



DRAFT NOTE

DISTRICT SURVEY REPORT (D.S.R.)

OF

DISTRICT-PRATAPGARH

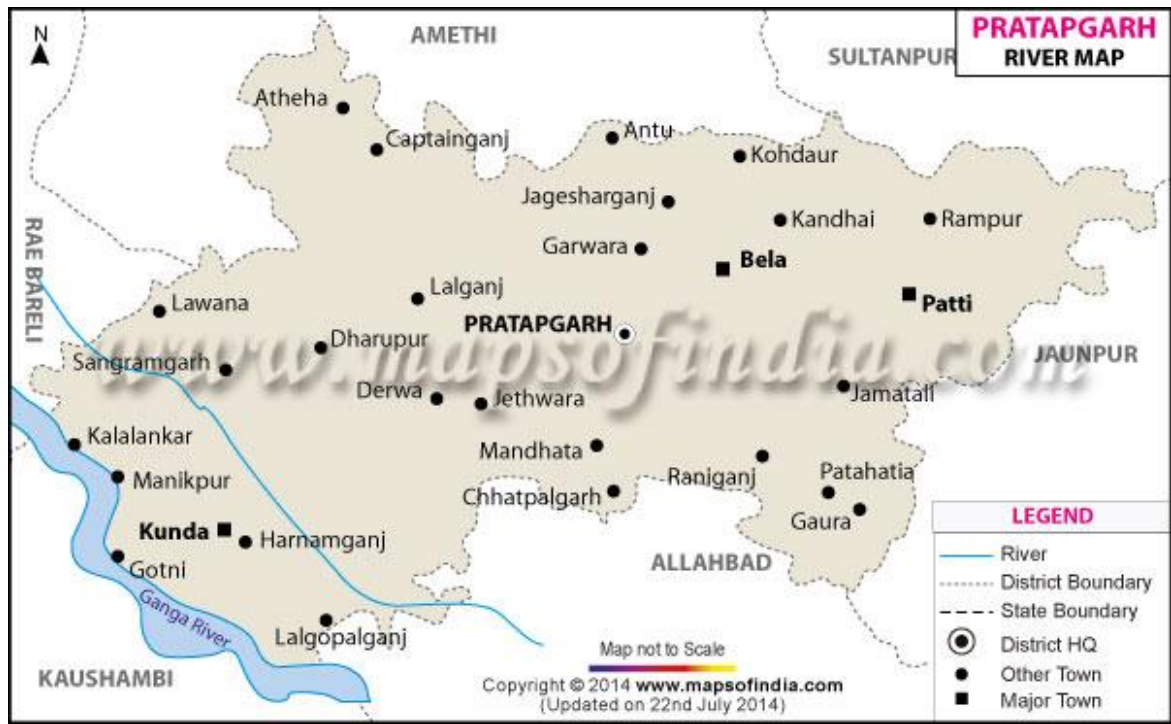
AS PER NOTIFICATION NO.S.O.141(E)

NEW DELHI

15TH JANUARY, 2016

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

(MOEF AND CC)



1. **Introduction:** The State of Uttar Pradesh has a long and interesting history of Mining of Minerals. In the early days Copper, Lead, Iron ore and Placer Gold have been mined on a small scale in parts of Himalayas, Bundelkhand and South-Eastern districts. In addition Vindhyan Sand/morrum Stone as building and Mill Stone were also mined in the districts of Agra, Allahabad and Mirzapur. Pratapgarh district falls in Allahabad division and comprises of 5 tehsils namely Sadar, Raniganj, Patti, Lalganj and Kunda. It has divided into 16 Blocks and each blocks divided by many Nyay Panchayat. Pratapgarh town is the seat of administration of Pratapgarh District. According to the 2011 census Pratapgarh district has a population of 3,173,752. This gives it a ranking of 109th in India out of a total of 640 districts. It has a population density of 863 inhabitants per square kilometer. Its population growth rate over the decade 2001-2011 was 16.20%. Pratapgarh has a sex ratio of 994 females for every 1000 males and a literacy rate of 73.01%.

2. **Overview of Mining Activity in the District:**

District	Total Number of Brick kilns.	Number of bricks applied for EC.	Number of bricks Obtained EC.	Number of bricks sought EDS by DEAC.	Notice issued to shutdown.
Pratapgarh	381	224	179	45	45

District	Total Number of area regarding Sand mining.	Advertised area for short term mining permit.	Available area for long term mining leases.
Pratapgarh	02	01 (Latter of intent issued for the area)	01

3. **Details of available sand mining area.**

S.No	Tehsil	Village/Zone No.	Gata No./kh and No.	Area in Hec.	Name of Mineral	Mineable Mineral Reserve (cum)
1.	Kunda	Gotni Kachhar	131	4.04	Sand	80940.00
2.	Kunda	Sangrampur Kachhar	1 to 21,116 to 119.	33.645	Sand	504675

4. **Details of Royalty or Revenue received in last three years:**

Revenue from Office of Mines,Pratapgarh:

S.No.	Year	Amount (in Rs.)
1.	2014-15	31816881.00
2.	2015-16	36804097.00
3.	2016-17	39482939.00

5. Details of Production of minor mineral in last three years:

S.No.	Year	Production(Approximate)
1.	2014-15	2272634 Cubic meter.
2.	2015-16	1226803 Cubic meter.
3.	2016-17	1316098 Cubic meter.

6. Process of Deposition of sediments in the river of the districts: The Ganga is the main rivers of the district. The district is mostly covered by the plains of the Ganga at kachhar area of Tahsil Kunda. Saie and some other rivers are also covered in the districts. These rivers play a pivotal role in the deposition of sediments. It has been estimated that 1.20 cm layer per day of river borne minerals get deposited every year during the inundation caused by the major river system formed of Ganga and Saie Rivers.

7. General Profile of the District: The Pratapgarh district is one of the districts of Uttar Pradesh state of India, and Pratapgarh town is the district headquarters. The Pratapgarh district is a part of Allahabad division and lies between 25° 34' and 26° 11' latitudes while between 81° 19' and 82° 27' longitudes. According to the 2011 census Pratapgarh district, Uttar Pradesh has a population of 3,173,752, roughly equal to the nation of Mongolia or the US state of Iowa. This gives it a ranking of 109th in India (out of a total of 640). The district has a population density of 854 inhabitants per square kilometre (2,210/sq mi). Its population growth rate over the decade 2001-2011 was 16.2%. Pratapgarh has a sex ratio of 994 females for every 1000 males, and a literacy rate of 73.1%.

Major Soil Types: Older Alluvial soil consisting broadly of Bhur or sandy, Matiyar or clay rich and Domat or Loam.

Predominant Geological Formations: Quaternary Alluvial comprising of older and newer Alluvium over Vindhyan Plateau with lateritic capping at places.

Hydrogeology and aquifer group: Kachhar area of Tahsil kunda in pratapgarh District lies in the doab of Ganga. Groundwater occurs in thick zone of saturation of unconsolidated sediments. Two-tier aquifer system prevails;

I Tier	Phreatic Ground water level to 120 meter,
II Tier	Confined 150m to basement,

Major water bearing formation: Quaternary sediments deposited over concealed basement making to major freshwater aquifer groups. Hydrogeological Set-up: Exploratory drilling data of CGWB and state tubewell department show that there are three tier aquifer system in the district. The Ganga alluvial plain in the district comprises of an aquifer system that forms good repository of groundwater. The details of aquifers are below: a) Shallow Aquifer (Ist Aquifer): It consist of silt and fine sand. It runs upto 150mbgl in most of the area except southernmost part of the district where it runs upto 225mbgl. It is fresh in nature. b) Middle Aquifer (IIInd Aquifer): It is saline in nature and ranging in thickness from 90 to 225m in most of the area but this depth is variable in space. The salinity of this aquifer is regional in nature. c) Deeper Aquifer (IIIrd Aquifer) Underlies the intermediate brackish aquifer and is separated from the letter by thick clay layer. The maximum depth of this aquifer has not yet been estimated which however exceeds 608m at places.

Ground Water Condition: Ground water is mainly controlled by drainage, topography and lithological behavior, it occurs under phreatic condition at shallow depths and under confined condition at deeper depth. Depth to water in pre-monsoon ranges between 2.85 to 15.00 mbgl. Postmonsoon water level varies between 1.50 to 11.50 mbgl. Average water level fluctuation is 3.50m. After the study of long term water level trend, it is inferred that 75% of well show the decline trend and 25% show rising trend during premonsoon period. The yield of the wells vary from 947 to 3700 lpm. The data of the State tubewells indicate that the discharge ranges from 700 to 2000 lpm.

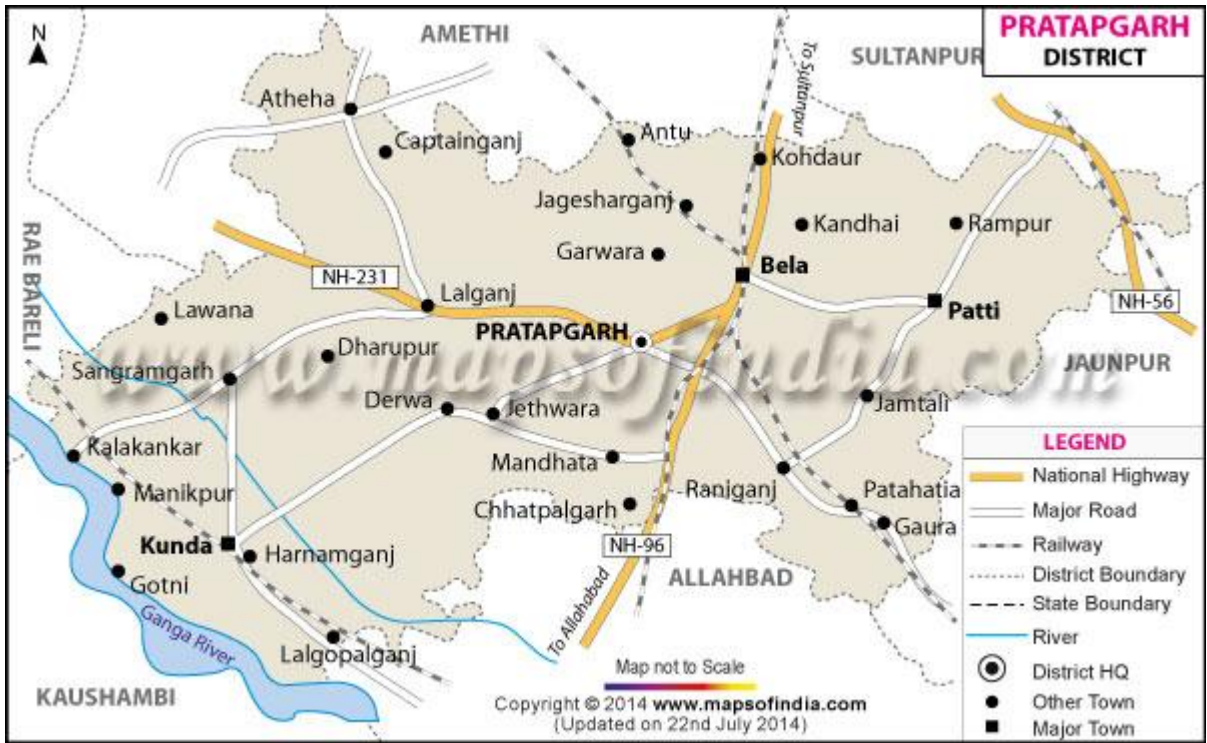
6.1 Ground Water Resources: To facilitate the ground water development the ground water resources of the district have been worked out and are as follows. (Table-II): Table-II BLOCK WISE GROUND WATER RESOURCES OF Pratapgarh District, U.P. (as on 01-04-2009)

Sl. No.	Assessment unit	Ground water	Ground Level	Category	Balance No.
	(Blocks)	availability	water draft	development	as on ground
	(Ham)	(Ham)	(%)		
31.03.09	water (Ham)	1 Sangipur	7412.24	5703.02	76.94 Safe
		2 Sandawa	1082.31	5711.33	5620.63
		3 Magraura	98.41	5742.44	66.65
		4 Aspur	2228.88	5207.93	68.05
		5 Rampur	1896.77	5184.92	108.94
		6 Laxman purpur	6482.86	4514.91	75.23
		7 Sadar	4759.23	5184.92	108.94
		8 Shivgarh	7412.24	5703.02	94.89
		9 Patti	6663.14	5190.36	77.90
		10 Belkharnath	4660.00	3913.38	83.98
		11 Kalakankar	8139.42	5126.42	62.98
		12 Kunda	10298.87	7490.03	72.73
		13 Bihar	9629.45	5460.61	56.71
		14 Babaganj	11280.22	5698.31	50.52
		15 Mandhata	6684.48	5996.72	

89.71 Safe 0.01 16 Gaura 8532.82 5659.03 66.39 Safe 2317.47 17 Lalganj 6234.86
4085.28 65.52 Safe 1700.70 Total 126236.34 90192.50 71.45 27255.26.

Location code number	District/CD Block/Town	Total /Rular /Urban	Area in square km.	Number of house hold.	Total population (including institutional and houseless			Population in the age group 0-6		
					Persons	Males	Females	Persons	Males	Females
173	Pratapgarh	Total /Rular /Urban	3717.00 3669.00 47.87	533548 505129 28417	320914 1 303389 9 175242	160608 5 151558 3 90502	160305 6 151831 6 84740	45334 7 43155 6 21791	23647 8 22510 2 11376	216869 206454 10415
0433	Sangipur	Rular	265.27	33192	187198	91752	95446	25458	13204	12254
0434	Lalganj ajhara	Rular	186.99	23225	130648	65029	65619	18224	9442	8782
0435	lakshamanpur	Rular	217.52	29305	173074	86163	86911	24220	12605	11615
0436	Rampur sangramgarh	Rular	214.54	27734	159498	80546	78952	22527	11705	10822
0437	kalakankar	Rular	179.86	27817	153576	77487	76089	22552	11715	10837
0438	babaganj	Rural	224.87	33536	188503	93722	94781	26926	13834	13092
0439	Kunda	Rural	284.76	44323	252830	129027	123803	36901	19237	17664
0440	Vihar	Rural	271.94	40589	233032	116206	116826	34213	17911	16302
0441	Sandwa chandika	Rural	231.05	28655	166877	83295	83582	21690	11289	10401
0442	Pratapgarh	Rural	193.30	30080	186440	94774	91666	24906	13194	11712
158999	Dahilamau	Urban	4.00	1064	6016	3160	2856	650	348	302
159000	Karanpur	Urban	1.51	1340	8185	4247	3938	966	511	455
0443	Mandhata	Rural	228.09	36326	221140	111318	109822	30637	15990	14647
0444	Mangraura	Rural	234.45	27176	174346	86621	87725	25306	13173	12133
0445	Patti	Rural	159.44	18900	125063	61897	63166	17436	9217	8219
0446	Aspur devsara	Rural	212.07	27212	179332	87790	91542	25284	13172	12112
0447	Shivgarh	Rural	196.13	25997	168786	84789	83997	24319	12890	11429
0448	Gaura	Rural	239.11	31899	212537	105535	107002	33122	17253	15869
0449	Baba belkharnath	Rural	145.90	19163	121019	59632	61387	17835	9271	8564

GOOGLE MAP SHOWING DISTRICT BOUNDRY PRATAPGARH



8. Land utilization pattern in the district: Forest, Agriculture, Horticulture, Mining etc.:

Geographical area of the forests cover in the districts, based on interpretation of satellite data of AS PER 2013-14- is 95 Km² which is approximately 2.56 % of the district’s geographical area. In terms of forest canopy density classes, district has about 28 Sq. Km. area under moderately dense forest and approximately 68 Sq. Km. under open forest. The main forest species are Mahuwa, Mango, Teak, Jamun, Bel, Tandu, Bamboo, Guava, Palas, Amla, etc.

Land Utilization			
i) Total Area	2015 - 16		3717 square meter
ii) Forest cover	2015 - 16		95 square meter
iii) Non Agriculture Land	2015 - 16		405.66 square meter
iv) Cultivable Barren	2015 - 16	Hectare	7413
v) Forest Area	2015 - 16	Hectare	569

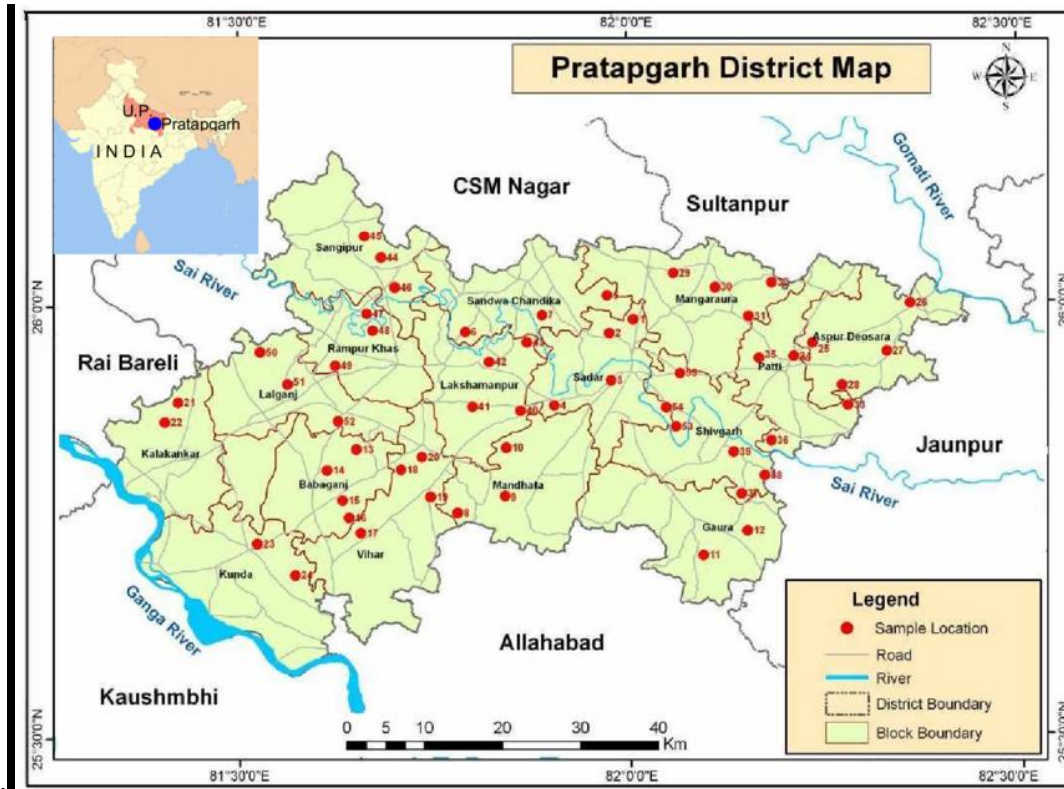
PHYSIOGRAPHY The district area in general is more or less flat. Along the course of stream and rivers, ravenous topography has been developed. In southwestern part of district particularly along Sangramgarh-Jethwara road is dotted with numerous physical

manifestation like oxbow lakes formed due to breaking of river Bakulahi. Prominent depressions observed in southern part of district reflects that either due to stoppage of water supply or meandering of streams are responsible for their generations. The average elevation of the land surface is about 100-115mamsl. The general slope of the tract is from NW to SW. The topography is influenced or modified by the existing rivers and streams.

3.0 GEOLOGY The district occupies a part of Indo- Ganga plain and is underlain by Quaternary sediments consisting of clays, silt, kankar and sands of different grade. The thickness of these quaternary sediments over the district increases gradually towards north.

3.1 Sub-Surface Geology: Subsurface geology of the district has been inferred on the basis of 16 borehole data. Thickness of quaternary alluvium varies on regional scale. Lithological logs indicate that the sediments upto 250.00mbgl has been deposited under fluvatile condition. The basement occurs at about 400.00mbgl in the eastern part of the district and gradually diminishes towards western part in the district.

4.0 HYDROMETROLOGY The average annual rainfall is 997.00 mm. Climate is sub humid and is characterized by hot summer and pleasant monsoon and cold season. About 90% of rainfall takes place from June to September. During monsoon surplus water flows into rivers and streams un-arrested due to hilly topographic features in Northern part of the district. In February there is increase in temperature, May is the hottest month with the mean daily maximum temperature is 43.5°C and mean daily minimum temperature is 28.0°C. The Average temperature ranges from 16.15 to 34.80 C. The average temperature from March to June do not fluctuate much. The average relative humidity ranges from 25 to 81%. The average monthly relative humidity of the district is 55.96 %. Winds are generally high with some increase in force during summer and southwest monsoon season. The mean wind velocity is 5.4Km/hr. and potential evapotranspiration rate is 1456.7 mm.



Major Drainage: The flow of water through well-defined channels is known as “drainage” and the networks of such channels are called a “Drainage System”. The drainage pattern of an area is the outcome of the geological time period, nature and structure of rocks, topography, slope, amount of water flowing and the periodicity of the flow.

Pratapgarh drainage system is formed by the Ganges and the river Saie along with the tributaries and is a part of Northern “Dendritic” drainage system however; major part of the drainage system of the districts is of Ganges. The Doab of the Pratapgarh plains is fertile and renders 80% of total cultivable land. Saie river, bakulahi, etc part of Ganga river sub-basin which again is part of Ganga drainage system.

Flood plain: The Ganga river channel and its adjacent area forming terraces which are subjected to periodic flooding, consisting of sand, silt and silty sand with minor clays, form the flood plain of river. This is a narrow zone along the river channel and gets flooded regularly during rainy season.

9. **Rainfall: Month-wise:** Average Rainfall (mm) is 711. The climate is typical sub humid punctuated by long and intense summer and mild winters. About 88% of the

annual rainfall is received from south-west monsoon. May is the hottest month with temperature shooting up to 44.80C. With the advance of monsoon by about mid June, temperature starts decreasing. January is usually the coldest month with the temperature going up to 120C. The relative humidity is highest during south-west monsoon ranging between 80% to 85% with its lowest around 30% during peak summer months of April and May.

10. **Geology and Mineral Wealth:**No mineral deposit is available in Pratapgarh except for Ordinary Sand/clay reported in some parts of the district. Production figure during the year 2010-11 is as under:

PRODUCTION OF MINERAL 2014-17-

S.NO.	NAME OF MINERAL	PRODUCTION in tonnes 2014-2017
MAJOR MINERAL		NIL
MINOR MINERAL		
1.	MINOR MINERAL	2014-15 2272634 Cubic meter.
2.	MINOR MINERAL	2015-16 1226803 Cubic meter.
3.	MINOR MINERAL	2016-17 1316098 Cubic meter.

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in Km)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
DD				

DD Data Deficient

11. GEOLOGY AND MINERAL WEALTH

1. **Geology:-** Geologically the district forms part of the vast Indo-Gangetic alluvial tract, of which the origin is attributed to a sag in the earth's crust, formed, in the upper eocene times, between the northwardly drifting Gondwanaland and the rising Himalayan belt, and gradually filled in by sediments so as to constitute a level plane with a very gentle seaward slope.

The alluvium formation of the district, comprising sand, silt & clay with occasional gravel, is of the early quaternary to sub-recent age. The older alluvium called bhangar, forms slightly elevated terraces usually above the flood levels. It is rather dark in colour generally rich in concretions and nodules of impure calcium carbonate, locally known as kankar. The newer alluvium, called khandar, forming the lowlands between the Ganga and Bhangar, is light coloured, poor in calcareous content and composed of lenticular beds of sand, gravel and clays. The economic minerals found in the district are kankar, reh and sand.

1.1 Regional Geology:-

The Pratapgarh district is a part of the Central Ganga alluvial plain mainly constituted of clay, silt, sand, gravel and kankar sediments of Quaternary age. These alluvial deposits of the area may be broadly classified into newer and older litho-units on the basis of sedimentary constitution, depositional and developmental geological history.

Soil type of the area are generally categorized as-

- a) **Bhur:-** It is youngest soil which occurs along the river beds and contains large portion of sand.
- b) **Matiyar:-** It occurs in low lying areas and contains large portion of clay.
- c) **Dumat:-** It is a loamy soil with dark color, having clay and sand in equal proportion and can be categorized as intermediate type of 'Bhur' and 'Matiyar' and generally occurs in central part of the area.
- d) **Pilia:-** Lighter soil than Dumat and is an intermediate type of 'Dumat' and 'Bhur'

The sediments of newer alluvium are mainly arenaceous in nature and are found in topographically lower region. These sediments are loose, unconsolidated, flood plain deposits or back swamp deposits and are confined in narrow strips all along the present drainage system. The younger alluvium material resembles mineralogically to older alluvium. The facieses of the river bank deposits are sandy, silty, and clayey. The sandy older alluvium is located at an elevation of 10–20 m above the river level and makes the higher interfluvial areas. It is free from frequent flooding and therefore most suitable for settlement and agriculture. Newer alluvium forms the river valley

terrace and is located at an elevation of 5–10 m above river level. This terrace is not suitable for settlement but can be used for agriculture, as it is often affected by flood. The flood plain is located at an elevation of 2–5 m above the river level. Water reaches almost every year on this plain. It is neither suitable for settlement nor for agriculture. Only sand can be extracted as a building material supplement. The facieses is prominent in the lower and middle part measuring about 120- to 300-cm thick unit is devoid of sedimentary structures, only faint low-angle discordances are visible at some places.

The sandy unit is underlain by 20- to 40-cm thick silty unit. The upper most part is 10- to 20-cm clayey unit. The facieses of the river bank deposits are laterally persistent, only thickness and percentage of different litho units may vary from place to place. The older alluvial litho-unit is mainly constituted of the cyclic sedimentary formations of oxidized clay, silt and grey to brown sand occasionally mixed with kankar and ferro-magnesium nodules. The major part of the study area is occupied by this litho-unit. This litho-unit had developed in the river-channel depositional environment between Middle to Upper Pleistocene Age. The Varanasi older alluvial plain is the main litho geomorphic unit developed in this older alluvium. This older alluvial unit may be further classified into clayey and sandy facies, as per their sedimentary constitution. The newer alluvium litho-unit constitutes mainly the present flood plain channel alluvium & sand bars etc. The newer alluvium had developed mainly during the Holocene period. This litho-unit is also constituted of the cyclic sedimentary formations of oxidized clay, silt and grey fine to medium grained sand.

The geological succession of PratapgarhRegion:

The district is located within **Zone-2 (Moderate Zone) of seismic zone** of India in the Doab region of rives Ganga

The general geological sequence of the formation is given below-

Group	Age	Formation	Lithology
Quaternary	Recent to Upper Pleistocene.	Newer Alluvium	Fine Sand, Silt & Clay
	Upper Pleistocene to Lower Pleistocene	Older Alluvium	Clay with Kankar and of different grades
Purana	Pre- Cambrian	Vindhyan	Sand stones & Shale and Lime stone

2. Local Geology

The main mineral wealth of the district is sand and the local geology of the area is sandy. The facieses of the river bank deposits are sandy, silty, and clayey. The sandy older alluvium is located at an elevation of 10–20 m above the river level and makes the higher interfluvial areas. It is free from frequent flooding and therefore most suitable for settlement and agriculture. Newer alluvium forms the river valley terrace and is located at an elevation of 5–7m above river level. This terrace is not suitable for settlement but can be used for agriculture, as it is often affected by flood. The flood plain is located at an elevation of 2–5 m above the river level. Water reaches almost every year on this plain. It is neither suitable for settlement nor for agriculture (Bhardwaj et al. 2010a, b). Only sand can be extracted as a building material supplement. The facieses is prominent in the lower and middle part measuring about 120- to 200-cm thick unit is devoid of sedimentary structures, only faint low-angle discordances are visible at some places.

The sandy unit is underlain by 0.60- to 0.50-m thick silt-soil unit in river channel while, along bank it is up to 2.00m thick. The upper most part is 10- to 20-cm thick clayey unit. The facieses of the river bank deposits are laterally persistent, only thickness and percentage of different litho units may vary from place to place.

MINERAL WEALTH :

The main mineral wealth of the district is sand. 37.685 ha. area has been marked having potential of 585615 Cubic Meter sand production. The list of marked area has already been detailed in section 3 in detail.

In addition to the above details are tabulated here for additional detail

a) District wise detail of river or stream and other sand source

Salient Features of Important Rivers and Streams:

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin
1.	Ganga	35	Gaumukh, Gangotri Glacier at an elevation of 3892 mt. MSL.

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in meter)	Average width of Area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)
37.685 ha	1256	300	376850

b) District wise availability of sand or gravel or aggregate resources

Mineral Potential

Boulder (m3)	Bajari (m3)	Sand (m3)	Total Mineable Mineral Potential (m3)
Nil	Nil	585615	585615