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Socio-Economic Outlook of the Bundelkhand: Problems and Prospects

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Abstract

This document analyzes the chronic disease in the Bundelkhand region in general and considers three main phenomena in general: low inability to develop due to failures in agriculture, lack of population and massive water shortage. The article seeks to verify that all the elements are connected to the unique economic and physical terrain of the region. However, the fact that UP and MP governments are not adopting policy discrimination for this region also shows that there is little difference in the distribution of the various economic variables in this region, whether this story is or not. in UP Or M.P. Bundelkhand. At least the two governments did not make a big difference in the state of the region, where rainfall is low and the climate is hot and dry, valleys are low, population is low and management is problematic. With the exception of political segregation in another "new state" of the region, this article presented another useful proposal to address the chronic deprivation and underdevelopment of the Bundelkhand region.

Introduction

India is a country of other founding beliefs and cultures. There are several countries where the diversity of India is unified in India. As the process of economic reform began and the Internet age and globalization have arrived, some countries have progressed constantly to be a source of controversy between legislators and new Indian architects, but some countries, such as UP and Bihar, Kalahandi's the four weeks and Bundelkhand of the UP and MP. This area needs special attention, and Bundelkhand has drawn attention since the special aid and development package led by Congress was announced. This also heated up the country's political activities. This article analyzes the root causes of many problems in the region, such as extreme poverty, bonded labor,

the position of poor women and low economic productivity. The first section analyzes the typical agricultural scenarios of women. Therefore, by providing useful data and explanations, Section 2 presents the demographic and occupational structures as indicators of the state of development of the region. Use a third purpose and focus on those details to focus on areas with chronic water shortages. Section 4 provides some useful suggestions.

SECTION 1: Agricultural and General Scenario

Bundelkhand is a problem region due to low rainfalls, hot climate, arid and ravine lands, low population and mismanagement for years. Today the area is in limelights due to political war upon special package for at the national levels. 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. Total irrigated land remains too much lower despite of a significant growth in irrigated land since 1980.

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, From the south to the north, much soil is lost continually due to flow of rivers and rainfall. 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 and preponderance of difficult soils, keeping the agricultural productivity of the region very low. However in Banda plain, Jalaun Datia and Tikamgarh districts have shown higher average productivity compared to the other regions of the plain due to its canals and pounds, advocating the development and use of the better irrigation system in the region, to uplift the poor levels of agricultural productivity. Most of Jhansi, Lalitpur, Tikamgarh and Chhatarpur districts fall in this '**Bundelkhand Intermediate**' region. Most of this subregion has light black soils; its eastern corner, in Chhatarpur district, is most suited for high productivity agriculture. South of the intermediate region, lies the **Bundelkhand Upland** or plateau , covering southern parts of Lalitpur, Tikamgarh and Chitrakoot districts and Panna district. This plateau is characterised by large tracts of rocky wastelands and undulating terrain, which enables natural or manmade storage of water. A large number of manmade structures, built several centuries ago, are found in Tikamgarh tehsil of Tikamgarh district, which thus enables of relatively high agricultural productivity. While the Banda plain is one of the most fertile areas of Bundelkhand, the eastern part of the Banda plain, which falls under Chitrakoot

district, is however dissected by deep channels of minor rivers, flowing towards the Yamuna; here the soil is of poor quality and agriculture production is poor.

Table 1 - Land use in UP (2004-05) and MP (2005-06) districts

District	Total area in hectares	Percentage of total area under different uses						
		Notified forest land	Non-agri use	Barren land	Grazing land	Under misc tree crops	Cultivable wasteland	Net sown
Jhansi	5,01,329	6.9	8.4	6.3	0.1	0.2	3.1	68
Lalitpur	5,07,500	15	7.7	3	0.6	0.2	11.9	54.8
Jalaun	4,54,434	5.6	8	2.7	0.1	0.8	0.4	60.4
Hamirpur	3,90,178	6.2	8	2.4	0	0.2	1	79.1
Mahoba	3,27,429	4.9	11.3	2.6	0.1	0	3.5	72.8
Banda	4,38,767	1.2	6.7	2.6	0	0.3	2.5	80.1
Chitrakoot	3,38,897	16.4	8.3	7.1	0	8.4	3.2	51.3
UP Bundelkhand	29,48,534	8	8.2	3.8	0.2	1.2	3.9	69
UP	2,42,01,294	7	10.9	2.1	0.3	1.4	1.9	68.9
Datia	2,95,874	8.4	7.3	4.9	1.5	0.9	5.2	66.7
Chhatarpur	8,63,036	24.8	5.1	0.2	7.4	0	7.5	46.8
Tikamgarh	5,04,002	13.7	4.7	14.2	4.6	0	4.2	47.8
Panna	7,02,924	42.6	5.9	3.2	1.2	NA	8	35.8
Damoh	7,28,583	36.8	4.4	8.1	4.6	0	1.8	42.7
Sagar	10,22,759	29.1	5.1	1.9	8	0	0.9	52.7
MP Bundelkhand	41,17,178	28.5	5.2	4.6	5.2		4.4	47.2
MP	3,07,55,752	28.3	6.3	4.7	4.3	0	3.8	48.7

Source: **District-wise Land Use Statistics**, Union Ministry of Agriculture, May 2008. Percentages derived from absolute figures and rounded off.

In this respect if we take a look at the land use of the region we find that Lalitpur, Chirakoot in UP Bundelkhand has the highest notified forest area but on an average forest area in UP Bundelkhand is considerably less than that in MP Bundelkhand. Most of the district in MP Bundelkhand has higher notified forest area. For example Chatarpur, Tikamgarh, Panna, Damoh, Sagar etc have significant forest resources. But actually these are being degraded day by day and their density and quality is degradable. It is also notable that

correspondingly the net sown area is small in these districts, supporting the preposition that agriculture is headed only at the cost of deforestation.

Above data also reveals that the land is more extensively used in UP Bundelkhand than that in MP Bundelkhand which ultimately indicates the commercial over-exploitation and mismanagement of land. Non agricultural use of land, less barren and less grazing land in comparison to that in MP Bundelkhand And in MP has increased net sown area of UP Bundelkhand(which is nearly equal to UP) in comparison to MP Bundelkhand and MP as a Whole. But it is notable that according to table 2 , percentage of sown area that is irrigated is significantly less (27.6 %) than that in UP as a whole (42.3%). It is significantly higher in than that in MP (30 %) and only marginally higher in MP Bundelkhand (39.9 %). So in terms of percentage of sown area that is irrigated there is no significant difference between MP Bundelkhand and UP Bundelkhand, meaning that perhaps irrigation facilities more or less, are same in both regions. In MP Bundelkhand it has more forest and ground water resources, but that is not able to en-cash its potential while in UP Bundelkhand land is being extensively used but is still a mismanaged criteria. However cropping intensity is more or less same in both region. It suggests that productivity is also more or less same in and equally low in both regions. Only difference seems in terms of land use. While more land in MP Bundelkhand has been left as barren, grazing and forest land while in UP Bundelkhand that use of land is declined and has found its outlet in non agricultural use, and an increase in net sown area, but without any further appraisal of the productivity in region. It suggest critical appreciation of the effectiveness of state government policies of UP and MP state in common, regarding the failure of agricultural in both regions. If unattended, it may provoke a call for a constitution of a separate Bundelkhand state in future.

Since the 1980s, the total area irrigated has more than doubled in Jhansi, Jalaun, Chhatarpur and Tikamgarh districts, trebled in Lalitpur and Datia districts, and increased by over five times in Panna, Damoh and Sagar districts, according to a estimate with figures in Table 2 below.

However, as most recent available Government of India figures (shown in Table 1 below) indicate, that in UP , the percentage of total irrigated land remains well below the state average, at around 42% of total sown land; it is particularly low in Chitrakoot district.

Table 2: Irrigated area as percentage of total sown area in UP (2002-03) and MP (2005-06)

	Total area sown*(ha)	**Total area irrigated(ha)****	**% total area sown that is irrigated**
Jhansi	465240	223027	47.9
Lalitpur	385426	210013	54.5
Jalaun	437205	191399	43.8
Hamirpur	352531	111508	31.6
Mahoba	292021	114944	39.4
Banda	422544	174065	41.2
Chitrakoot	193321	53450	27.6
UP Bundelkhand	2548288	1078406	42.3
UP	25424605	18523956	72.8
Datia	228465	136302	59.6
Chhatarpur	511319	226581	44.3
Tikamgarh	370642	206778	55.8
Panna	297655	84420	28.4
Damoh	398648	114138	28.6
Sagar	710690	236635	33.3
MP Bundelkhand	2517419	1004854	39.9
MP	19607592	5878311	30

Source: District-wise Land Use Statistics, Ministry of Agriculture, Government of India, May 2008. Percentages rounded off.
Total sown land includes area sown more than once; the area is counted as many times as there are sowings in a year
****Total irrigated area is the total area under crops, irrigated once and/or more than once in a year. Area covered by any source of irrigation is considered irrigated area.***

But not only this, the cropping intensity, measured by ratio of total area sown - or gross cropped area - and net sown area is also a big problem for agriculture in Bundelkhand. Cropping intensity is surprisingly lower equal to the level of average cropping intensity in Madhya Pradesh which poses a case that as it may be a part of MP and not UP. It also suggest that it has not been significantly benefited by its inclusion in UP because UP and MP are almost equal at that parameter. It also suggests that neither MP government has been effective in significantly improving the cropping intensity in. Does it represent that geological and climatic condition for the region is too much hard for both governments to overcome, or haveing both governments been too much sluggish, is there scope of a separate state?

Table 3: Cropping intensity in UP (2002-03) and MP (2005-06)

	Net area sown in year(ha)	Area sown more than once in year (ha)	Cropping intensity (%)	Area sown more than once in a year as a percent of net area sown
Jhansi	346423	118817	134	34.29824232
Lalitpur	265712	119714	145	45.05404348
Jalaun	348445	88760	125	25.47317367
Hamirpur	302514	50017	117	16.53378025
Mahoba	244581	47440	119	19.39643717
Banda	348600	73944	121	21.21170396
Chitrakoot	172052	21269	112	12.36196034
UP	2028327	519961	126	25.63496911
UP	16749534	8675071	152	51.79290958
Datia	197242	31223	116	15.82979284
Chhatarpur	403863	107456	127	26.60704249
Tikamgarh	240951	129691	154	53.82463654
Panna	251523	46132	118	18.34106622
Damoh	311037	87611	128	28.16738845
Sagar	539003	171687	132	31.85269841
MP	1943619	573800	130	29.5222469
MP	14970966	4636626	131	30.97078706

Source: District-wise Land Use Statistics, Ministry of Agriculture, Government of India, May 2008. Figures for area sown more than once a year derived by subtracting net sown area figures from total sown area figures in Table 1 above. Percentages rounded off.

However one cant ignore the basic fact that geology of the region is basically responsible for lower crop intensity of the region, because due to large area of wasteland in the Bundelkhand Intermediate Region and Bundelkhand Upland sub-regions, the percentage of land used for cultivation falls drastically, to around 50% in Chitrakoot and Lalitpur districts, and less than that in Chhatarpur, Tikamgarh and Damoh districts; in Panna, only around 35% of total area is cultivated. In Sagar and Datia districts, the percentage is around 53 and 67 respectively. This actually causes a drop in crop intensity region wide and also lower down the percentage of irrigated in total sown area as considerably low. As an overall feature there are some good patches as well in the scanty regions of Bundelkhand but the generally the region is governed by a shallow layers of rocky planes, rocky wasteland, undulating terrains, less than average rainfall, massive run off of rain-water, deep and costly ground water, stormy heat and winters, poor water management strategy and a degraded canal, ponds, tubewell, and well management and maintenance system for irrigation

resources. Natural jeopardy and man made havoc has made the lives of the folks very difficult in the region.

Above table shows that not only net area sown as a percentage of total area is less than UP average, and not only the cropping intensity is low,in UP Bundelkhand area sown more than once in a year is just half the average of UP. However the situation is better in MP, and MP Bundelkhand. It means that only one fourth to one third land is sown twice or thrice in the year.

This is mainly because of weather conditions and low rainfall, but the scope of increasing this intensity cant be ignored particularly in respect to fact that by better management, care, training and education, multicrop- multisession callender may be opt at a mass scale with little pains. This may increase the incomes of the farmers significantly, and through spiral effect may consistently bring the agriculture on a sustained reform path for a long time. Spread of a limited version fo green revolution wit state's support will change the picture for always.

Table 4: UP area under main crop categories, as % of total cropped area (2003-04)

	Cereals and millets		**Pulses**		**Oilseeds**		**Fodder crops**	
	1984-85	*2003-04*	*1984-85*	*2003-04*	*1984-85*	*2003-04*	*1984-85*	*2003-04*
Jhansi	48.7	30	43.2	62	5.6	6.7	NA	0.2
Lalitpur	61.7	38.4	24	56.8	10	3.9	NA	Neg
Jalaun	40.1	38.3	51.1	54.9	6.2	4	NA	1
Hamirpur	48	33.7	43.4	60.9	6.7	3	NA	0.9
Mahoba	H	26.7	H	64.8	H	7	NA	0.1
Banda	61	56	36	41.1	11.6	1.4	NA	0.8
Chitrakoot	B	56.5	B	39.7	B	2.1	NA	0.6
UP	51.7	39.1	40.2	55	5.4	4.1		0.5
UP		68.8		11		3		3.5

However the total agricultural production in Bundelkhand has gone under a structural change. Focus has shifted from cereals and millets to pulses (predominantly wheat) in UP. However there has been a huge drop in cultivation of cereals and millets as a whole in UP since 1984-85. however it suggest that only those crops which are most suitable to the local climate, should be cultivated. Crops demanding less water and able to face the adverse conditions should be grown more.

In this respect, traditional crops of bundelkhand, rajasthan, and MP may be more fruitful if scientific and advanced methods of agriculture is adopted and high yieldind varities oof the seed are used. That may be better option for a sustainable change in agricultural scenario than arbitrarily letting the farmers to grow the crop according to market values, and market forces of demand and supply. A proper mechanism to support the farmers and a panel to proceed their problems is must.

Table 4-A: MP area under main crop categories, as % of total cropped area (2005-06)

	Cereals and Millets		**Pulses**		**Oilseeds**		**Fodder crops**	
	1984-85	*2005-06*	*1984-85*	*2005-06*	*1984-85*	*2005-06*	*1980-81*	*2005-06*
Datia	45.6	36.7	41.2	43.5	10	16	0.8	1.0
Chhatarpur	54	36.2	24.3	39.1	9.8	9.8	10.7	2.9
Tikamgarh	62	36.1	15.7	25.3	8.7	23	12	5.2
Panna	66.3	48.3	18	46	14.4	4.4	0.1	NA
Damoh	57.5	24.7	29.5	39.9	8.9	10.2	3.7	0.5
Sagar	56.7	25.7	21.8	43.5	12.1	25.3	11.3	3.8
MP	57.8	32.5	23.5	37	10.8	17.7	8.8	
MP		38.2		22		30.8		3

Source: 2003-04 figures are from District-wise Land Use Statistics, Ministry of Agriculture, Government of India, May 2008. 1984-85 figures are from district statistical handbook figures quoted in Grassland & Fodder Atlas of (Indian Grassland and Fodder Research Institute, Jhansi; 1997). Area under main crop categories is total of area under each crop of each category, in each season. Percentages derived from absolute figures. H=was part of Hamirpur district. B= was part of Banda district. NA= figures not available. Neg= Negligible

The problem which the Bundelkhand is facing is specific to the geological and geographical conditions of the region and one can t do anything in it. The region faces hard winters, dry weathers and low humidity in general. In summer one finds it very difficult to cope with that. Rocky planes warm up more than any other place in UP. Deforestation in search of livelihood and organic fuels has added more salt to the situation. Adverse weather condition, low rainfalls and dry winters are some factors which have played a very significant role in reducing the agricultural production in Bundelkhand. Moreover the ponds have been the natural water reservoir for the regions since long but now the precious water is being wasted and run off by employing the more and more use of pump sets and jet motors in the regions. This has apparently affected the ground water level and making the more vulnerable to water crisis and more deficient in water resources. Very soon in future it may be seen in devastating results in

food security of the region which may reinforce the migration drive ad reinstate the poverty figures in the region.

TABLE 5 -Groundwater level in villages (2000-2001)

	Percentage of total villages in districts according to groundwater levels			
	<10 m	**10 m-30 m**	**30 m-70 m**	**>70 m**
Jhansi	58	40	2	Neg
Lalitpur	80	20	Neg	Neg
Jalaun	50	44	5	2
Hamirpur	16	60	21	3
Mahoba	84	16	Neg	0
Banda	33	50	14	3
Chitrakoot	17	63	19	2
UP	48	42	8	1
UP	70	25	4	2
Datia	21	70	9	Neg
Chhatarpur	62	37	Neg	0
Tikamgarh	60	40	0	Neg
Panna	84	15	Neg	Neg
Damoh	68	23	4	5
Sagar	84	15	Neg	Neg
MP	69	29	2	1
MP	57	40	2	Neg

Source: State-wise abstract of information from village schedule in Minor Irrigation Census 2000-2001. *Percentages derived from absolute figures and rounded off to nearest integer. Neg= <1%*

Above figures show that water level in most of the district is considerably lower than that of the average of water level in UP and in MP. This is the root cause of lower agricultural productivity for the region. If significant improvement in water recharging does not brought up, it is likely to worsen the situation further more in the region, compelling more people to migrate and to live in even more harder condition. Severe droughts have been the annual feature of the economy of the region which pose a challenge to policy seeker and political leadership of the state. New water management techniques have to be brought in soon as well as urgent. Ponds should be revived and de-silted. Baawadis and rain water harvesting should be promoted at a large scale, in all the villages and in all the urban buildings. Rivers should be kept aloof from pollution and safe drinking water should be maintained like programmes like SWAJAL PARIYOJANA etc.

otherwise continuous drought and acute water and power shortage in this region ending self- sufficient livelihoods, would likely to result in large-scale migration. It could be further noted in this respect that the water of Narmada is getting saline and other rivers are also drying up. Moreover there are large water run offs making the proportion of actual water utilization very low. All this is going to pose a challenge before the water management authority of the state.

The situation in Bundelkhand is turning perilous continuously, day by day, and gradually. Between years 1999 and 2008, the average number of rainy days per year has reduced from 52 to 23. In the running year of 2009 it is facing deficit of 53%in average rainfall. Due to that and inadequate irrigation facilities, scanty rainfall and persistent drought situation, large fall in agricultural production has been registered, especially during 2002-2008. The decline in production of all grains during 2003-07 is 43.11 per cent while the yield of crop, which is defined as produce per hectare of land holding, declined by 22.13 per cent during the same time. As a special case wheat production has been hit severely during the days and it has declined by 58%, comparative to a 16 % fall in MP. As an average the production has been continuously decreasing for the last 8 years and today the region is producing even less than half of its capacity. It has cause persistent loss of livestock, livelihood and economic security in the region. It has resulted in mass scale poverty, indebtedness of the farmers, deforestation, and climate change in the region. It has become increasingly difficult to predict the region. Stormy summers and raining deep winters have caused to disturb the crop cycles in general. In the winter it becomes too much cold for agricultural and vegetable production to survive. 70 to 80% loss in the production of vegetables like Gourd, potatoes, Capsicum and Brinjals has caused 80% farmers to stop cultivating vegetables completely and this includes small and marginalized farmers.

SECTION 2: The Population Factor

Basic demographic data about the Bundelkhand cannot be ignored while looking at the problems of the regions. *The region support more physically strong and immune peoples but a natural low growth rates of increments in the population. It can be asserted that where the living condition are softer, there is high death rate along with high birth rate making the nature adjust to a modest increase in population. If death rate is brought down by expansion of medical facility to the region, the population is bound to explode. This happens specially in poorer regions because in rich regions like west UP, money mindedness work also as an effective contraceptive and a deterrent to the population growth. But in regions like very hot and cold countries, nature choose generally low fertility but better next generations. The statement may sound to be exaggerated but is important to learn more about the poorer population density in most of the and*

a correspondingly low inbound pressure of development to the region and a thinner voice of political appellation.

Table 6 - Basic demographic data (Census 2001) of Bundelkhand districts

District	Population	Persons per sq km	Rural Pop (%)
Jhansi	17,44,931	347	59.2
Lalitpur	9,77,734	192	85.5
Jalaun	14,54,452	319	76.6
Hamirpur	10,43,724	232	83.3
Mahoba	7,08,447	263	78.1
Banda	15,37,334	337	84.1
Chitrakoot	7,66,225	250	90
Total UP districts	82,32,847		
Datia	6,28,240	224	78.1
Chhatarpur	14,74,723	171	78
Tikamgarh	12,02,998	238	82.3
Panna	8,56,558	122	87.4
Damoh	10,83,949	148	81.1
Sagar	20,21,987	197	70.8
Total MP districts	72,68,455		
Total UP + MP districts	15,50,1302		
UP state average		690	79.2
MP state average		196	73.5
India average		325	72.2

Source – Compiled from Census 2001.

The figures shows that that has a very low population density compared to the average of UP and India; However the figure are pretty much similar to figures of MP region. Even It would better to say that it has encompassed MP in this respect. It has also to be note down that there has been a phenomenal increase of population since the last census in the region.

It is likely to note down that inbound pressure to development and a demand of delivery of basic services and amenities in the region are likely to surmount correspondingly and if this factor is not addressed properly, it can be proved another headache for policy makers and government to respond correspondingly to the genuine political demands in this respect.

Table 7 - Population growth in 1991-2001

District	1991 total pop in '000	2001 total pop in '000	% increase in total pop	1991 urban pop in '000	2001 urban pop in '000	% increase in urban pop
Jhansi	1427	1745	22.29	567	711	25.40
Lalitpur	746	978	31.10	106	142	33.96
Jalaun	1217	1454	19.47	269	340	26.39
Hamirpur + Mahoba	1466	1751	19.44	255	327	28.23
Banda+ Chitrakoot	1874	2303	22.89	240	318	32.50
Datia	398	628	57.79	90	137	52.22
Tikamgarh	941	1203	27.84	159	213	33.96
Chhatarpur	1159	1475	27.26	223	324	45.29
Panna	685	856	24.96	89	108	21.35
Damoh	897	1084	20.84	163	204	25.15
Sagar	1646	2022	22.84	481	591	22.87

Source: Census 1991 and Census 2001. Population figures rounded off to nearest thousand.

Figures shows in table 7 that Datia has grown fastest in terms of rural and urban population growth, while Jhansi, Lalitpur, Chatarpur, Tikamgarh, Banda etc have shown more than normal growth and Jalaun Hamirpur Mahoba Damoh etc have been comparatively modest in this respect. It is to be noted that the situation has been despite of drought, large scale of migration, persistent drop in agricultural output and land productivity for years.

However it reflects the increasing pressure of population, especially of marginal and landless workers due to grim agricultural scenario of the state, in search of employment and better business opportunities in emerging cities. Still the size of the cities is small in region, yet it is showing some momentum of change and a change in occupational structure of the region.

The figures shows in table 8 that a significant change has happened since last two decades in the region. There is significant reduction in manpower engaged in cultivation as a percentage of total manpower, however but average is still more than UP average, MP average and India Average.

It shows that the inherent growth momentum in the lives of manpower engaged in cultivation is still lacking in comparison to change in general brought up in the Indian economy as a whole. It indicates a persistent deprivation and stickiness of the people engaged in this sector in this region.

Figures also shows that the adverse impact of migration and withering conditions in the agricultural sector has been mainly borne by the agricultural labour and the cultivators (who have land) have been affected only marginally and there has been only a marginal decrease in the number of cultivators.

Table 8 - Percentage-wise breakup of main workers (Census 1991, 2001)

District	**Cultivation**		**Agri labour**		**Household industry**		**Other work**	
	1991	*2001*	*1991*	*2001*	*1991*	*2001*	*1991*	*2001*
Jhansi	46.1	44.6	16	10.6	5.1	5.5	32.7	39.3
Lalitpur	70.9	68.5	10.5	7	2.3	2.8	16.4	20.7
Jalaun	54.8	50.6	23.6	18.9	2	3.4	19.5	26.4
Hamirpur	50.6	50	31.1	22.2	3	3	15.3	24.5
Mahoba	H	54.4	H	17.7	H	3	H	23.5
Banda	59.2	54.6	26.7	20.4	2.4	3	11.8	21.4
Chitrakoot	B	66.2	B	18.4	B	2.4	B	12
Datia	63	63.3	12.9	11.5	2.5	1.8	21.7	23
Chhatarpur	59.6	59.6	20.6	12.7	3.7	3.6	16.1	23.6
Tikamgarh	73.4	68.9	11.9	9.6	2.8	3	12	18.2
Panna	55.4	53.6	27	21.5	3.2	2.7	14.3	20.6
Damoh	36.1	32.8	26	24.4	15.5	20.1	22.3	22.7
Sagar	32.6	30.3	22.6	20.9	20.7	21	24	27.5
UP average		47		15.1		5.3		32.6
MP average		46.6		20.3		3.8		29.2
India average		33.9		20.3		3.9		42.7

Note: As figures are rounded off to nearest '000 while calculating percentages, totals of years do not add up to 100. H= was part of Hamirpur district. B= was part of Banda district.

It also suggests that poor have been hit worst and have been migrated or shifted to the other occupations in search of livelihood and the age old possession of land holdings still continues and neither there has been any land reform drive nor there is benefit of it accruing to agricultural labours.

Moreover the increasing concentration of the agricultural labours in house hold industries and other works mainly implies in low wages jobs and industries like Beedi industries. Share of high wage services, business, trade and commerce is very low. Capital inadequacy and poor investment also reduce the profitability of the optional employment/ self employment opportunities to very low.

Table 9 - Employment sources of non-agricultural main workers in UP Bundelkhand (Census 2001)

	Jhansi	Jalaun	Lalitpur	Hamirpur	Mahoba	Banda	Chitrakoot	Total	% of total
Total main workers	207396	106953	70005	77433	55776	106700	45100	669363	
Employed in:									
Agriculture related service activities	5657	4569	2293	5319	3411	5622	2559	29430	4.4
Forestry	108	267	413	136	102	163	1551	2740	0.4
Fishing	603	68	117	249	174	525	81	1817	0.3
Mining and quarrying	1621	203	4379	2103	2916	2597	1830	15649	2.3
Manufacturing	45586	23726	14935	17761	11709	26282	9457	149456	22.3
Construction	15233	8800	5745	8134	8548	12756	3241	62457	9.3
Trade and repair	37087	24036	5082	16349	10358	22238	9365	124515	18.6
Hotels and restaurants	1511	853	824	551	492	950	458	5639	0.8
Financial intermediation	1511	1148	654	695	490	1107	244	5849	0.9
Transport, storage and communications	22767	6890	6751	5153	4436	6547	2928	55472	8.3
Other business activities	14970	9074	3481	2850	2122	5793	2440	40730	6
Public administration and defence	35654	10962	8712	5688	3050	8126	4123	76315	11.4
Education	11128	10120	4220	5969	3800	7795	3434	46466	6.9
Health and social work	3433	1593	1204	2101	1362	2596	720	13009	1.9
Other sectors									5.9

Source-census 2001.

Table 9-A Employment sources of non-agricultural main workers in MP (Census 2001)

	Datia	Tikamgarh	Chhatarpur	Panna	Damoh	Sagar	Total	% of total
Total main workers	58634	83770	124268	62525	147961	310741	787899	
Employed in:								
Agriculture related service activities	5794	7077	7668	3930	4946	8152	37567	4.8
Forestry	280	639	1092	3349	1970	4059	11389	1.4
Fishing	111	591	141	38	1970	295	3146	0.4
Mining and quarrying	541	898	830	5531	788	2577	11165	1.4
Manufacturing other than Beedi	9306	16743	24635	11407	19638	33286	115015	14.6
Beedi	1742	2224	5375	1219	60888	125438	196886	25
Construction	7865	10557	16008	5943	8003	19376	67752	8.6
Trade and repair	10849	14681	22871	9040	16868	35975	110284	14
Hotels and restaurants	767	1073	2073	1078	2400	4832	12223	1.5
Financial intermediation	621	906	1142	500	1032	2193	6394	0.8
Transport, storage and communications	3812	3192	7763	3949	5842	15457	40015	5
Other business activities	1507	1930	3512	1618	1837	4267	14671	1.9
Public administration and defence	6153	7261	11135	5204	7602	23095	60450	7.7
Education	4364	7497	9720	5831	6753	14027	48192	6.1
Health and social work	1777	3094	4040>	2175	3139	5506	19731	2.5
Other sectors							33019	4.2

Source-census 2001.

The figure becomes more hitting and striking in pain if we look into the detail of non agricultural labour force either in UP or MP. Manufacturing, construction, public administration and defence and trade &repair are the areas where the labour force is concentrated, while the majority of manufacturing is

held by the Beedi industry. Actually the expansion of formal sector in has been very limited and even the private sector also don't find its prospects better here. Rich markets are out of coverage, physical infrastructure is severely limited and constitutes of very poor quality, skilled labour is also very much limited, transport costs are very high in the region, and raw material for industrial development except mining products is not available. All these factors make a least lucrative place for being developed as an industrial hub. That's why the industrial subsidiaries like hotels and restaurants, financial intermediation, transport, storage and communication, manufacturing other than Beedi etc., have been also limited and the GDP contribution of Bundelkhand remains chiefly represented by abundance of primary sector products despite of the adverse situation for this sector.

SECTION 3: The Water Factor

No story completes about Bundelkhand without narrating the water factor in it. The area so much frequently faces the drought, famines, flood, heat, winter etc. that almost it is very difficult to survive here. Water level is on the average very much deep. Not only water is limited and deep, but it makes the cost of boring so much high in the region due to rocks and hard ground that it becomes almost inaccessible also. This also reflects the hard to agriculture situation in Bundelkhand. Due to deteriorating irrigation facilities, canal system is being dried up, lands are being left barren and the region is facing loss of agricultural production area wide. Food security of the region is also at the stake. Deteriorating situation is also forcing Farmers getting into trap of indebtedness making them prone to suicide movement.

Data shows that while in UP groundwater level is not deeper than 10 meters in 70% villages, between 10 to 30 meters in 25 % villages, 30 to 70 meters in 4% villages and deeper than 70 meter in 3% villages. However the respective figures of village-count in UP Bundelkhand is 48%, 42%, 8% and 1 %. In MP Bundelkhand it is 69%, 29%, 2%, and 1 %. In this respect the situation is better in MP Bundelkhand than that in UP Bundelkhand. However the credit doesn't go to the MP Government's water management policy or any other delioberate policy but to the geology of the region, due to large forest area in MP Bundelkhand with not so much overexploitation of the forest resources and groundwater resources owing to natural hurdles as well as a different distribution of population force in MP Bundelkhand compared to UP Bundelkhand. However Hamirpur, Banda Chitrakoot,and Datia are the most vulnerable place for water scarcity and prone to draught also, while in UP Bundelkhand majority of the villages find its water level between 10 to 30 metres. While touching that aspect it is also to be considered that notified forest land on an average is much higher in MP as a whole and in MP Bundelkhand also, compared to that in UP as a whole, and in UP Bundelkhand as a particular.

This may be another reason to explain the high water level in MP Bundelkhand than In UP Bundelkhand. It also suggests that either UP Bundelkhand is more barren in terms of forestation of the region or the State Government in Uttar Pradesh has been completely ineffective in managing and flourishing its forest resources in UP Bundelkhand.

An added factor to the water problem of area is that. Much of this water does not percolate through Bundelkhand's hard rock substratum; the water flows away uselessly, taking along with it a lot of top soil. It is also to be noted that most of the available water is unfit for human consumption due to poor sanitation practice, presence of nitrates and coli-form bacteria due to contamination by domestic sewage, and cow dung, and other human waste. Rural areas have particularly difficult approach to water resources and one has to spent a lot of time and money to get the required quantum of water in ones daily use. Sometimes one has to carry a long way and to fetch the clean drinking water to a remote area. This is a common feature of Bundelkhand. Especially women folks have to work very hard to arrange the water and most of the times, despite that hard labour, very little of water is finally available to them. To use in agriculture, one has to use diesel pump set which are very costly for most of the people because of mass scale poverty. Water is supplied in the cities through pipelines and water tankers, and specially in scorching heat of summers one get it very difficult without water. Due to this shortage of water for drinking, home use, and agricultural and industrial area, the region face chronic dearth of water year after year ultimately plunging the agricultural and human resource development of the region.

If one looks at the irrigation source, net irrigated area as a percentage of net sown area is very much less than the other areas of Uttar Pradesh .although the position of MP Budelkhand region is better in comparing with MP average , yet it is not significantly different from the average of UP Bundelkhand. UP average in this regard is almost 80 %(i.e et irrigated area as a percentage of net sown area is almost 80 % in UP), while this average in UP Bundelkhand is meagre 50% and in MP Bundelkhand also, it is 50%.

All the areas of Bundelkhand have been recorded critically and significantly lower than the UP average, i.e. 80 %. Hamirpur, Banda, Chitrakoot, Panna, Damoh, Sagar etc pose a very poor situation with a record low of 36%, 34%, 29%, 33%, 36%, 44% respectively at this parameter. If one keep these figures with ground water level figure, he or she is likelyb to find that in Hamirpur, Banda and Chitrakoot, water level is also deeper and in most of villages (almost 60 %), water level is found between 10 meters to 30 meters. But astonishingly it is to be noted that in Panna, Damoh and Sagar, water level is pretty high (almost 70 % village found their water level at no deeper than 10 meters) and yet the net irrigated area as a percentage of net sown area is

surprisingly low in these are. Reason to note that is Groundwater, mainly extracted from open wells, is the main source of irrigation in Bundelkhand. In UP Bundelkhand canals are a major source of irrigation. In Panna, Sagar and Damoh, water from mountain springs are a major 'other' source of irrigation.

Some tanks built by medieval Chandela and Bundela rulers are used for canal irrigation, especially in Tikamgarh district. On the other hand in Hamirpur, Banda, Chitrakoot and Damoh districts, have take the course of relentlessly using tubewells and tubewells as major source of irrigation along with other wells(dug wells). However, tubewells for irrigation are not very popular and cost effective due to high cost of drilling in the crystalline rocks and low chances of success in extracting groundwater. The use of Tubewells is still considerably low in comparison to UP Average. As a percentage of net irrigated area by source, in UP Bundelkhand and MP bundelkhand, only 14% and 9% area is irrigated by tube wells compared to 71% area in UP as an average and 26% in MP as an average. However the dependence on canals is just double in UP Bundelkhand compared to the average of UP and MP, while in MP Bundelkhand dependence on canals is just meagre (i. e 14% which is less than the average of UP an MP also, i.e. 21% and 18%, respectively).

MP Bundelkhand relies more on other wells (53% in comparison to 40%, 26% and 7% of MP, UP Bundelkhand, and UP respectively). MP Bundekhand has not shown a proportionate progress in using the Tubewells as a main source of irrigation as in UP or UP Bundelkhand or MP. But if we leave Banda and Jalaun apart, other wells are second important source of irrigation in UP Bundelkhand and as a first important source of irrigation in MP and in MP Bundelkhand as well. However tanks aso keep a significant share in irrigation in UP Bundelkhand ad if we made the addition of tanks into other wells, these jointly becomes the no. 1 irrigation source for the UP Bundelkhand region.

In fact, the region is geographically detached region and faces the dearth of the water, since always, due to particulars of the geology. In such conditions, man made source of irrigations like the dug wells, tanks, bawadis, ponds, canals and now pump set have been very important since long. Before the advent of British canal system, ponds, Bawadis, and other wells were prime sources, but now both need an extensive overhauling and capital investment to rejuvenate them and to justify them according to the needs of today. Pressure of population and modernisation has grown multi-fold, but the canal and open well system has not improved over the time.

Moreover digging water, either through pumpset or well is costly. Although the problem may be met by special state subsidies in this respect, but still no body knows that how much water we have in total, and for how many years if extracted at different speed.

Table 10- Sources of Irrigation in Bundelkhand

	Net irrigated area as % of net sown area	% of net irrigated area by source				
		Canals	Tanks	Tubewells	Other wells	Other sources
Jhansi	64	45	7	3	43	2
Lalitpur	79	33	21	11	33	1
Jalaun	54	76	2	17	5	Neg
Hamirpur	36	41	2	34	21	2
Mahoba	48	36	18	2	43	1
Banda	34	63	5	26	7	Neg
Chitrakoot	29	38	17	25	19	Neg
UP Bundelkhand	50	48	10	14	26	1
UP	79	21	1	71	7	Neg
Datia	68	55	Neg	1	42	Neg
Chhatarpur	56	9	2	Neg	75	12
Tikamgarh	68	8	6	5	76	4
Panna	33	12	7	7	22	52
Damoh	36	9	Neg	26	24	41
Sagar	44	2	1	17	50	31
MP Bundelkhand	50	14	3	9	53	21
MP	38	18	3	26	40	14

Source: District-wise Land Use Statistics, *Directorate of Economics & Statistics, Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, May 2008. Percentages derived from absolute figures and rounded off to nearest integer. Neg=<1%*

Lowering down water level at alarming speed can also increase the cost of water extraction to an ever significant level. So there is an urgent need to measure the groundwater demand, its availability, reservoir's aggregate volume and corresponding managed extraction of the resource with a sustainable development approach. This is the most urgent need of this reason and most necessary one.

Section 4: Strategic Factors

So what should be the policy for the development of this region? Few suggestions may definitely be forwarded.

1. The place is rough, rocky and conducive to natural forestation. So the deforestation should be checked and sanctuaries to conserve wildlife should be developed. These may be further incorporated with tourism development

in the state. Old forts, monuments, structures should be thus conserved and developed for, with modern enhancements.

2. Industries and cropping seeking less use of water and providing high yields should be promoted. Contamination and wasting environment with pollution thus be checked at a priority.
3. Water harvesting and better local management of water, along with recycling of water and measures to prevent its run offs should be promoted. Villages should be self dependent in this respect, and wastage of this precious resource should be checked as a common and collective responsibility by villagers. Self efforts in this respect may be significant in changing the overall outlook. Better irrigation facilities, scientific cropping, herb production, and arid land development programmes may be helpful in this respect. But it would be best if agriculture development policy of Rajasthan is also applied here but with some modifications, adjusting to the land pattern of the region.
4. Development of an integrated canal system supported with proper management of the water available through nearby rivers and extraction of the ground water resources is must. Ponds and wells should also be developed and maintained under NAREGA. Other supporting agricultural and land reform measures should also be forwarded to increase the benefits of cultivation therefore.
5. Optimum utilisation of the resources received by special package should be ensured. A special cell for Bundelkhand should be constituted by central government to monitor the use and productivity of this package, independent from the state authorities of MP and UP governments, and grants should thus be released only gradually and sequentially.
6. Hopefully the package announced by DR. Manmohan Singh for Bundelkhand recently, would help to resolve the problems of the region. The package for three years is aimed at optimisation of resources through rainwater harvesting and through proper utilisation of river systems in seven districts of Uttar Pradesh and six districts of Madhya Pradesh. The Cabinet approved the package of only Rs 7,266 crore for the integrated development of the region that would commence from 2009-10.A part of the cost of the package will be met by converging resources from ongoing Central programmes and schemes. To meet the gaps in funds, additional central plan assistance to the tune of Rs 3,450 crore would be provided to the two states over a period of three years. Under the package, intensive and diversified agriculture is to be promoted for productivity gains in the crops along with promoting higher sown area in the Kharif season. Animal and dairy activities will be expanded as an ancillary activity to enhance farmers' incomes to cope with the drought conditions, The emphasis in the package on watershed development and irrigation facilities would equip the region in coping with drought with resilience, The promotion of drought resistant

arid-horticulture as well as animal husbandry activities would diversify the farmer's incomes to more assured sources. Successful implementation of the package is expected to mitigate the effect of drought in the region.

7. Long term agricultural development programmes should be promoted instead of short term interim relief packages. Measure should be taken to equip the small and marginal farmers especially with respective economic strength to save them from the clutches of rural indigenous bankers and to invest in the agriculture to sustain there livelihood. Diversifying their incomes through the poverty relief programmes, employment guarantee programmes, women empowerment programme, NGO activities, social forestry, animal husbandry, and small and cottage industries development at rural level etc. would certainly helpful, but what we need is just the better and committed implementation. Local and public participation, in this respect, is must to improve the programmes.
8. A long term water management policy be made with reference to Bundelkhand and drought mitigation strategy should be deployed as its permanent enhancement. To secure the region food security, water security, forest management, availability of safe drinking water, fighting environment degradation and contamination of water, maintaining managing and upgrading the canal system, conservations of water pools ponds tanks etc. should be its essential component. In the same respect Lowering down water level at alarming speed can also increase the cost of water extraction to an ever significant level. So there is an urgent need to measure the groundwater demand, its availability, reservoir's aggregate volume and corresponding managed extraction of the resource with a sustainable development approach. This is the most urgent need of this region and most necessary one.

Hence the Bundelkhand is waiting for a pile of actions from state government, union government and local authorities. But the people of the region know since long, that what they have to do is to do it themselves, and the best way to stand is to stand on one's own feet. This age old wisdom has kept them alive since long. Now what to see is that whether the support from outside will significantly change the hard of their lives or not. The area is a geographically tough one and scanty in population like a mix of hills, plateau, and deserts, supporting only limited scope of development authority and needs occasional relief to adjust the geographical vs. economical imbalances. Story may altogether turn up in Bundelkhand if excavations for minerals, oil, coal and other underground resources is done and met with success on a large scale. However on the whole the area is not well suited for higher population density until and unless a sustainable and enduring water reservoir and irrigation system is developed and maintained for long. However the political segregation of the Bundelkhand region does not match the requirements in comparison to the development and

implementation of an efficient policy regarding the geographical toughness of the region.

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