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## A STUDY OF BUNDELKHAND REGION OF UP- WITH SPECIAL REFERENCE TO GEOGRAPHIC RESOURCES

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### **Abstract:**

India is a country of different cast creed and cultures. There are several states in the India representing the unity in the diversity of India. **Bundelkhand** is a geographical and cultural region having a mountain range in central & North India. The hilly region is now divided between the states of Uttar Pradesh and Madhya Pradesh. While discussing about bundelkhand regions problem is of low rainfall hot climate dry land, low population and mismanagements.

Bundelkhand is surrounded by Vindhyan Plateau in south, river Yamuna in north, river Ken in east and rivers Betwa and Pahuj in west. The agricultural practices mainly depend on soil types. The soil types are Red sandy soils, Shallow black soils, mixed red and black sand, and Alluvial soils which require more water. The total replenishable ground water resources of the Bundelkhand region in Uttar Pradesh have been estimated as 3798 Million Cubic Meter (MCM). Bundelkhand region has developed majority of its surface water resource by constructing irrigation schemes of its water share. The general feature of the rivers in Bundelkhand is that these swell during monsoon and almost dry up during summer. Water conservation has been made by constructing storage dams. The Bundelkhand region is under developed, most backward and frequent drought ridden, where people live mainly at the mercy of nature and climate. There is no industrial climate mainly due to scarcity of water, power and skilled labour.

The basic strategy for sustainable development is the development of agriculture. Water and land conservation are two set of parameters which need much attention for development of agriculture. The rain water should be harvested to the maximum extent and should be judiciously used for agriculture. Water harvesting measures would improve ground water availability also.

## Introduction

Bundelkhand of Uttar Pradesh in India is primarily agriculture based with about 2/3rd of its population dependent on agriculture and allied activities.. But, its southern part, of Uttar Pradesh which is the Bundelkhand region, is devoid of fertile land and has many obstacles in its agriculture sector. The agriculture is dependent on many factors. low quality of irrigation in terms of sustainability and the availability of water resources, long term drying up of traditions of maintaining ponds, reduction in the ground water level and nondiscretionary use of water have really accentuated the problem of low agricultural productivity for the region.

Particular problems of this region owe much to its geology in most parts of the entire region, an impermeable rocky layer is found at fairly shallow depths Hence runoff of both rainwater and soil is high and Bundelkhand is prone to both floods and drought in the whole Bundelkhand region.

The problem is further aggravated by erratic precipitation and thin forest cover in many districts of the region. Much of the land is hilly and is governed by weather disturbances such as heat storms and hailstorms difficult soil keeping the agricultural productivity of the region very low.

The Bundelkhand region is quite different from other parts of the state in respect of demography, geology, hydrogeology, hydrology, soils and climatic disturbance. The region is prone to frequent drought. Frequency of droughts is increasing. Deficit in rainfall, late withdrawal of rains etc have triggered severe meteorological, hydrological and agricultural droughts in the region. Poverty level is high and the region is most backward part of the state. The region wise details and features are being discussed henceforth.

## Bundelkhand region Geo-resources:

### Soil

The agricultural practices mainly depend on soil types Broadly there are four types of soils in the region namely (i) Red sandy soils, (ii) Shallow black soils, (iii) Mixed red and black sand, and (iv) Alluvial soils.

**Red sandy soils** Are shallow, gravelly and extremely porous with low organic matter and have poor water holding capacity and are thus not much suitable for main stream agricultural activities.

**Shallow clayey soil.** The particle size of this soil varies from fine to medium and has high water retaining capacity and is thus suitable for plant growth and crop cultivation.

**Alluvial soil** is generally less rich in organic matter. This has an important bearing on hydrology, hydro-geology, and agronomy resulting into a typical livelihood pattern of the people.

### Ground Water Resources Development:

According to study in year 2018 by Central Ground Water Board (CGWB), the total replenishable ground water resources of the Bundelkhand region in Uttar Pradesh are 3798 Million Cubic Meter (MCM). Utilizable potential for irrigation is 3437MCM. Out of this, only 1630 MCM still available for use after allocation to Irrigation, drinking water and other uses. There are 4604 (3.6%) deep tubewells, 44870 (35%) shallow tube wells and 78476 (61.3%) dugwells. Present level of utilization in Uttar Pradesh is 1019 MCM and balance ground water available for future development is thus 2525 MCM (53%). Present level of development is reported at 26%. District wise details are given below:

**Table 1.1: Ground water status**

Sl. No.	District	Total Replenishable Ground Resource	Annual Water	Net Water Availability	Ground Water Availability	Net Ground Water Availability for Future Irrigation use
1	2	3	4	5		
1.	Banda	705		635		285
2.	Hamirpur	540		490		234
3.	Jalaun	1345		1211		721
4.	Jhansi	625		566		147
5.	Lalitpur	584		536		243
	<b>Total</b>	<b>3798</b>		<b>3437</b>		<b>1630</b>

Source: Central Ground Water Board Report 20018

## Geo-hydrological formation in Bundelkhand Region

Table 1.2: Ground water yield data

S. No.	Geological Formation	Water Yield (litre per second)	Irrigation Potential ha/day
1	Crystalline rocks (granite, Gneiss and Quarts)	1-5	0.1-0.2
2	Vindayans (sand stone, Shale, and Limestone)	5-25	0.2-1
3	Unconsolidated (Clay, Gravel, Silt)	20-40	2-3

Source: Central Ground Water Board 2009

### Surface Water

Bundelkhand region has developed majority of its surface water resource by constructing irrigation schemes of its water share. As per data from Irrigation department of UP, about 28 surface water major and medium dams are already in position. About 37 SW lift irrigation schemes are already in operation. A number of schemes are in pipeline; about eight are under construction while another 15 are planned. Canals, including lift canals are the main source of irrigation followed by tubewells, dug wells and surface water ponds/tanks. The general feature of the rivers in Bundelkhand is that these swell during monsoon and almost dry up during summer. While Yamuna, Ken, Betwa (including Dhasan) are perennial, many of their tributaries and other small streams are not.

### Conclusions

1. Water and land conservation are two set of parameters which need much attention. The rain water should be harvested to the maximum extent and should be judiciously used for agriculture. Water harvesting measures would improve ground water availability also.
2. Quality of irrigation in Bundelkhand is much affected by poor maintenance of canals, erratic and irregular supply of water from dams, and quick depletion of groundwater sources due to the region's

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geology and topography .therefore proper measures should be taken up to maintain canals, dams. to avoid the depletion of ground water.

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