical
- Over-Exploited

Source: Ground Water Department, Rajasthan

LOCATION OF EXPLORATORY AND GROUND WATER MONITORING WELLS DISTRICT – PALI

Pali district has a well distributed network of exploratory wells (168) and ground water monitoring stations (264) in the district owned by RGWD (117 and 264 respectively) and CGWB (51 and no GW monitoring stations, respectively). The exploratory wells have formed the basis for delineation of subsurface aquifer distribution scenario in three dimensions. Benchmarking and optimization studies suggest that ground water level monitoring network is sufficiently distributed for appropriate monitoring but for water quality, 34 wells are recommended to be added to existing network for optimum monitoring of the aquifers.

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
Bali	1	7	**8**	-	32	**32**	0	3
Desuri	1	7	**8**	-	21	**21**	0	0
Jaitaran	4	18	**22**	-	30	**30**	0	13
Marwar Junction	1	21	**22**	-	30	**30**	0	6
Pali	12	2	**14**	-	24	**24**	0	0
Raipur	11	13	**24**	-	25	**25**	0	1
Rani	4	10	**14**	-	22	**22**	0	0
Rohat	4	12	**16**	-	24	**24**	0	0
Sojat	9	13	**22**	-	28	**28**	0	0
Sumerpur	4	14	**18**	-	28	**28**	0	11
Total	**51**	**117**	**168**	**0**	**264**	**264**	**0**	**34**

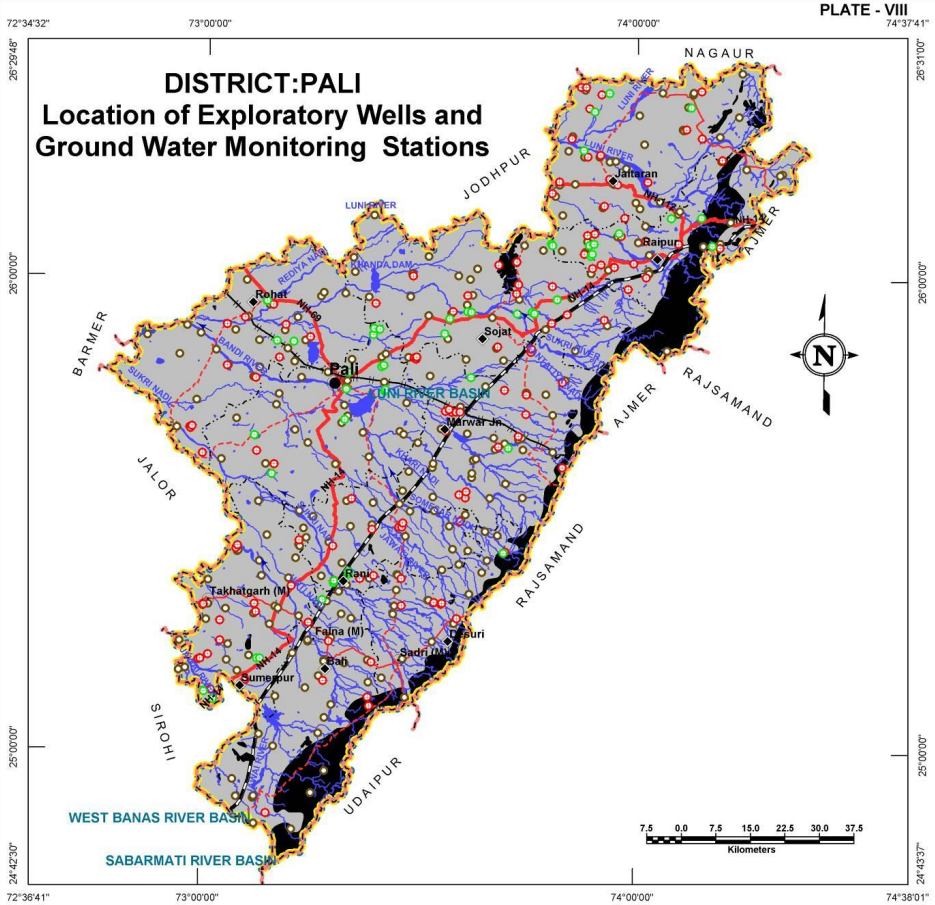
DEPTH TO WATER LEVEL (PRE MONSOON – 2010)

10m interval has been adopted to depict the depth to ground water levels in Pali district as shown in Plate – IX. Depth to water level shows variation from less than 10m bgl to more than 60m bgl. The alluvial aquifers in the north have shown a generally shallower ground water occurrence i.e., upto 30m of depth from ground level whereas the hardrock areas in the eastern parts have shown depth to water level between 30 to 50m bgl in general and often reaching to 60m bgl in the areas of Sojat block.

Depth to water level (m bgl)	Block wise area coverage (sq km) *										Total Area (sq km)
	Bali	Desuri	Jaitaran	Marwar Junction	Pali	Raipur	Rani	Rohat	Sojat	Sumerpur	
< 10	-	-	-	-	271.6	-	0.3	911.4	220.0	37.1	**1,440.4**
10-20	458.5	168.0	245.2	245.2	979.9	319.6	147.5	506.5	469.8	351.2	**3,891.4**
20-30	265.8	390.7	538.0	654.2	87.2	189.5	387.0	2.0	492.5	565.8	**3,572.7**
30-40	270.2	75.8	317.0	285.1	-	78.6	232.8	-	234.1	70.4	**1,564.0**
40-50	2.2	7.1	165.1	145.4	-	111.3	2.2	-	129.0	-	**562.3**
50-60	-	-	55.5	29.1	-	49.9	-	-	98.9	-	**233.4**
> 60	-	-	-	-	-	-	-	-	0.6	-	**0.6**
Total	**996.7**	**641.6**	**1,320.8**	**1,359.0**	**1,338.7**	**748.9**	**769.8**	**1,419.9**	**1,644.9**	**1,024.5**	**11,264.8**

* 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:
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- Block Headquarter
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- Block Boundary
- **Basin Boundary**

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

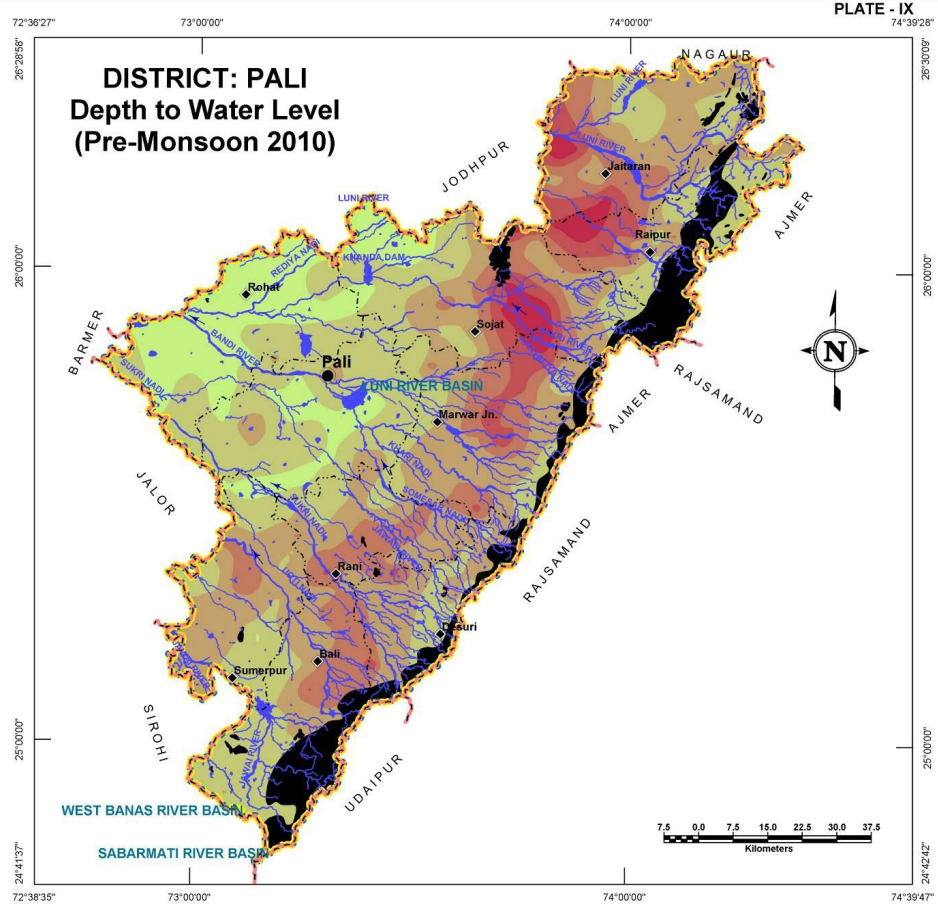
Railway:
- Broad Gauge
- Metre Gauge

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

Exploratory Wells:
- CGWB
- RGWD

Ground Water Monitoring Stations:
- CGWB
- RGWD

PLATE - IX



LEGEND

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

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

Plate – X reveals that the highest water table is seen in the vicinity of Aravalli range in the eastern fringe of the district and lowest in the westernmost part of the district in alluvial plains. The large variation in elevation in the district asthe highest water table elevation is >520m amsl in the east-southeastern part (Raipur, Marwar Jn., Desuri and Bali Blocks) of the district and the minimum elevation (<160m amsl) in the Rohat blocks results into very steeper flow gradient in the vicinity of hills and relatively flatter westwards.

Block Name	Block wise area coverage (sq km) within water table elevation range (m amsl)																	Total Area (sq km)
	<160	160-180	180-200	200-220	220-240	240-260	260-280	280-300	300-320	320-340	340-360	360-380	380-400	400-440	440-480	480-520	>520	
Bali	-	-	2.4	14.1	18.6	68.9	194.2	199.7	198.0	117.8	86.2	40.0	20.5	24.8	11.5	-	-	**996.7**
Desuri	-	-	-	-	22.6	82.6	66.8	69.2	103.1	111.5	51.8	31.6	23.7	37.0	24.7	13.0	4.0	**641.6**
Jaitaran	-	-	-	-	0.1	353.9	333.6	210.8	141.2	123.1	91.4	66.4	0.3	-	-	-	-	**1,320.8**
Marwar Junction	-	-	-	50.8	291.4	399.3	215.7	137.7	70.2	45.1	38.7	37.3	28.0	27.9	14.9	2.0	-	**1,359.0**
Pali	-	125.2	352.5	574.1	286.9	-	-	-	-	-	-	-	-	-	-	-	-	**1,338.7**
Raipur	-	-	-	-	-	82.0	79.0	67.7	56.1	78.0	115.2	80.5	82.1	97.8	10.5	-	-	**748.9**
Rani	-	-	33.3	91.8	308.4	166.2	86.1	54.1	25.0	4.9	-	-	-	-	-	-	-	**769.8**
Rohat	113.2	602.8	439.2	264.7	-	-	-	-	-	-	-	-	-	-	-	-	-	**1,419.9**
Sojat	-	-	-	324.7	762.1	215.9	92.0	79.9	55.1	34.9	29.4	26.9	20.7	3.3	-	-	-	**1,644.9**
Sumerpur	-	2.8	120.7	448.9	214.9	125.6	95.0	16.6	-	-	-	-	-	-	-	-	-	**1,024.5**
Total	**113.2**	**730.8**	**948.1**	**1,769.1**	**1,905.0**	**1,494.4**	**1,162.4**	**835.7**	**648.7**	**515.3**	**412.7**	**282.7**	**175.3**	**190.8**	**61.6**	**15.0**	**4.0**	**11,264.8**

WATER LEVEL FLUCTUATION (PRE TO POST MONSOON 2010)

2m contour interval (Plate XI) has been adopted to visualize the ground water level fluctuation reveals a general rise in the district between 0m to 12m while the maximum rise reaching upto 18m and a localized low of -8m. The –ve fluctuation areas (indicated by pink and red regions) very limited in extent and occur as localized pockets of high exploitation. Rest of the district has shown a general to significant rise in ground water level in the post monsoon season with respect to pre monsoon region. Maximum rise of more than 18m is noticed in the northern part of Desuri block which also is a localized to possibly a single well.

Block Name	Block wise area coverage (sq km) within water table fluctuation range (m)															Total Area (sq km)
	<-8	-8 to -6	-6 to -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	
Bali	-	-	-	-	-	143.7	-	120.3	142.0	167.6	215.5	203.4	4.2	-	-	**996.7**
Desuri	-	-	-	-	-	76.6	14.8	113.4	105.0	156.4	110.5	42.7	17.1	5.0	0.1	**641.6**
Jaitaran	-	-	-	-	0.7	179.5	655.4	304.9	131.5	40.2	7.4	1.2	-	-	-	**1,320.8**
Marwar Junction	0.1	2.9	5.6	10.0	25.8	124.8	155.2	184.0	222.6	278.5	156.1	127.8	59.0	6.6	-	**1,359.0**
Pali	-	-	3.0	12.7	32.6	302.6	580.3	296.0	101.7	9.1	0.7	-	-	-	-	**1,338.7**
Raipur	-	-	-	-	-	99.7	253.3	148.8	159.6	86.5	1.0	-	-	-	-	**748.9**
Rani	-	-	-	-	0.1	58.8	33.7	227.8	230.7	127.9	63.4	25.0	2.4	-	-	**769.8**
Rohat	-	-	-	-	-	246.8	819.9	231.0	111.7	10.5	-	-	-	-	-	**1,419.9**
Sojat	-	-	-	1.0	8.9	269.3	685.5	469.5	154.0	47.4	9.1	0.2	-	-	-	**1,644.9**
Sumerpur	-	-	-	-	23.8	220.5	162.0	270.6	160.3	134.1	35.4	10.5	5.3	2.0	-	**1,024.5**
Total	**0.1**	**2.9**	**8.6**	**23.7**	**91.9**	**1,722.3**	**3,360.1**	**2,366.3**	**1,519.1**	**1,058.2**	**599.1**	**410.8**	**88.0**	**13.6**	**0.1**	**11,264.8**

PLATE - X

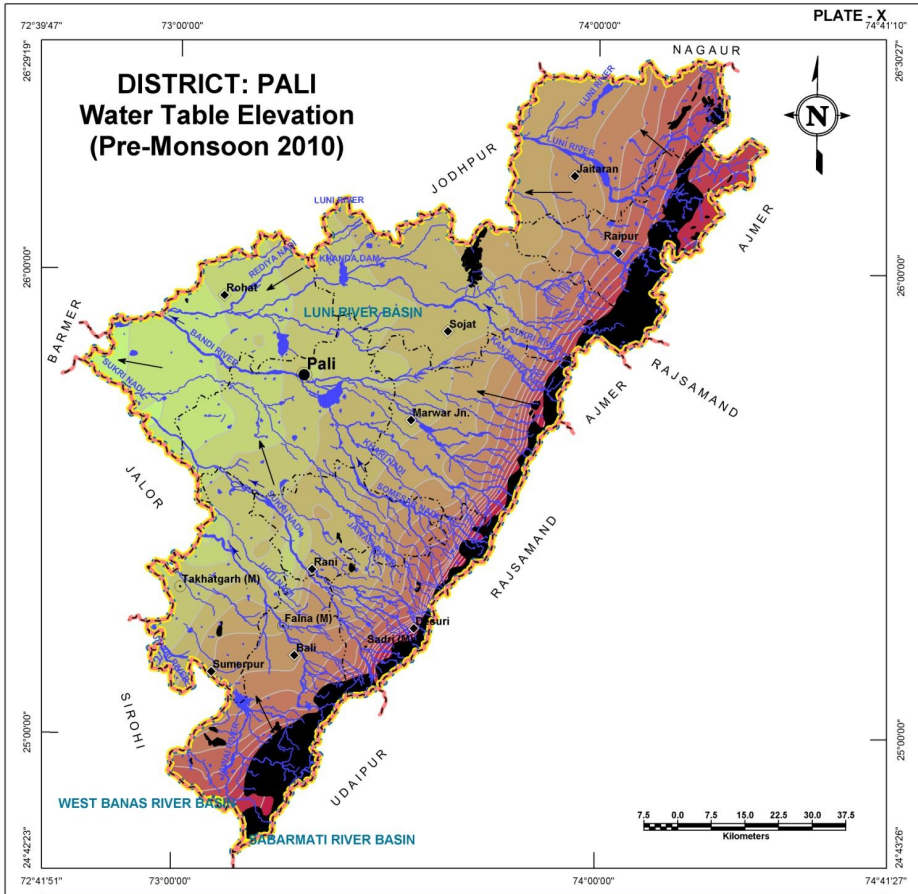
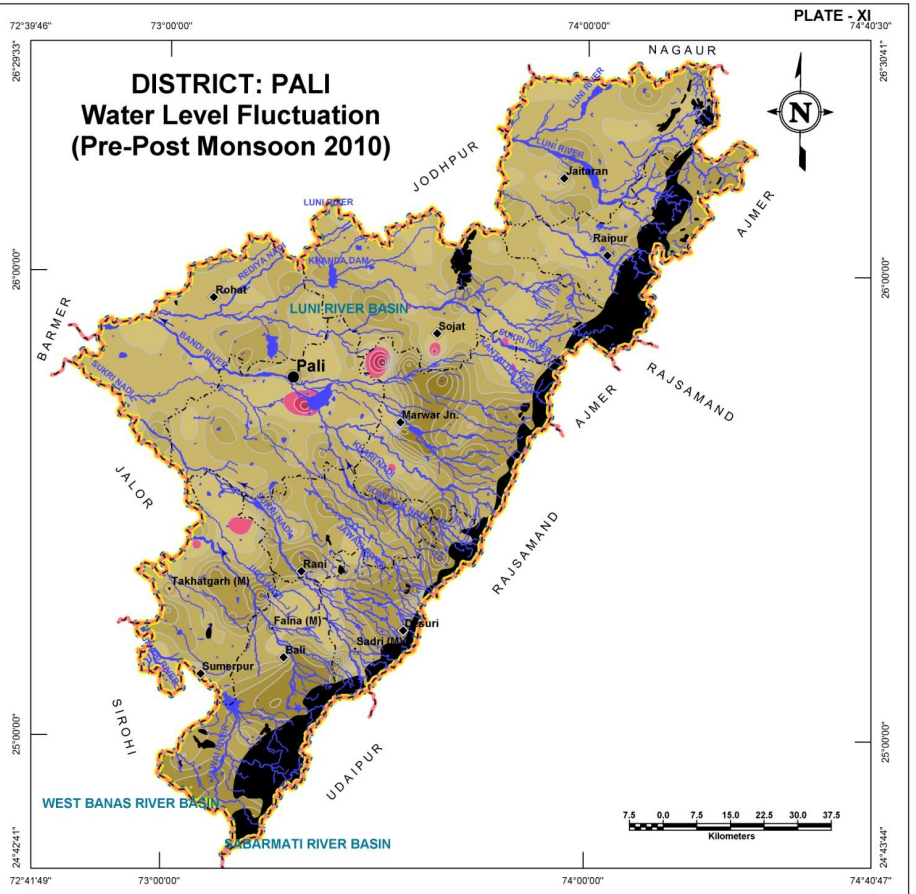


PLATE - XI



LEGEND

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

Basin Boundary

Water Bodies:
- River / Streams
- Ponds / Reservoirs

Hills

Water Table Elevation

Water Table Elevation (m amsl):

< 160	360 - 380
160 - 180	380 - 400
180 - 200	400 - 440
200 - 220	440 - 480
220 - 240	480 - 520
240 - 260	> 520
260 - 280	
280 - 300	
300 - 320	
320 - 340	
340 - 360	

LEGEND

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

Basin Boundary

Water Bodies:
- River / Streams
- Ponds / Reservoirs

Hills

Water Level Fluctuation (m):

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

GROUND WATER ELECTRICAL CONDUCTIVITY DISTRIBUTION — DISTRICT – PALI

The Electrical conductivity (at 25°C) distribution map is presented in Plate – XII. The areas with high EC values in ground water (>4000 µS/cm) are shown in red color and occupies almost 46% of the district area within western alluvial tracts as a result it is unsuitable for domestic purpose. The areas with moderately high EC values (2000-4000 µS/cm) are shown in green color and occupy 30% of the district. Remaining part of the district approximately 24% has low EC values in ground water (<2000 µS/cm), as seen in areas adjoining eastern hilly areas where fresh water suitable for domestic purposes is present.

Table: Block wise area of Electrical conductivity distribution

Electrical Conductivity Ranges (µS/cm at 25°C) (Ave. of years 2005-09)	Block wise area coverage (sq km)																				Total Area (sq km)
	Bali		Desuri		Jaitaran		Marwar Junction		Pali		Raipur		Rani		Rohat		Sojat		Sumerpur		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 2000	556.6	55.8	424.2	66.1	199.4	15.1	511.3	37.6	20.6	1.5	203.3	27.1	415.1	53.9	8.0	0.6	197.1	12.0	118.1	11.5	**2,653.7**
2000-4000	440.1	44.2	217.4	33.9	587.5	44.5	459.4	33.8	132.0	9.9	443.1	59.2	233.9	30.4	24.0	1.7	418.0	25.4	478.9	46.7	**3,434.3**
>4000	-	-	-	-	533.9	40.4	388.3	28.6	1,186.1	88.6	102.5	13.7	120.8	15.7	1,387.9	97.7	1,029.8	62.6	427.5	41.8	**5,176.8**
Total	**996.7**	**100.0**	**641.6**	**100.0**	**1,320.8**	**100.0**	**1,359.0**	**100.0**	**1,338.7**	**100.0**	**748.9**	**100.0**	**769.8**	**100.0**	**1,419.9**	**100.0**	**1,644.9**	**100.0**	**1,024.5**	**100.0**	**11,264.8**

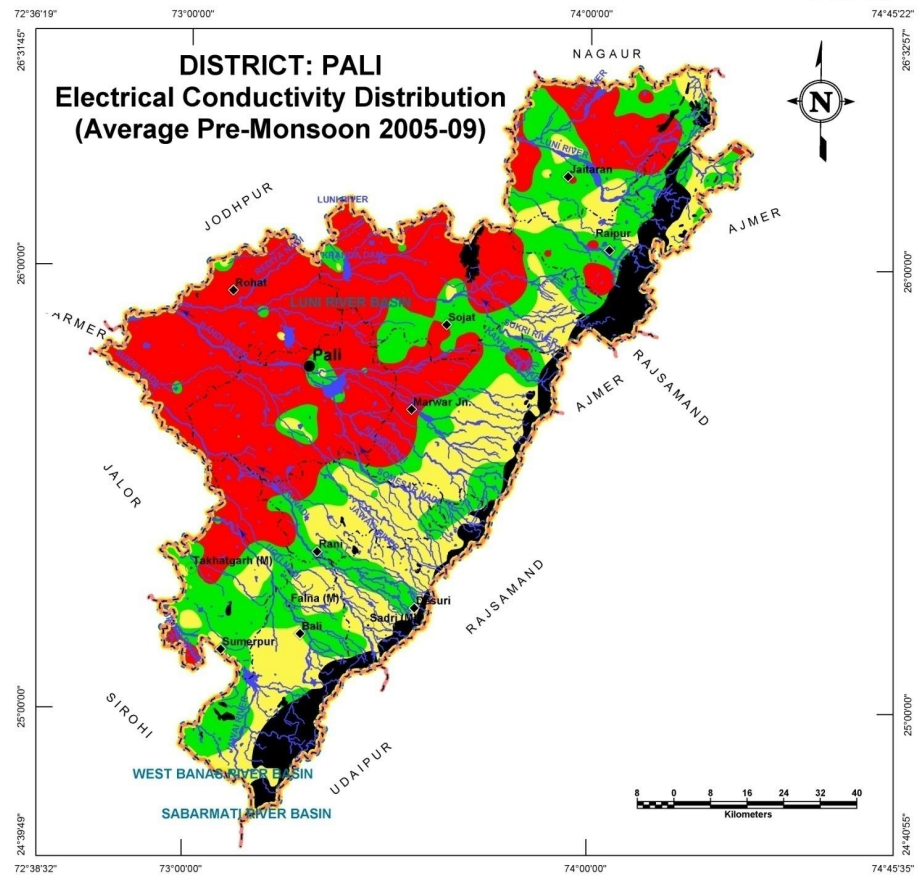
GROUND WATER CHLORIDE DISTRIBUTION

The areas with low chloride concentration (<250 mg/l) are shown in yellow color (Plate – XIII) occupying areas largely in the eastern part of Marwar Junction and Falna blocks of the district. The ground water in these areas is suitable for domestic purpose but limited in spatial extent to only 16% of the district area. The green colored regions are such areas where chloride concentration is moderately high (250-1000 mg/l) which occupies approximately 44% of the district area. The areas with high chloride concentration (>1000 mg/l) are shown in red color occupying approximately 42%of the district area which is not suitable for domestic purpose.

Table: Block wise area of Chloride distribution

Chloride Concentration Range(mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																				Total Area (sq km)
	Bali		Desuri		Jaitaran		Marwar Junction		Pali		Raipur		Rani		Rohat		Sojat		Sumerpur		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 250	343.4	34.0	238.6	37.0	84.1	6.0	416.8	31.0	5.3	-	58.6	8.0	303.3	39.0	1.6	0.1	86.3	5.0	51.2	5.0	**1,589.2**
250-1000	653.3	66.0	403.0	63.0	742.7	57.0	668.7	49.0	236.6	18.0	615.7	82.0	360.0	47.0	35.2	2.5	617.1	38.0	590.6	58.0	**4,922.9**
> 1000	-	-	-	-	494.0	37.0	273.5	20.0	1,096.8	82.0	74.6	10.0	106.5	14.0	1,383.1	97.4	941.5	57.0	382.7	37.0	**4,752.7**
Total	**996.7**	**100.0**	**641.6**	**100.0**	**1,320.8**	**100.0**	**1,359.0**	**100.0**	**1,338.7**	**100.0**	**748.9**	**100.0**	**769.8**	**100.0**	**1,419.9**	**100.0**	**1,644.9**	**100.0**	**1,024.5**	**100.0**	**11,264.8**

PLATE - XII



LEGEND

Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- District Boundary
- Block Boundary

Basin Boundary

Water Bodies:

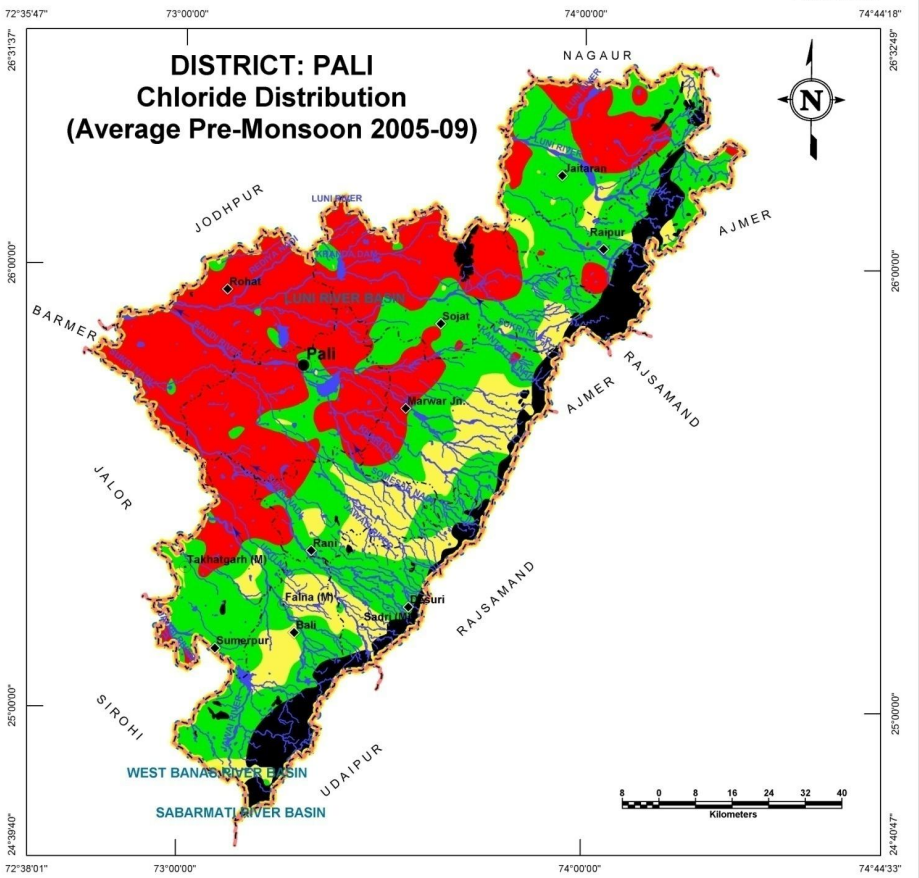
- River / Streams
- Ponds / Reservoirs

Hills

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

- < 2000
- 2000-4000
- >4000

PLATE - XIII



LEGEND

Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- 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 – PALI

The Fluoride concentration map is presented in Plate – XIV. The areas with moderately high concentration (1.5-3.0 mg/l) are shown in green color and occupy approximately 55% of the total district area. The areas with high concentration (>3.0 mg/l) are shown in red color and occupies 26% of the district area, which is not suitable for domestic purpose. Remaining part of the district areas falls under low concentration (<1.5 mg/l) which is shown in yellow color and occupy 20% of the district area. Such low fluoride areas are largely present in southern part of Ladnu block and around the Kuchman City and Nawa where the ground water is suitable for domestic purpose.

Table: Block wise area of Fluoride distribution

Fluoride concentration Range(mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																				Total Area (sq km)
	Bali		Desuri		Jaitaran		Marwar Junction		Pali		Raipur		Rani		Rohat		Sojat		Sumerpur		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 1.5	418.6	42.0	162.5	25.3	19.2	1.5	379.0	27.9	74.0	5.5	250.7	33.5	75.0	9.8	376.6	26.5	225.6	13.7	231.4	22.6	**2,212.6**
1.5-3.0	453.7	45.5	473.1	73.8	1,051.4	79.5	732.7	53.9	566.9	42.4	420.2	56.1	553.0	71.8	556.8	39.2	910.1	55.3	427.0	41.7	**6,144.9**
> 3.0	124.4	12.5	6.0	0.9	250.2	19.0	247.3	18.2	697.8	52.1	78.0	10.4	141.8	18.4	486.5	34.3	509.2	31.0	366.1	35.7	**2,907.3**
Total	**996.7**	**100.0**	**641.6**	**100.0**	**1,320.8**	**100.0**	**1,359.0**	**100.0**	**1,338.7**	**100.0**	**748.9**	**100.0**	**769.8**	**100.0**	**1,419.9**	**100.0**	**1,644.9**	**100.0**	**1,024.5**	**100.0**	**11,264.8**

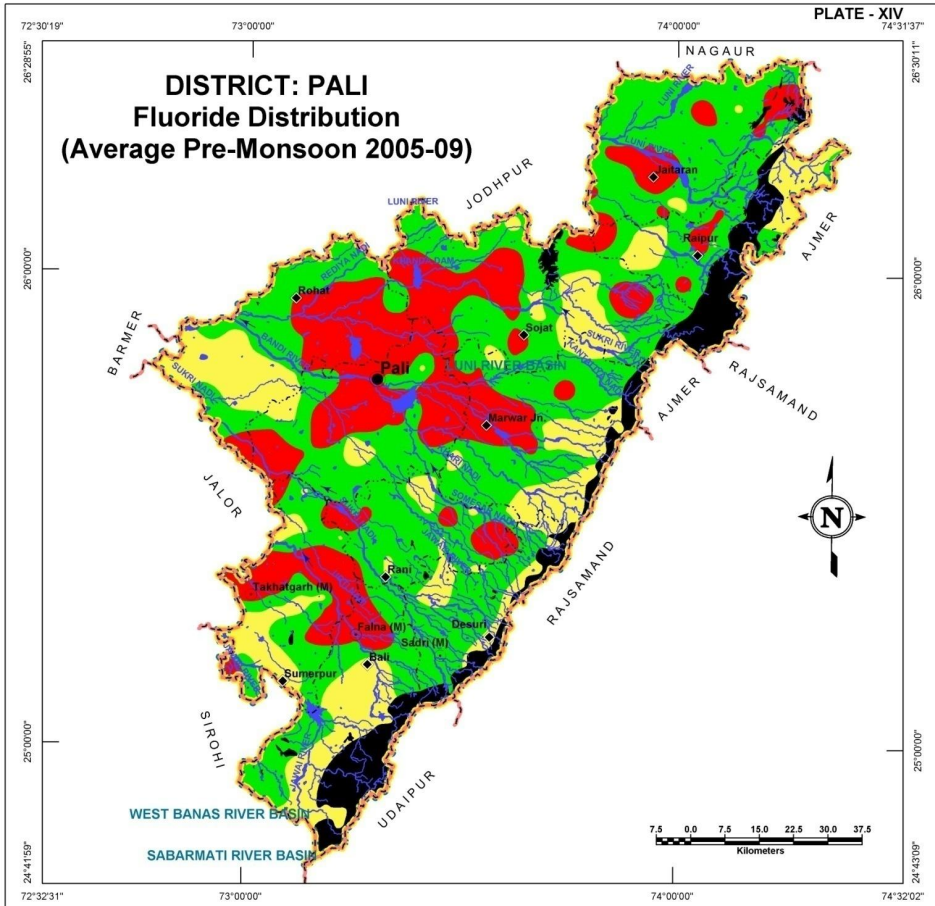
GROUND WATER NITRATE DISTRIBUTION

High nitrate concentration in ground water renders it unsuitable for agriculture purposes. Plate – XV shows distribution of Nitrate in ground water. Low nitrate concentration (<50 mg/l) is shown in yellow color occupy approximately 40% of the district area which is suitable for agriculture purpose. The areas with moderately high nitrate concentration (50-100 mg/l) are shown in green color occupy approximately 38% of the district area. Remaining part of the district area is covered with high nitrate concentration (>100 mg/l) which is shown in red colored scattered patches, largely around Pali, Desuri eastern part of Jaitaran and southern part of Raipur. The ground water in the high Nitrate areas is unsuitable for agriculture purpose.

Table: Block wise area of Nitrate distribution

Nitrate concentration Range(mg/l) (Ave. of years 2005-09)	Block wise area coverage (sq km)																				Total Area (sq km)
	Bali		Desuri		Jaitaran		Marwar Junction		Pali		Raipur		Rani		Rohat		Sojat		Sumerpur		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 50	418.2	42.0	126.1	19.7	646.1	48.9	677.3	49.8	349.9	26.1	223.2	29.8	448.5	58.3	442.4	31.2	617.9	37.6	592.0	57.8	**4,541.6**
50-100	416.4	41.8	133.6	20.8	359.6	27.2	413.7	30.4	693.0	51.8	207.7	27.7	263.5	34.2	588.3	41.4	814.9	49.5	376.4	36.7	**4,267.1**
>100	162.1	16.2	381.9	59.5	315.1	23.9	268.0	19.8	295.8	22.1	318.0	42.5	57.8	7.5	389.2	27.4	212.1	12.9	56.1	5.5	**2,456.1**
Total	**996.7**	**100.0**	**641.6**	**100.0**	**1,320.8**	**100.0**	**1,359.0**	**100.0**	**1,338.7**	**100.0**	**748.9**	**100.0**	**769.8**	**100.0**	**1,419.9**	**100.0**	**1,644.9**	**100.0**	**1,024.5**	**100.0**	**11,264.8**

PLATE - XIV



LEGEND

Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- District Boundary
- Block Boundary

Basin Boundary

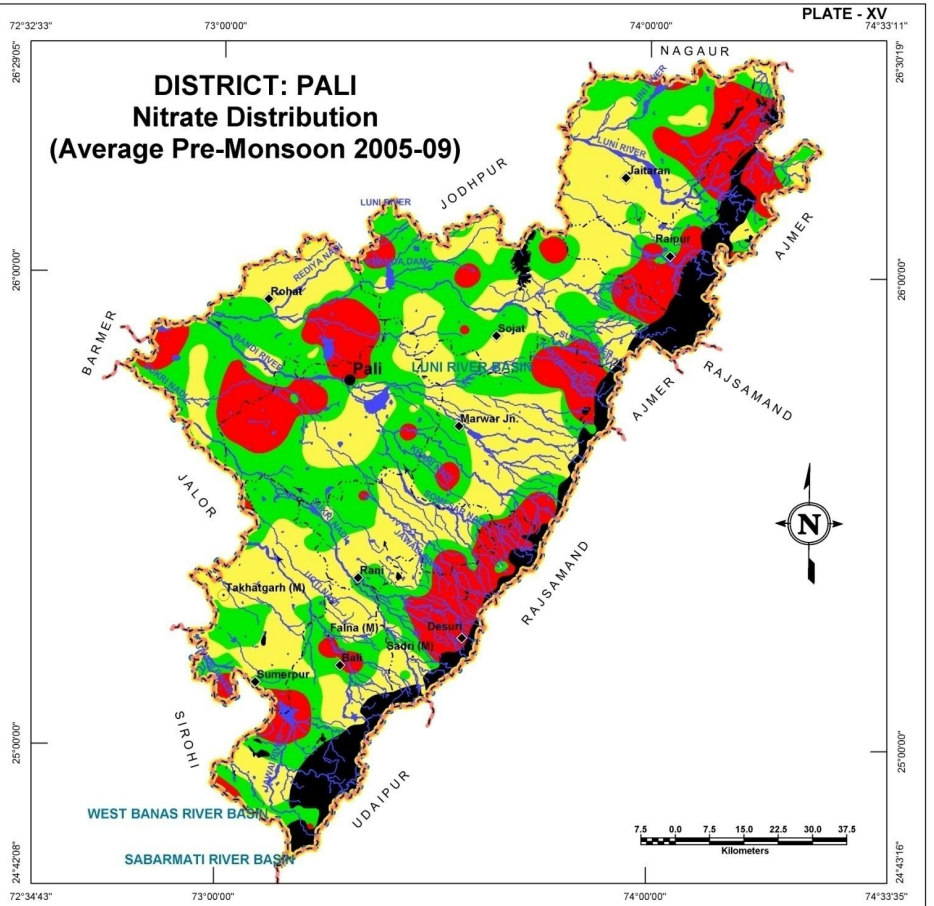
Water Bodies:

- River / Streams
- Ponds / Reservoirs
- Hills

Fluoride Concentration (mg/l):

- < 1.5
- 1.5-3.0
- > 3.0

PLATE - XV



LEGEND

Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- 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 – PALI

Plate – XVI depicts the bedrock depth below ground level in Pali district. The beginning of massive bedrock has been considered for defining top of bedrock surface. It varies from less than 20mbglto more than 80m bgl. The major rocks types constituting the bedrock are limestone, phyllite, granite and gneiss. 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 uneven and varies from very shallow near hardrock exposure in the eastern part of the district to about 80m bgl in the western part. Southern part of the district i.e., in Bali, Desuri, Marwar Junction, Rani and Sumerpur blocks, the bedrock depth is less (of the order of <20 to 40 m bgl). In Jaitaran, Marwa Junction, Pali, Raipur, Rohat and Sojatblocks and a very small portion of Sumerpur block, the bedrock depth often reaches 60m bgl. In the northeastern parts of Jaitaran, Pali, Rohat and Sojat blocks bedrock is encountered between 60m to 80mbgl.

Depth to bedrock (m bgl)	Block wise area coverage (sq km)																				Total Area (sq km)
	Bali		Desuri		Jaitaran		MarwarJ		Pali		Raipur		Rani		Rohat		Sojat		Sumerpur		
	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	Area	%age	
< 20	-	-	-	-	-	-	-	-	-	-	26.0	3.0	-	-	-	-	-	-	-	-	**26.0**
20-40	996.7	100.0	641.6	100.0	386.5	29.3	490.0	36.1	542.5	41.0	462.9	62.0	769.8	100.0					1,023.6	100.0	**5,313.6**
40-60	-	-	-	-	380.9	28.8	869.0	63.9	269.1	20.0	260.0	35.0	-	-	1.3	0.1	1,045.2	64.0	0.9	-	**2,826.4**
60-80	-	-	-	-	359.8	27.3	-	-	432.9	32.0	-	-	-	-	730.8	51.5	204.0	12.0	-	-	**1,727.5**
> 80	-	-	-	-	193.6	14.6	-	-	94.2	7.0	-	-	-	-	687.8	48.4	395.7	24.0	-	-	**1,371.3**
Total	**996.7**	**100.0**	**641.6**	**100.0**	**1,320.8**	**100.0**	**1,359.0**	**100.0**	**1,338.7**	**100.0**	**748.9**	**100.0**	**769.8**	**100.0**	**1,419.9**	**100.0**	**1,644.9**	**100.0**	**1,024.5**	**100.0**	**11,264.8**

UNCONFINED AQUIFER

Unconfined aquifer in alluvial areas

Alluvial material forms aquifers mainly in the northern and western parts of the district where it varies in thickness from less than 10 to about 90m. The general thickness ranges from 10 to 30m in most of the blocks but at one location in Jaitaran block it reaches to very high thickness of about 90m.

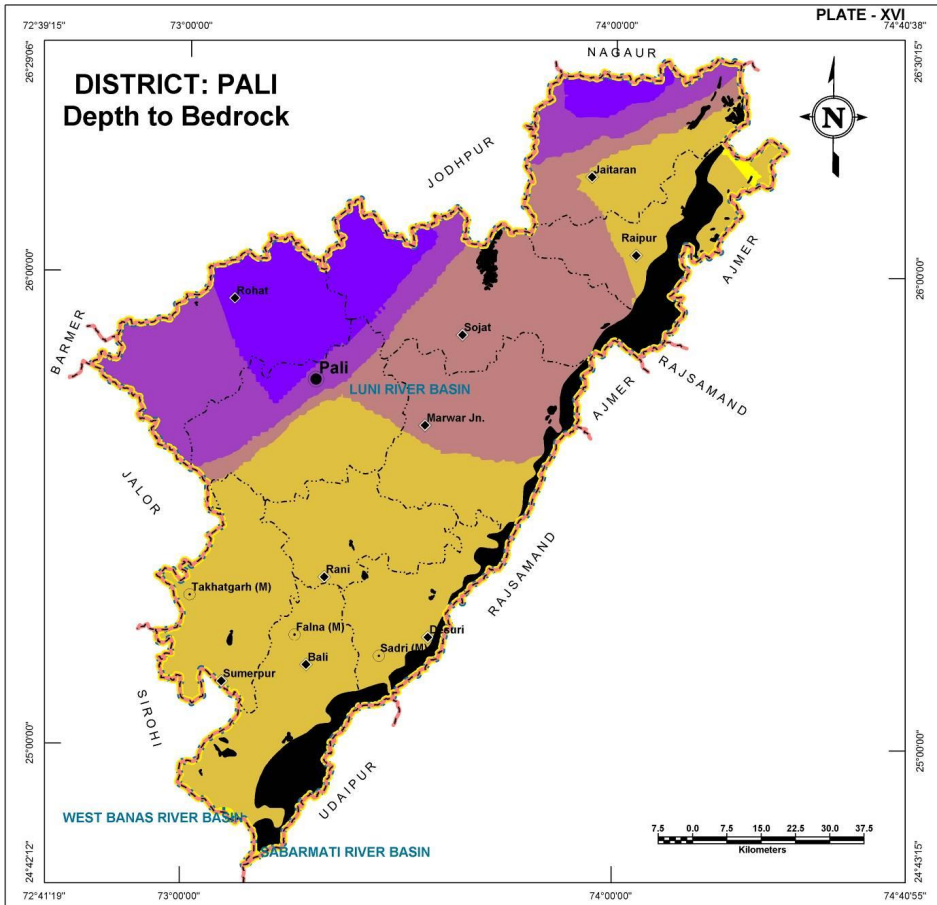
Unconfined aquifer Thickness (m)	Block wise area coverage (sq km)										Total Area (sq km)
	Bali	Desuri	Jaitaran	Marwar J	Pali	Raipur	Rani	Rohat	Sojat	Sumerpur	
< 10	84.3	0.2	273.6	169.7	349.2	28.3	59.6	214.4	273.8	553.7	**2,006.8**
10-20	-	-	221.1	-	11.0	6.5	-	556.5	-	35.0	**830.1**
20-30	-	-	224.2	-	-	0.8	-	77.0	-	2.6	**304.6**
30-40	-	-	98.0	-	-	-	-	-	-	-	**98.0**
40-50	-	-	48.0	-	-	-	-	-	-	-	**48.0**
50-60	-	-	25.7	-	-	-	-	-	-	-	**25.7**
60-70	-	-	14.8	-	-	-	-	-	-	-	**14.8**
70-80	-	-	7.8	-	-	-	-	-	-	-	**7.8**
80-90	-	-	3.6	-	-	-	-	-	-	-	**3.6**
> 90	-	-	0.8	-	-	-	-	-	-	-	**0.8**
Total	**84.3**	**0.2**	**917.6**	**169.7**	**360.2**	**35.6**	**59.6**	**847.9**	**273.8**	**591.3**	**3,340.2**

Unconfined aquifer hardrock areas

Weathered, fractured and jointed rock formations form the phreatic aquifer in the areas where hard rocks are exposed or occur at shallow depths. Such zone attains localized high thicknesses (mainly in Sumerpur, Rohat, Raipu and Sojat blocks) in the range of 40 to 100m but generally ranges between 10 to 40m only in the district.

Unconfined aquifer Thickness (m)	Block wise area coverage (sq km)										Total Area (sq km)
	Bali	Desuri	Jaitaran	MarwarJ	Pali	Raipur	Rani	Rohat	Sojat	Sumerpur	
<10	69.7	47.7	44.4	345.8	163.8	175.7	176.4	10.2	121.5	14.3	**1,169.5**
10-20	435.9	260.5	108.8	311.5	393.8	146.8	257.8	218.2	356.6	117.2	**2,607.1**
20-30	210.2	191.1	181.3	354.7	286.7	219.9	187.3	170.4	455.7	130.3	**2,387.6**
30-40	125.9	129.0	48.0	133.2	114.3	127.2	85.6	99.1	289.4	46.0	**1,197.7**
40-50	46.5	13.1	12.2	43.8	19.9	34.0	3.1	39.7	116.1	29.4	**357.8**
50-60	19.9	-	6.3	0.3	-	6.4	-	18.7	25.9	25.8	**103.3**
60-70	4.3	-	2.1	-	-	3	-	9.5	5.2	25.3	**49.4**
70-80	-	-	0.1	-	-	0.3	-	4.5	0.6	20.3	**25.8**
80-90	-	-	-	-	-	-	-	1.7	0.1	13.2	**15.0**
90-100	-	-	-	-	-	-	-	-	-	7.8	**7.8**
> 100	-	-	-	-	-	-	-	-	-	3.6	**3.6**
Total	**912.4**	**641.4**	**403.2**	**1,189.3**	**978.5**	**713.3**	**710.2**	**572.0**	**1,371.1**	**433.2**	**7,924.6**

PLATE - XVI



LEGEND

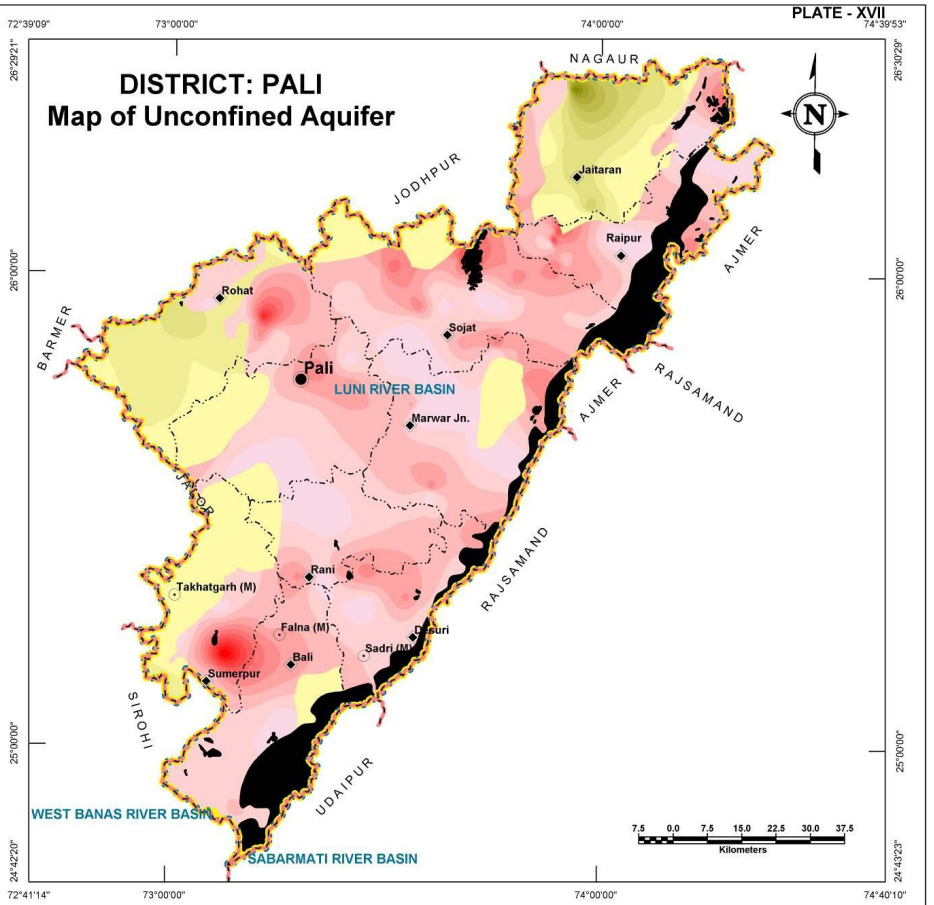
Admin Boundary:

- District Headquarter
- Block Headquarter
- Town
- 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:

- District Headquarter
- Block Headquarter
- Town
- District Boundary
- Block Boundary
- Basin Boundary
- Hills

Aquifer Thickness(m):

Alluvial Area	Weathered & Fractured Zone in Hardrock Area
<10	<10
10-20	10-20
20-30	20-30
30-40	30-40
40-50	40-50
50-60	50-60
60-70	60-70
70-80	70-80
80-90	80-90
>90	90-100
	>100

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 groundwater 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	GROUNDWATER 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 groundwater 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.

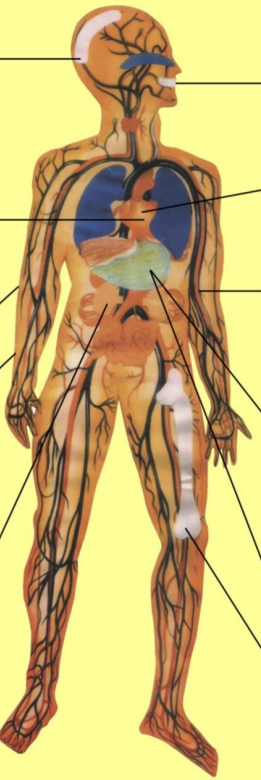
(Contd…)

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

केन्द्रीय भूमि जल बोर्ड,
पश्चिमी क्षेत्र, जयपुर
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भारत सरकार
e-mail:cgwbwr@sancharnet.in

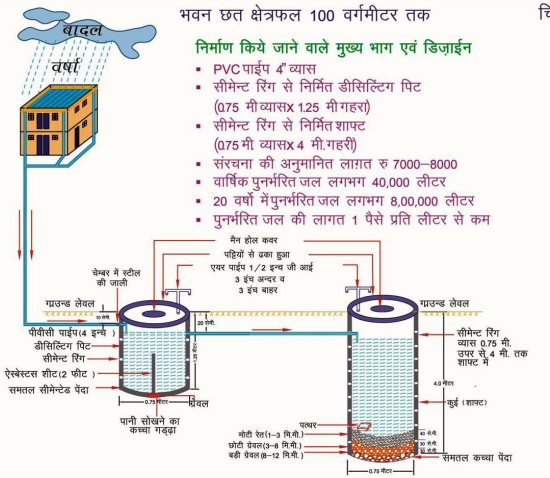
भूजल अमूल्य है इसे प्रदूषित न करें।

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 वर्षो में पुनर्भरित जल लगभग 8,00,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम

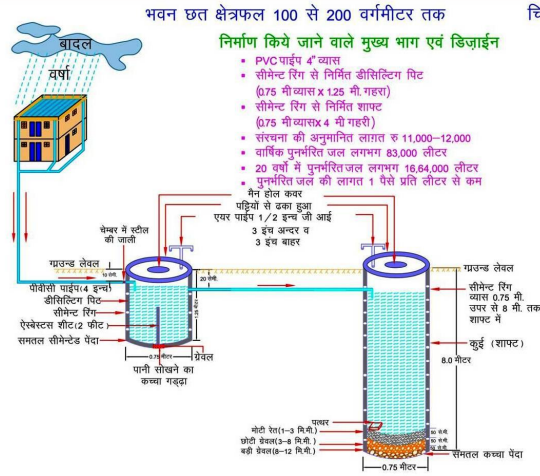


चित्र–2

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 वर्षो में पुनर्भरित जल लगभग 16,64,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम

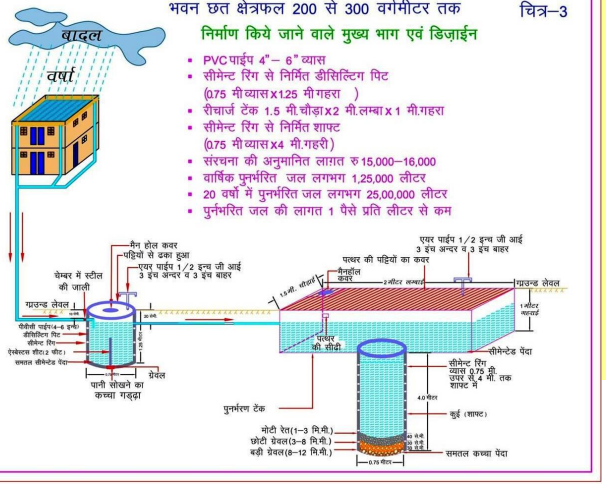


चित्र–3

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 वर्षो में पुनर्भरित जल लगभग 25,00,000 लीटर
- पुनर्भरित जल की लागत 1 पैसे प्रति लीटर से कम

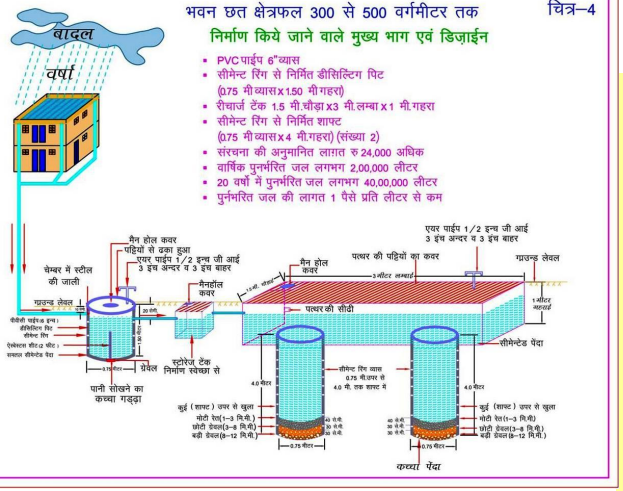


चित्र–4

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 वर्षो 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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