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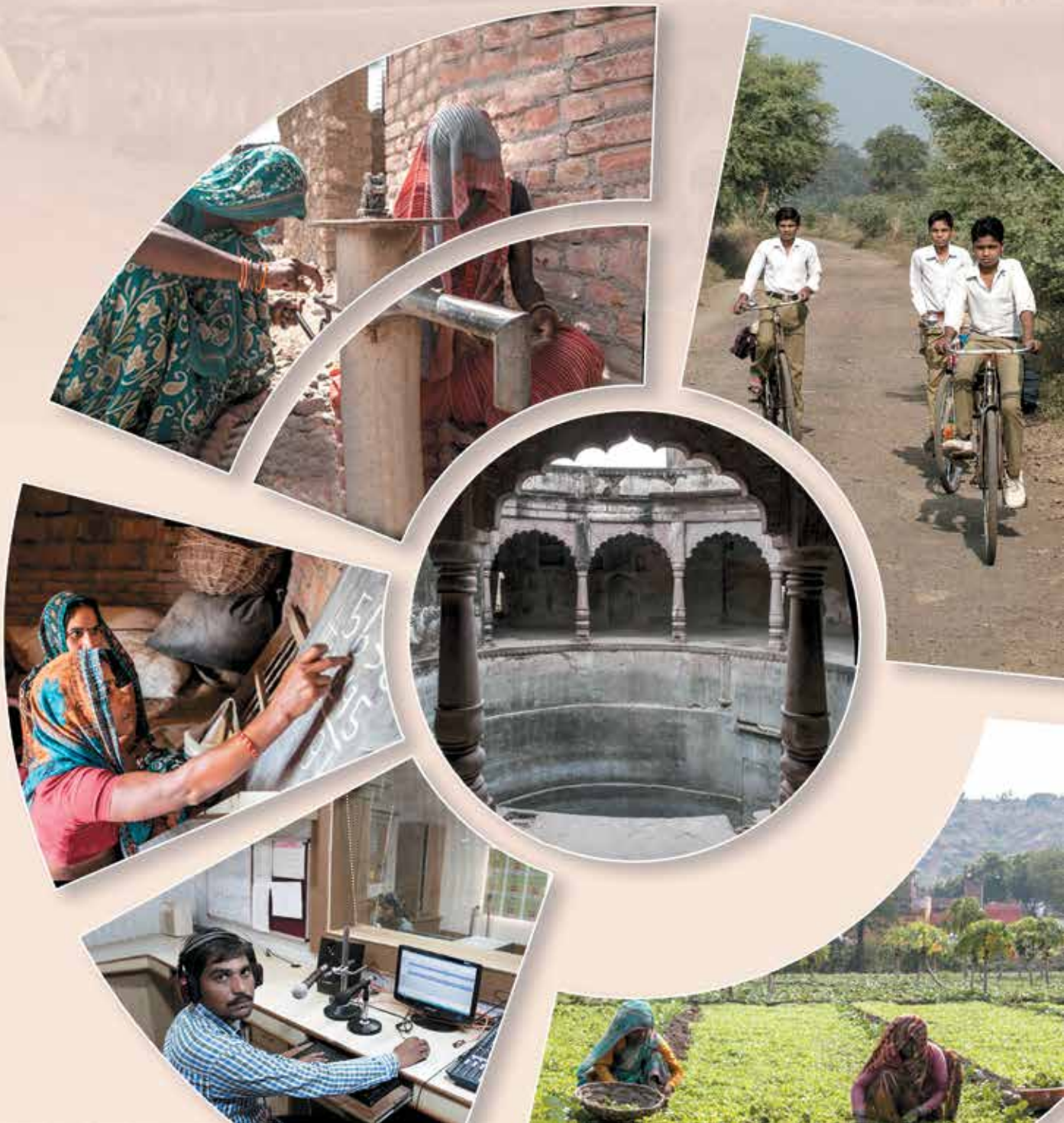
Human Development Report

Bundelkhand 2012



Bundelkhand HDR 2012

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Human Development Report

Bundelkhand 2012

Prepared under NITI Aayog-UNDP Project on
Human Development: towards Bridging Inequalities

Acknowledgements

The Bundelkhand Human Development Report is the first regional human development report in the country, that is the outcome of the strong commitment of NITI Aayog (erstwhile Planning Commission), State Governments of Uttar Pradesh and Madhya Pradesh, and UNDP towards enhancing the understanding of human development status of the region and to analyse the potential that exists for pulling the region on a faster and more inclusive growth strategy. The report is the product of extensive engagements with Government officials at the local level in both Madhya Pradesh and Uttar Pradesh, academicians, civil society organizations and the people of Bundelkhand region whose voices have been incorporated under "People Speak".

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सत्यमेव जयते

Alok Kumar
ADDITIONAL SECRETARY
Tele : 011-23096564
E-mail : as-niti@nic.in

भारत सरकार
नीति आयोग, संसद मार्ग
नई दिल्ली–110 001
Government of India
NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street
New Delhi-110 001

FOREWORD

Bundelkhand Human Development Report is the first regional human development report for India. The report focusses on the people and their wellbeing in this region, spread across 13 districts in the States of Uttar Pradesh and Madhya Pradesh.

The Bundelkhand region, rich in mineral resources and vegetation, but inflicted by vagaries of nature and anthropogenic factors, demonstrates low human development achievement, with limited access to good quality health services, education and employment opportunities. The report attempts to document the developmental impediments in these thirteen districts (across Uttar Pradesh and Madhya Pradesh), that have been challenged by multiple factors like periodic drought, fragmented landholdings, feudal mind-sets, decline in water available for irrigation, low investment and low technological inputs in agriculture, industries, etc.

Despite these adversities, the Bundelkhand region holds opportunities and possibility for steady growth through innovative Tourism policy supported by strong infrastructure and connectivity; modernisation of agriculture reinforced by better water management system and technology; and above all, sustained through strong financial and institutional setups. Strategic interventions, that address the aspirations of the youth of the region, also need to be integrated into the policy and planning process.

The Bundelkhand Human Development Report is a concerted effort of NITI Aayog, the State Governments of Uttar Pradesh and Madhya Pradesh, and UNDP. This report has been prepared with the hope that it would serve as a guide for development planning of this region, so as to achieve higher human development goals.

Alok Kumar

(Alok Kumar)

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सत्यमेव जयते

डा. अरविन्द पानगड़िया
उपाध्यक्ष
DR. ARVIND PANAGARIYA
VICE CHAIRMAN
Phones : 23096677, 23096688
Fax : 23096699
E-mail : vch-niti@gov.in

भारत सरकार
नीति आयोग, संसद मार्ग
नई दिल्ली–110 001
Government of India
NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street
New Delhi-110 001

Dated, the 4th May, 2016

MESSAGE

The Bundelkhand Human Development Report comes at a time of change in the national planning process where social inclusion forms the crux of programmes that have been initiated to improve the capacities and capabilities of the people.

2. Bundelkhand, located in the heartland of the country possesses immense potential that can harness benefits from holistic and comprehensive planning process. It is heartening to see that the State Governments of Uttar Pradesh and Madhya Pradesh have both demonstrated their commitment to growth and progress in this region, comprising 13 districts. Despite this, a lot is to be achieved to ensure the wellbeing of the people in this region to attain higher human development goals. Ensuring basic services, strengthening agriculture and industries, skill development of the youth and tourism would enable the region to bring higher living standards to all.

3. The Report, therefore, calls for enduring commitments and for ensuring sustainable growth of the region and the people. It is hoped that the recommendations in the report will enable the region to achieve its full growth potential and also allow better implementation of the welfare programmes and schemes.

Arvind Panagariya

स्वच्छ भारत
एक कदम स्वच्छता की ओर

अमिताभ कांत
Amitabh Kant
मुख्य कार्यकारी अधिकारी
Chief Executive Officer

सत्यमेव जयते

भारत सरकार
नीति आयोग, संसद मार्ग
नई दिल्ली–110 001

Government of India
NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street
New Delhi-110 001

Tel.: 23096576, 23096574 Fax : 23096575
Email : ceo-niti@gov.in, amitabh.kant@nic.in

Dated, the 8th May, 2016

MESSAGE

The Bundelkhand Human Development Report provides a comprehensive overview of the region cutting across the States of Uttar Pradesh and Madhya Pradesh.

The report provides not only an analysis on the human development indicators in the region but also proposes policy options that put eradication of poverty and addressing inequality at the heart of discussions. While progress in education, health, employment and people's participation in local governance is important for measuring human development, it is equally important to shock proof the vulnerable segments of the society (especially women, children and the elderly) from social and economic distress as well.

The report assumes a `people centric approach' and identifies 'socio-economic' vulnerable groups that have limited access to basic social services, especially health and education; weaker social protection, including financial and social discrimination; and lack of employment leading to migration, etc. It examines the importance of responsive and effective institutions; and increased social cohesion for building community-level resilience, among other things, for progress in the region. The Report recognizes that no matter how 'effective' policies are formulated, it is the improvement to ensure effective delivery on ground.

The report is presented to the policy makers and the planners with the aim that human and sustainable development planning for this region is undertaken in a comprehensive manner keeping in view the region's immense potential for growth

(Amitabh Kant)

United Nations Development Programme

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MESSAGE

UNDP India is privileged to collaborate with the NITI Aayog in the preparation of the Bundelkhand Human Development Report – the first regional Human Development Report in India supported by the NITI Aayog and UNDP partnership.

The report recommends a twin growth strategy that builds on the region's tremendous growth potential in agriculture including agro-processing, livestock and fisheries management, and tourism. In doing so, the region needs to develop specific strategies for marginalized groups to ensure they benefit from this growth. Effective water management will be critical to ensure socio-economic development in the region. The report points to the importance of traditional water bodies and water councils in managing water resources.

As the Government of India moves ahead on the sustainable development agenda, the Bundelkhand region provides an important opportunity for implementing growth strategies that are both sustainable and inclusive. We hope that the findings of the report are used for planning and budgeting for the agenda of "leaving no one behind".

We express our deepest appreciation to NITI Aayog for its leadership in steering this process and its contribution to the report. We thank the Government of Uttar Pradesh and the Government of Madhya Pradesh for the support extended in preparation of this report. The contribution of the experts, civil society organisations and the people for enriching the report is deeply acknowledged.

We remain committed to supporting the union and state governments in taking forward the recommendations of the report to ensure the region is able to capture its tremendous potential.

Yuri Afanasiev
UN Resident Coordinator and
Resident Representative UNDP

Abbreviations

ABSSS- *Akhil Bhartiya Samaj Sewa Sansthan*
AD- Anno Domini
AD- Auto Disable
Ag. or Agri.- Agriculture
AHS- Annual Health Survey
AMG- Annual Maintenance Grant
ANC- Ante-Natal Check-up
ANMs- Auxiliary Nurses Midwives
APSARA- Authority for the Protection of the Site and the Management of the Angkor Region
ASER- Annual Status of Education Report
ASHA- Accredited Social Health Activist
AWC- Anganwadi Centre
AYUSH- Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
B or Bkd- Bundelkhand
BC- Before Christ
BHEL- Bharat Heavy Electricals Limited
BPL- Below Poverty Line
BRGF- Backward Regions Grant Fund
CAD- Command Area Development
CASA- Church's Auxiliary for Social Action
CCSR- Centre for Contemporary Studies and Research
CDR- Credit Deposit Ratio
CEC- Centre for Education and Communication
CHC- Community Health Centre
CMR- Child Mortality Rate
Cms- Centimetres
CRDT- Centre for Rural Development
CSR- Child Sex Ratio
Cusec- Cubic Feet Per Second
DDP- District Domestic Product
DES- Directorate of Economics and Statistics
DISE- District Information System for Education
DK- Delivery Kit
DLHS- District Level Health Survey

DPIP- District Poverty Initiatives Project
ECG- Electrocardiogram
EFA- Education For All
EPW- Economic and Political Weekly
GCA- Gross Cropped Area
GDP- Gross Domestic Product
GEF- Global Environment Facility
GIA- Gross Irrigated Area
GoI- Government of India
GoMP- Government of Madhya Pradesh
GoUP- Government of Uttar Pradesh
Govt.- Government
GRG- Goat Rear Groups
Ha- Hectare
HDI- Human Development Index
HDPE- High Density Polyethylene
HDR- Human Development Report
HH- Household
HUNGaMA- Hunger and Malnutrition
HYV- High Yielding Variety
ICC- International Coordinating Committee
ICDS- Integrated Child Development Services
ICSSR- Indian Council of Social Science Research
IFA- Iron and Folic Acid
IGIDR- Indira Gandhi Institute of Development Research
IIT- Indian Institute of Technology
IMR- Infant Mortality Rate
ITI- Industrial Training Institute
IUD- Intrauterine Device
IWMI- International Water Management Institute
JSY- *Janani Suraksha Yojana*
KCC- *Kisan Credit Card*
KLD- Kilo Litres per Day
Kms- Kilometres
KVK- *Krishi Vigyan Kendra*
LPCD- Litres Per Capita Per Day
LPPD- Litres Per Person Per Day
MCH- Maternal and Child Health

MDMP- Mid Day Meal Programme
MFP- Minor Forest Produce
MFP- Minor Forest Produce
MGNREGA- Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS- Mahatma Gandhi National Rural Employment Guarantee Scheme
MIDH- Mission for Integrated Development of Horticulture
MLA- Member of Legislative Assembly
MMR- Maternal Mortality Rate
MoRD- Ministry of Rural Development
MoU- Memorandum of Understanding
MP- Madhya Pradesh
MP- Member of Parliament
MP-B- Madhya Pradesh- Bundelkhand
MPSAPCC- Madhya Pradesh State Action Plan on Climate Change
MSP- Minimum Support Price
NA/Na- Not applicable
NCR- National Capital Region
NCRB- National Crime Records Bureau
NDTV- New Delhi Television
NER- Net Enrollment Ratio
NGOs- Non- Government Organizations
NH- National Highway
NHAI- National Highway Authority of India
NHM- National Horticulture Mission
NIDM- National Institute of Disaster Management
NMBS- National Maternity Benefit Scheme
NPP- National Perspective Plan
NRAA- National Rainfed Area Authority
NREGS- National Rural Employment Guarantee Scheme
NRHM- National Rural Health Mission
NSA- Net Sown Area
NSDP- Net State Domestic Produce
NSS- National Sample Survey
NTFP- Non-timber Forest Produce
NWDA- National Water Development Agency
OPD- Outpatient Department
ORS- Oral Rehydration Solution
OVD- Officially Valid Document

PACS- Primary Agriculture Cooperative Societies
PAN- Permanent Account Number
PCA- Primary Census Abstract
PCI- Per Capita Income
PDS- Public Distribution System
PGMO- Post Graduate Medical Officer
PHC- Primary Health Centre
PMJDY- *Pradhan Mantri Jan-Dhan Yojana*
PPP- Purchasing Power Parity
PRIs- Panchayati Raj Institutions
Prof.- Professor
PSSS- *Parmarth Samaj Sevi Sansthan*
RKS- *Rogi Kalyan Samiti*
RKVY- *Rashtriya Krishi Vikas Yojana*
RSETI- Rural Self-Employment Training Institute
RTE- Right To Education
RTI- Right to Information
SC- Scheduled Castes
SDW- Safe Drinking Water
SGP- Small Grants Programme
SHC- Sub-Health Centre
SHG- Self-Help Group
Sq Kms- Square Kilometres
SSA- *Sarva Shiksha Abhiyan*
ST- Scheduled Tribe
TFR- Total Fertility Rate
TT- Tetanus Toxide
UK- United Kingdom
UNDP- United Nations Development Programme
UNESCO- United Nations Educational, Scientific and Cultural Organization
UNICEF- United Nations Children's Fund
UNITAR- United Nations Institute of Training and Research
UP- Uttar Pradesh
UP-B- Uttar Pradesh- Bundelkhand
USA- United States of America
VSK- *Vigyan Shikshan Kendra*
ZP- *Zila Parishad*

Table of Contents

List of Boxes

List of Figures

List of Tables

Executive Summary

The region of Bundelkhand comprising of 13 districts of Madhya Pradesh and Uttar Pradesh, is situated in north central India. The region has a common history, and has often been part of common kingdoms. Bundelkhand takes its name from one of its longest ruling dynasties, the Bundela Rajputs, and owes a lot of its great identities to the Chandelas, who ruled for the longest period, and were great builders and patrons of architecture, and art and culture. Divided constantly into smaller feudatories, who owed allegiance to either local dynasties, or in the past few centuries to larger empires (such as Mughals, Marathas and the British), the region developed a distinct feudal nature of political power, economic holdings, social prestige and leadership, and even today, the region is dominated by feudal relations of power, economic and social control. The region is best identified as a politico-cultural region.

Socially, the region is diverse with a large Scheduled Caste population, a number of Scheduled Tribes, and a large backward community; with the upper caste dominating through power, assets holdings and leadership. Just as it falls on the geographical periphery of Uttar Pradesh and Madhya Pradesh, it also falls on the social periphery of movements and changes towards bringing an equitable

and discrimination free society. Domination by upper castes of Scheduled Castes and Scheduled Tribes, of men over women, of other weaker sections, domination of landlords over smaller land holders and labour, domination of owners of capital over owners of labour, of proprietors of productive natural resources over those who labour in it, are distinct realities of this region. These issues are more pronounced in this region than in other regions of India.

Life in this region is affected by the topography and geographical features, including vagaries of climate, and human-made environment issues. The topography is undulating in many parts. There are flat lands in the central part. This calls for sustainable technologies for agriculture, and water management. The region is rich in natural resources, vegetation, and minerals. Ground water availability, however, is not very good. The greatest assets of Bundelkhand were its large number of surface water tanks built hundreds of years ago by the Chandelas and Bundelas and these were the lifeline of agriculture and life assets. However, in recent years, these have been encroached, destroyed or damaged, without any adequate replacement. The region was known for many years, both in the past and near present as an agriculturally prosperous zone. With its share of occasional droughts[1], this productive aspect of the region is increasingly under stress, due to environmental, and human factors and inadequate institutional initiatives to control and manage the decline in agriculture prosperity.

The mid-region plains have benefitted from mining of ground water and irrigation systems that feed water to the farms through canals. Apart from some canal based irrigation, the infrastructure for surface irrigation is limited and people are left to draw ground water to irrigate their farms. The continuous damage to the environment from deforestation, declining forest cover, unsustainable mining of river beds, human encroachment on catchment areas of watershed and water reservoirs, may have led to a unpredictable and fluctuating monsoon, a decrease in the number of days of rainfall, frequent droughts, a decline in the quantity of water available for irrigation and often even for usufruct and drinking. This has affected agriculture most severely, burdening the already struggling small and marginal farmers. Non-farm employment is stagnating and even declining and modern economic opportunities are few and beyond the reach of the skill profile of the average young person born in this region, in the last 20 to 30 years. All this leads to a particularly disheartening economic and employment situation that reflects an inescapable economic cycle, that is unable to expand its horizons and size.

This region is regarded amongst the more backward regions in central India, and in some sectors it has the lowest indicators in the country. Though Bundelklhand is a moderate performer on most development parameters, yet, this region, in both Uttar Pradesh and Madhya Pradesh has performed better than the average in the parent states. This exhibits a better development status than most other parts of the parent states. The UP region of Bundelkhand has better human development indicators as compared to the MP region of Bundelkhand. The data and statistics used in the report are capped at 2012 for the purpose of analysis and to provide a roadmap, however an attempt has been to include recent developments as well.

[1] As we go to print another severe drought is hitting Bundelkhand, as severe as what was seen some five years ago, which lasted three-four years. Just in last ten years there has been a long drought, few years of normal rainfall, years with floods and then drought like situation again.

The economy and people's livelihoods

Over six to eight decades ago, this region had good agriculture, but today it fails to provide adequate surplus to the economy and to those who engage in it, which is 70 percent of the working population. Bundelkhand's economic growth has been about the same as the growth in the parent states of UP and MP, though in recent years it has picked up pace, and accelerated, all around. The districts in MP have exhibited good growth in agriculture, and on the whole Bundelkhand may be breaking out of a low growth trajectory. However, even with this recent acceleration, it continues to be an economy caught in a low technology and low surplus cycle.

Most of the people depend on agriculture - an agriculture that operates with small landholdings, with a fixed crop mix of wheat, paddy, pulses and some oilseeds, dependent on Minimum Support Prices (MSP) of the Government. The input prices for agriculture are becoming more expensive than the corresponding increase in MSP or in market prices.

The irrigated area is 40 percent of the cropped land, crop productivity is low (although it has increased in recent years, yet it is below the averages in UP and MP, and much lower than the average productivity of the leading states), mechanization in agriculture is low, land holdings are small (average of two acres or so), inequality exists in land holdings, strong feudal land relations keep a stranglehold on farm labour. All these factors put together contribute to the low output in agriculture. Even with increase in productivity of crops in recent times, it has not been sufficient, given the increase in input costs, to make agriculture profitable. The per person productivity and per hectare output of agriculture are both extremely low, and it appears that both poverty and stagnation in agriculture cannot be escaped unless per capita

and per hectare productivity and profitability increase substantially.

Many people are leaving cultivation for labour. Small farms are un-sustainable and as a consequence more and more people turn to casual labour, to leasing land to sustain themselves, and their livelihoods have become peripatetic and precarious. The recent years of drought, with an ineffective drought mitigation system, with increasing debt burden have contributed to large-scale migration, which even though declining in recent years, has had an impact on the region. Families across the region have developed their own survival and growth strategies, which have involved mixed livelihood options, migration and dependency on local feudatories.

Livestock management is mainly a supplementary activity to agriculture and except for some cases in goat rearing (in which traditional goat rearing families are involved), usually a few animals are kept for self-consumption or small sales to organized and unorganized markets. There are some areas where livestock management is flourishing, such as goat rearing in the uplands, fisheries in Tikamgarh and poultry in and around Jhansi.

The other important primary sector is mining and quarrying, dealing with construction related raw materials and sand from river beds. This kind of quarrying of minor minerals and sand mining operates under the control of local feudatories and elites, and the working conditions are poor. Neither livestock management nor mining has been able to add substantially to local economic growth.

Economic activities in the secondary and tertiary sectors have not been able to open up and bring diversity and growth to the region. Industrial investments have been low and except for some public sector investments decades ago, and one or two large private industries, manufacturing has not been able to offer investments made to substantially spur the economy nor has it been able to offer jobs to take people out of agriculture. Most service sector activities are those surrounding agriculture or urban services, and not much growth has happened in this sphere, to give opportunities to educated youth or to entrepreneurs to invest in industry or service-based enterprises.

The economy is constrained by lack of surplus to make entrepreneurs of people, and industrial growth has been slow, especially considering that the region has good connectivity, is linked to major railway lines and has an attractive location in central India. Services have unfortunately not taken off to give another piston to push growth, so it is quite clear that a self-perpetuating cycle has built up that needs to be broken.

Lack of a dynamic local economy has made local investment both difficult and unattractive, except by the local elite who prefer to invest either in land locally, or in sectors that are growing elsewhere. The efforts of the two State Governments towards promoting industrialization have not yet been fruitful and need to be accelerated.

Poverty levels have remained consistently high in Bundelkhand, and poverty now averages over 30 percent. In the last decade or so, there has been some reduction in poverty, more so in the poorer MP districts, but it still remains one of the most income poor regions in central India. The per capita income of the region is half the national average, and there is not a single economic sector on a growth trajectory. All these factors show that unless the institutional, economic and social barriers to progressive and inclusive growth are removed, Bundelkhand

will continue to remain in the low human development category.

People's capabilities – core of human development

The population is weighed down by low human development achievements. The people of Bundelkhand face the dual burden of a poor economic environment combined with the lack of proper school education and health facilities. This prevents them from breaking out of the confines of geography, caste, assetlessness and lack of local opportunities, a poor health status and an inadequate preventive and curative setup. This weakens strained bodies, brings physical and economic disabilities and handicaps to households, and further impoverishes and burdens them. Children remain malnourished, losing out in both mental and physical progress, that they should receive as their basic entitlement. The absence of good quality education and health facilities makes the situation of a poor region with strong feudal and social controls more difficult.

Education

Basic literacy is low, languishing in the low seventies, and though school education has achieved universal access to primary education, there is much to be done for the univerzalisation of secondary and higher education. The quality of actual learning is low, with children not able to comprehend, understand and absorb what they are being taught. The advantages that education brings to a population have not been achieved in Bundelkhand, although the level of student learning is of the same quality as in the rest of the parent states. Children in Bundelkhand, in UP, have better education standards of learning than their counterparts in MP-Bundelkhand.

Government schools have improved their infrastructure over time, but still face problems like shortage of rooms, toilet facilities or power connections, or even access to drinking water. Even though teacher appointments have been made, schools suffer from low teacher attendance, and children belonging to SC communities sometimes face discrimination. Retention rates drop as children move up to the higher classes, and high drop outs are worrying especially amongst girls and SC children. Girls attend schools closer to home, but often girls are not allowed to attend schools that are located far away, and thus girls miss out on education as they move to higher classes. Education in urban areas is relatively better, with a number of private schools in urban areas. But even urban educational achievements are not significantly better than rural education. With every second child in the UP-Bundelkhand area, and every fifth child in the MP-Bundelkhand area attending private school, the popular perception of the better quality of education in expensive private schools compared to free public schools is very visible, and more children are opting for private schooling.

Health

Infant mortality rates are very high, especially in the MP region, which does much worse than the UP region in all health indicators. High child and infant mortality have seen some improvement over the last decade, but immunization is not universal, and while most mothers now deliver under trained care (mostly institutional), follow-up and post-natal care is un-satisfactory.

Insufficient supplementary nutrition for mothers, poor hygiene and lack of access to timely care in emergencies keeps maternal mortality rates amongst the highest in the nation. While MP Government data claims good success with maternal care programmes compared to UP, the impact on the ground suggests otherwise.

Malnourishment among mothers, wasting and stunting among children is very high, in both states, with MP-Bundelkhand doing far worse than UP-Bundelkhand. What is encouraging is a significant decline in infant and child mortality rates over the last decade, although most districts in the region even then fall amongst the 'worst performing' districts in the country in child and maternal health indicators. Concerted efforts in this field are required urgently.

There is a shortage in health delivery facilities – health centres are about 20 to 30 percent less than what is required, along with shortage of doctors (ranging from 10 to 40 percent in some cases). Speciality care is restricted to urban hospitals. The general condition of sub-health centres is unsatisfactory, although primary health centres and community health centres do have reasonable infrastructure, thanks to funding from the National Rural Health Mission (NRHM). However, each centre or institution has its unique problems – some places don't have enough space, some places do not have technicians, in some centres medicines are not available, in some centres machines are not working, in many places doctor attendance is irregular, both in terms of timings and in attendance, in many places para-medical staff is much less than what is required and in many cases centres just remain closed. While people have greater faith in the Government health delivery system than in the private health delivery system, this is not matched by the timing, quality and availability of this service. However, some well-equipped and clean public health centres do exist, which people acknowledged, stating that they prefer using public health facilities, when available. An encouraging perception in people is that public health services have improved in recent years.

For women and for people belonging to the SC and ST communities in Bundelkhand, the situation is worse. Women live in a strongly patriarchal society, which even as it associates them with dignity and family respect, suppresses them and puts them into the background, to be hidden and protected, or to be subjugated and dominated. The sex ratios are significantly low, female infant mortality is higher than male infant mortality, women are paid less for same work as compared to men, they are not allowed to pursue higher education and are married off earlier than in other regions of UP and MP. Even in political participation they play the role of surrogates. They are excluded from the public space, are denied equal rights in property and in economic participation. Violence against women is higher in Bundelkhand than the rest of UP or MP.

Even though the condition of women is of concern, there have been some examples of women breaking out, both individually and sometimes in groups, organized around a particular incident or issue. Empowerment programmes and local NGOs have played a role in this. Government programmes focussing on women's economic and social empowerment have made impact, and many local organizations and initiatives have certainly broken barriers giving space, voice and recognition to women. Change that will break this bondage on a large scale is yet to come to Bundelkhand, but stirrings are there.

In Bundelkhand, the 30 percent Dalits and Adivasis face discrimination, live off an even poorer capital base (both social and capital), and exist on the periphery of livelihoods (as gatherers, labourers and marginal farmers). They enjoy much less of every asset and every basic service than others, poorer in every respect. On all human development parameters SCs and STs lag behind the others. The SC community faces more discrimination in Bundelkhand, compared to other regions of the two parent states and examples of active discrimination and exclusion abound in Bundelkhand.

Political movement in Uttar Pradesh, however, has had much impact in giving dignity and voice to the Scheduled Castes.

The percentage of land owned by the SC and ST communities is much less than their share of the population. Most people are small and marginal farmers; and a very high percentage of agricultural labour belongs to the SC and ST communities. In access to basic amenities and services, these communities fare worse than the general population.

Provision of basic amenities is another challenge. Less than a quarter of the population has access to proper sanitary facilities, and less than half the population of Bundelkhand has electricity in their homes. Sixty percent of the population still depends on handpumps for drinking water and another 20 percent depend on open wells.

Seasonal migration in the absence of alternate and skilled employment is a common feature. Migration provides an escape from the regional stagnation and social discrimination that prevails in Bundelkhand and is a strategy for breaking from economic and social bondage.

The three issues discussed above – poor quality of education, poor health status and inadequate health service systems, and continued discrimination against the poorest and marginalized communities, are all serious constraints that prevent the region from breaking out of the shackles of backwardness. Poverty, subsistence-level agriculture, lack of emerging economic sectors, economic relations based on feudal social contracts and norms compound the problem. If change has to come, it will need the pressure and organized motivation of educated people, both by providing opportunities and as an enabler of exploring ways out of poverty and deprivation, and of an aware and vibrant society.

The challenges and the opportunities

There are four challenges – the first is the environmental challenge, leading to water stress, loss of green cover, soil degradation, and disturbing natural resource based livelihoods; the second challenge is that of an unequal social and economic order in a strongly feudal society, where the elite (mostly upper castes and the landed), exercise undue influence, suppressing wages, exerting control over the local administration and not permitting any change in the social and political order; the third is the administration that is not particularly different from that in the parent states, but the bureaucracy and at times even the political executive, considers this region as being on the periphery. The special potential of the region has not been exploited substantially by either of the two State Governments (this explains the lack of development of the Khajuraho tourism circuit, or not taking advantage of the locational advantages of Bundelkhand or not focussing on the preservation of traditional tanks even when water conservation was high on the Government's agenda). The fourth challenge is the impression of a poor law and order situation, which has hampered investment in the region, and encourages feudal patronage, feeding into the unequal social and economic asset base.

Examining the human development situation

As discussed earlier, the overall human development status is poor. However, both UP-Bundelkhand and MP-Bundelkhand fare far better than the average in their parent states, and therefore Bundelkhand as a region is better developed than many of the regions within UP and MP. Comparing the two state regions, UP-Bundelkhand has better human development

indicators than MP-Bundelkhand. The level of human development varies considerably between districts, with Jhansi, Mahoba, Hamirpur, Jalaun, Sagar and Banda having higher scores than the average for the region, while Datia, Damoh, Chattarpur, Lalitpur, Tikamgarh, Chitrakoot, and Panna having lower scores than the average score for Bundelkhand (See table i).

The possibilities

Social issues have an overarching influence in a feudal culture, in all matters of public life, which is seen in Bundelkhand through –

- Respect for upper castes, a respect that is displayed by superiority in the sphere of social customs, physical display of superiority, and access to opportunity and the Government;
- Leadership of feudatories in the political sphere;
- Pride and valour in the past perpetrating a common identity but reinforcing caste and caste based class as well;
- Women continue to be marginalized and disempowered;
- Not sufficiently effective law and order machinery to give confidence and support to poor and marginalized. Sometimes the field functionaries even side with the feudal elite to effectively deny even liberty to these communities.

Given this background, two questions arise. The first is whether this backwardness is unique to this region or is this phenomenon part of the backwardness that has taken over many other regions of the country? The second is whether this region will ever be able to break from the shackles of a low

Table i: Human development indicators, Bundelkhand and its districts

District	Literacy rate	Literacy index	NER (primary)	NER Index	Education index	IMR	Health index	Per capita income	PCI index	HDI	HDI rank
Jhansi	75.05	0.688	95.8	0.948	**0.775**	41	**0.621**	37999	**0.379**	**0.592**	1
Mahoba	65.27	0.566	100	1.000	**0.711**	46	**0.568**	34661	**0.336**	**0.538**	2
Hamirpur	68.77	0.610	94.2	0.928	**0.716**	45	**0.579**	26941	**0.240**	**0.511**	3
Jalaun	73.75	0.672	98.3	0.979	**0.774**	65	**0.368**	29476	**0.277**	**0.473**	4
Sagar	76.46	0.706	99.3	0.991	**0.801**	69	**0.326**	29028	**0.271**	**0.466**	5
Banda	66.67	0.583	100	1.000	**0.722**	55	**0.474**	24540	**0.200**	**0.465**	6
Datia	72.63	0.658	100	1.000	**0.772**	73	**0.284**	29307	**0.274**	**0.443**	7
Damoh	69.73	0.622	100	1.000	**0.748**	71	**0.305**	27999	**0.257**	**0.437**	8
Chattarpur	63.74	0.547	100	1.000	**0.698**	63	**0.389**	23799	**0.189**	**0.425**	9
Lalitpur	63.54	0.544	100	1.000	**0.696**	73	**0.284**	28989	**0.271**	**0.417**	10
Tikamgarh	61.43	0.518	100	1.000	**0.679**	61	**0.411**	21502	**0.148**	**0.412**	11
Chitrakoot	65.05	0.563	100	1.000	**0.709**	67	**0.347**	24011	**0.140**	**0.399**	12
Panna	64.79	0.560	100	1.000	**0.707**	85	**0.158**	23170	**0.178**	**0.347**	13
UP-Bundelkhand	69.30	0.616	98.3	0.979	**0.737**	56	**0.463**	29884	**0.280**	**0.493**	
MP-Bundelkhand	68.70	0.609	99.8	0.998	**0.738**	69	**0.326**	25893	**0.224**	**0.430**	
Bundelkhand	69.00	0.613	99.0	0.988	**0.738**	63	**0.389**	29021	**0.266**	**0.464**	
UP	67.70	0.595	94.2	0.928	**0.706**	68	**0.337**	26513	**0.149**	**0.397**	
MP	69.30	0.616	99.2	0.990	**0.741**	62	**0.400**	33028	**0.247**	**0.463**	
India	74.00	0.675	99.9	0.999	**0.783**	44	**0.589**	54042	**0.522**	**0.632**	

productive economic equilibrium and poor human development? The answer to the first question is that the backwardness is a result of the unique historical and geographic features and the lack of sustained and focussed government intervention. Such a phenomenon is also witnessed in many other parts of India, especially in northern and central India, but Bundelkhand stands at the top. The answer to the second question is in the affirmative.

There are social, geographic, historical, and institutional reasons for this backwardness. The elite of the region are part of the problem of backwardness– feudal relations in every sphere of economic activity; patronage, lineage, ownership of social capital and the same dictating unequal access to economic capital; together all of them have held back the region from breaking out of a feudal-agrarian set up. As far as the poor are concerned, the region presents too many struggles for the poor, which weakens their ability to break out. Local administrative capabilities are often inadequate to meet these challenges and training and capacity building in dealing with this kind of institutionalized exclusion is required.

Based on these considerations, a two-pronged strategy has to be worked on; one that unlocks the potential of development; and which works against deprivation, discrimination and destitution. The first is to unlock the growth and development potential of the region through investments, building people's capabilities, promoting small businesses and entrepreneurship, developing agricultural productivity and high potential area of tourism as well as ensuring equity in access to opportunity.

The report emphasises that progress in agriculture, both with the current basket of production and through large scale shift in crop choices, technology and management patterns, is where change in Bundelkhand may be expected. Productivity of different

crops needs to be improved, water needs to be better managed at the farm level and by water conservation efforts and technologies. The other area with much promise is tourism. The region has a large number of sites that are appropriate for development of historical, religious and resort tourism. Tourism and its attendant downstream impact can actually provide a stimulus to the entire region. The tourism sector has to be assigned policy attention and focus, which it has not received so far. Investment is required in road infrastructure, in hotels and motels and imaginative itineraries that encourage visitors to stay in the region for at least three to four days need to be designed. Places like Khajuraho and Chitrakoot, for example, can provide a stimulus to the local economies of the region.

Industry-led solutions are likely to be marginal to the development of the region. Industry is free to choose where it wishes to invest and there are few advantages that will attract industry to the region. Similarly, knowledge-based services also do not offer much possibility. Bundelkhand does, however, remain a natural logistical hub, being in the centre of India and this natural advantage can perhaps be exploited.

Some areas identified for growth and change in Bundelkhand are:

Modernization in agriculture with water management, micro-farm solutions and moving to high value crops are the future. Agriculture promotion should be through technology promoting agencies, farmer owned agencies, farmer-industry linked production and promotional tie-ups and specially focussed promotion to meet the new emerging demand for organic crops and vegetables, gluten-free cereal production, the growing demand for horticulture and other specific high value crops. Micro planning on a farm to farm basis for profitable cropping choices supported by water management technology will be very beneficial. Bundelkhand's terrain, temperature and rainfall afford distinct advantages to certain types of fruits, vegetables and other vegetation, which can profit from scientifically managed technical interventions. These are *amla, ber,* custard apple, lemon, pomegranate, etc. There is considerable wasteland in Bundelkhand, which can be put to productive use by using new scientific production methods such as green-houses and water management technologies, to produce high value vegetables and flowers, to meet the growing demand in the cities.

Water is critical to the development of agriculture. Hence, rejuvenation of the tanks that have fallen into disrepair and of their catchment regions is essential. Curtailing encroachment and destruction of the catchment area will need strong political will and administrative action; something that has not happened so far.

Credit services need to expand their reach, reaching every household, and servicing it in its time of need. Bankers need to look at small manufacturing units catering to local needs as being bankable. Financial support for a number of agricultural initiatives can be provided from various national programmes such as the Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), etc., as well as the State Government's own programmes and schemes.

Livestock management and the development of fisheries in the small sector is another area with considerable promise. Units in irrigated regions can be assisted with entrepreneurial level dairy units and these can catalyse growth. Similarly, fisheries offer opportunities that have not been tapped so far except in one or two districts.

There is some scope for small to medium level manufacturing, especially in agro processing. Recent efforts at industrial investment have been counterproductive to Bundelkhand, especially in MP, and special instruments are needed to promote the industrial potential with institutional support from industrial development and financing institutions. The potential for solar energy, in focus of the governments, also offers great hope.

Minor mineral mining is another possible growth area. Mining is controlled by the local elite and is practiced in a manner that is very harmful for the environment. It is carried out in a quasi-legal manner and has damaged the sustainability of mines and quarries. The unprofessional and unsafe mining practices that are followed and encouraged lead to malpractices such as bonded labour. This sector requires capital, professional investment and better regulation.

The second part of the strategy is direct action, where there is destitution, deprivation and discrimination. Assets of small farmers and agricultural labour need to be made more productive, tenurial systems need to be improved. Institutional support needs to be provided to improve education and health access and quality. Better employment opportunities are required in the Bundelkhand region itself, especially for skilled professionals. An attempt has to be made to leverage all anti-poverty and social security programmes, so that the poor can break the poverty cycles that they appear to be trapped in.

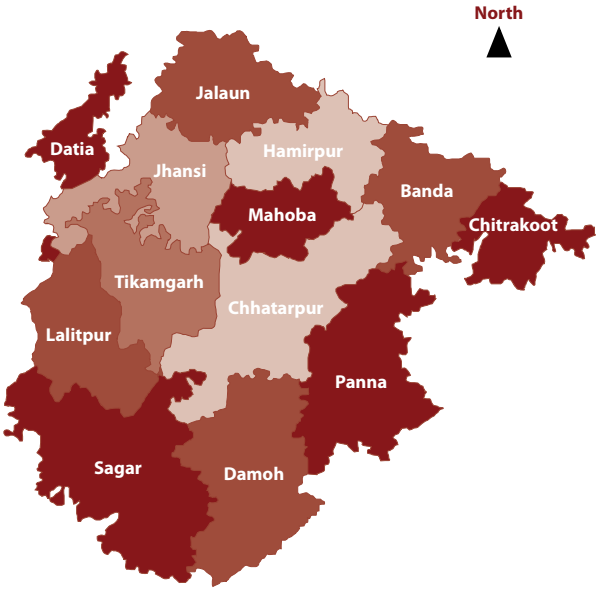
1

Bundelkhand – the region and its development

Chapter 1

Bundelkhand in central India, traverses two states (Uttar Pradesh and Madhya Pradesh), and comprises 13 districts – seven in Uttar Pradesh (UP) – Jalaun, Hamirpur, Banda, Chitrakoot, Mahoba, Jhansi and Lalitpur and six in Madhya Pradesh (MP) – Datia, Tikamgarh, Chhatarpur, Panna, Damoh and Sagar. These areas have a common history and have been bound together for centuries by common rulers, a shared mythology and a common legacy of valour. Before independence, under the British, the present state of UP - more or less coincided with what was then known as the United Provinces of Agra and Oudh. At that time, the present state of MP belonged to a number of administrative units, the Central Provinces and Berar, Central India Agency and the State of Bhopal. After Independence, following the 1955 States Re-organization Commission Report, the Bundelkhand region was partitioned into these two states (like many other regions). The geography of the two states shows that the two Bundelkhand districts of Jhansi and Lalitpur form an interesting island in MP, while the rest of the Bundelkhand districts in these two states, run parallel to each other in the north, and the southern districts of MP (Sagar and Damoh) form an extension to give the region a somewhat circular formation.

Figure 1.1: Map of Bundelkhand – traversing Uttar Pradesh and Madhya Pradesh



Why a Human Development Report for Bundelkhand

This region, has its own distinct identity, both historical and cultural and a number of common development characteristics. The Government of India and the erstwhile Planning Commission identified the region as being 'backward' and 'human development poor'. Of the thirteen districts in Bundelkhand, ten districts figure in the list of 250 most backward districts, – Chhatarpur, Damoh, Panna, Tikamgarh, Banda, Chitrakoot, Jalaun, Mahoba, Hamirpur and Lalitpur[1]. Lack of economic progress, lack of diversification from agriculture, inadequate modernisation in agriculture and lack of economic infrastructure - like irrigation, roads and power and social infrastructure - like schools, and health centres, are common features of Bundelkhand.

Over the last 15 to 20 years, Bundelkhand has become known for frequent droughts, severe water shortage, malnourishment (there have

[1] Ministry of Panchayati Raj. (2009). *A Note on the Backward Regions Grant Fund Programme,* available at http://www.nird.org.in/brgf/doc/brgf_BackgroundNote.pdf

been reports of hunger/ starvation[2]), social discrimination and violence against women, and deteriorating ecology leading to stress in agriculture. There have been reports of illegal sand mining and quarrying[3], patronised by local political and caste elites, mass migration (often turning to permanent migration[4]), caste based domination over Dalits, precarious condition of tribals[5], especially the Sahariyas, and recently the return of dacoits[6].

Bundelkhand encouragingly is getting known for many positive reasons. There are evidences of development parametres improving over time, better delivery of many essential services, improving infrastructure and even some economic growth. There are voices of change in Bundelkhand. Women are beginning to assert themselves[7], the Dalits are beginning to push somewhat successfully towards political empowerment[8]. Both women and the poor are forming collectives, in an attempt to take advantage of their group strength and get better access to government programmes, so as to change their economic condition.

The issues that have been emerging in Bundelkhand are not confined to the standard definitions of 'development' as conventionally understood, but more appropriately relate to issues of 'human development'. These issues relate to not just the economy and income, but to the lack of human capabilities, the absence of freedom and choice, inadequate entitlements and uncertainty of rights, issues of sustainable development, of the marginalized and voiceless and their condition. They reflect the reality of a people pushed aside by feudal class and caste interests, and a State that perhaps wants to but is not able to change things at the speed required to match the aspirations of the people.

This report attempts to document the status of human development in the region, and identify both the constraints and the potential. It comes at a crucial time; as the Government aims to undertake new policies, programmes and initiatives, all accelerators in an attempt to bolster both growth and human development.

The history and contours of the region

Bundelkhand is a region with a common shared history and language, similar dialects, a set of common cultural practices, folklore and a social-religious-cultural identity that comes from a common history and a common cultural formation. It has been able to maintain its character as a region, inspite of the fact that the two parent states have put their distinct stamp on the respective districts that are located within them, especially in terms of power relations, control and dominance in society, and in political formations that range from social and economic identities to quasi-religious identities. Even so, there are common traits that run through this region, and to any visitor, reader, researcher, traveller, anthropologist, political scientist or sociologist, it does stand out as a distinct cultural and linguistic region.

The region gets its name from the Bundela dynasty that ruled the region from the middle of the 14th century. Even though there is no distinct or outstanding pattern to the region's history, most parts of Bundelkhand have more or less been under a common tutelage in

[2] See http://indiatoday.intoday.in/story/farmers-deaths-and-suicides-looms-over-bundelkhand/1/137725.html and http://www.bundelkhand.in/portal/news/Starvation-deaths-Farmer-suicides-loom-over-Bundelkhand ; accessed 16 October 2015
[3] http://www.pressreader.com/india/hindustan-times-jalandhar/20150422/281539404497291/TextView accessed 16 October 2015 and http://www.hindustantimes.com/india/inside-the-world-of-sand-mafia-terror-casts-gloom-as-cops-bury-heads/story-i0Z1p2jE3dt4uMfLWtUmKO.html
[4] See http://www.indiaenvironmentportal.org.in/files/Drought%20by%20Design.pdf accessed 16 October 2015
[5] See http://actionaid.org/india/what-we-do/uttar-pradesh/land-and-livelihood-rights-sahariya-tribe-hamirpur-district, accessed 16 October 2015
[6] Srivastava, P. (2013). The bandits are back: UP Police admit dacoits have returned to Bundelkhand ravines. *Daily Mail*. Available at http://www.dailymail.co.uk/indiahome/indianews/article-2295472/The-bandits-UP-police-admit-dacoits-returned-Bundelkhand-ravines.html
The Hindu (2014). In Bundelkhand, dacoits still call the shots. *The Hindu*. Available at http://www.thehindu.com/todays-paper/tp-national/in-bundelkhand-dacoits-still-call-the-shots/article5935673.ece
[7] See http://www.perspectives.devalt.org/?p=796 and http://www.perspectives.devalt.org/?p=869, http://www.perspectives.devalt.org/?p=837 all accessed 16 October 2015
[8] http://www.actionaid.org/india/what-we-do/madhya-pradesh/sustainable-livelihoods-dalits-and-tribals-bundelkhand-region, accessed 16 October 2015

People Speak :

There is a popular sentiment in Bundelkhand, primarily among the political and economic elite, regarding the discrimination that the area faces by the parent states, UP and MP. The setting up of a new state is projected as the solution.

This is based on the identity of a common historical and cultural legacy and the fear that the local elite have that their hegemony will be challenged, unless they have political power.

different periods, and this has imparted certain characteristics to the *Bundelkhandi people*, a pride in its history of valour, drawn from its past of constant wars between different dynasties. It has a rich tradition of poetry and literature, which glorifies valour. The region claims links to the great clans of the Mahabharata and is rich in stories that glorify their wars, their sacrifices, both in victory and in defeat. It is proud of the ruling clans of the Chandelas[9] and their long rule, marked by great distinctions in literature, music, sculpture and architecture, and the Bundelas[10], and their Kingdom of Orchha, and many other feudatories, whose stories have been etched in folklore from time immemorial, often giving them divine ancestry.

In Indian mythological writing, Bundelkhand is mentioned as the kingdom established by Dandaka, the son of Ishwaku (one of the earliest Aryan kings). It was his descendants who set up the Chedi kingdom, which is mentioned in the epic Mahabharata, and they played a part in the great battle of Mahabharata. In the historical period, Bundelkhand was under Mauryan rule. The Mauryas were followed by the Vakatakas, who were followed by the Kalachuris. While the region was ruled by many dynasties, it often came under the suzerainty of other kingdoms, including larger empires such as the Mauryas, the Guptas, the Vakatakas, the Huns, the Nagas, the Gurjara-Pratiharas, the Gonds, the Mughals, the Marathas and the British. It did not really develop any particularly obvious defining characteristic in the economy or in administrative systems. The different rulers and the periods of rule by distant kingdoms/ dynasties fostered the tendency to develop local feudatories, thus sowing the seeds of a strong feudal culture in this region, which has seeped into the fabric of social and religious customs. The region passed onto the British in the 19th century (see Box 1.1 for a brief chronological history).

The linguistic and cultural linkages of the region are distinct and strong. A common dialect – Bundeli[11] or Bundelkhandi – has a rich literature and a common inspiring tradition of bardship, including the singing of the famous *alha*[12]. There is the *achri*, a folk song in honour of the mother goddess and other forms of cultural expressions such as singing *hori*[13], *phag*[14], *kajri*[15], *lamtera*[16], *pahunai*[17], *got*[18], *kacchiyahi*[19], *khayal*[20], *tambura bhajans*[21], etc.

[9] The Chandelas were Rajput clans, perhaps of Gond origin, that ruled over the region of Bundelkhand from 9th century to the 13th century. Their strongholds were the fortress of Kalinjar, Khajuraho, Mahoba and Ajaigarh. The Chandelas were known for their architecture and sculpture and for the great tanks they built known as the Chandela Tanks. They also built the temples of Khajuraho.
[10] In the 14th century, the Bundelas, a Rajput clan, emerged as rulers of Bundelkhand. Initially, they fought the mighty Mughals and then made their peace with them. With decline of the Mughal Empire Bundelkhand passed into the hands of the Marathas and then finally came under British control, in the early 19th century.
[11] Bundeli has many local variations, in Banda and Chitrakoot there is the 'Bagheli dialect of eastern Hindi influenced by Bundeli', and there are other local dialects namely Tirhani, Gahora, Jurar, Aghari, etc.
[12] Alha udal refers to the singing stories of valour in a narrational style. The alha udal tradition is almost 700 years old and was traditionally related to singing the heroic acts of the King of Delhi, (Prithviraj Chauhan), King of Kannauj, (Raja Jai Chandra Rathore) and the Chandel King of Mahoba (Bundelkhand). Over time, this style has incorporated many other stories and continues to evolve. It is a vibrant and live tradition in Central India, especially in Bundelkhand. See http://www.ignca.nic.in/coilnet/audal.htm
[13] Hori is the most popular type of Dhrupad, sung on the festival of Holi. See https://indianraga.wordpress.com/tag/hori/
[14] Phag is a folk tradition in UP. See: http://www.indiantravelportal.com/uttar-pradesh/music/
[15] Kajri is a well-known form of folk music, sung by classical and semi classical musicians; associated with the rain/monsoon. See: http://www.beatofindia.com/forms/kajri.htm
[16] Lamtera is sung in honour of Ganesha and Shakti. See http://www.bundelkhand.in/portal/info/folk-culture-forms-bundelkhand
[17] Pahunai is a folk song and dance, which is performed to welcome guests. See: http://www.bundelkhand.in/portal/info/folk-culture-forms-bundelkhand
[18] Got is a folk song sung through the night to seek good health for the cattle in the village. See http://www.bundelkhand.in/portal/info/folk-culture-forms-bundelkhand
[19] Kacchiyahi refers to the folk songs and dances performed by the Kacchi caste. See http://www.bundelkhand.in/portal/info/folk-culture-forms-bundelkhand
[20] Khayal is one of the most popular styles of Hindustani vocal music. See http://www.medieval.org/music/world/warvij.html
[21] Tambura bhajans are songs based on Kabir's bhajans. See: http://www.bundelkhand.in/portal/info/folk-culture-forms-bundelkhand

Box 1.1: A chronological history of Bundelkhand

Ramayana Period	Many accounts in the Ramayana describe the Chitrakoot forests where Ram, Sita and Lakshman are believed to have spent 12 years in exile.
Mahabharata Period	In the Mahabharata, there is a mention of a Chedi Kingdom, whose boundaries extended from river Betwa in the west to river Yamuna in the north. This is similar to the area that is present-day Bundelkhand. The capital of this kingdom was Chanderi and the ruler was Shishupal.
6th Century BC	Awanti state was similar to the present Malwa region, while other parts of MP were under Vatsa and Chedi rulers. Magadha later occupied Awanti and other states.
3rd Century BC	Ashoka became the Governor of Awanti, with the capital at Ujjain. Ashokan inscriptions have been found in Gujarra in Datia and at Sanchi and Rupnath, in Jabalpur. After the decline of the Mauryan empire, Shunga Kanva, Satvahanas and Kshatrapas ruled the area.
3rd-4th Century AD	The Naga dynasty emerged in Gwalior, Muraina and Mathura districts, after the fall of the Kushanas.
4th Century AD	Vakatakas were important rulers of the region and controlled Panna and Satna, till the 4th century AD.
4th-6th Century AD	The Guptas controlled the whole of Central India. Parivrajaka and Uchhakalapas, of the Gupta dynasty, ruled different parts of Bundelkhand. Harshavardhan's rule extended from the Himalayas in the north to the Narmada in the south.
8th Century AD	The Gurjara-Pratihara were rulers of the Malwa region and at one point their territories were larger than those of the Gupta Empire. The Kalchuris of Tripuri, the Parmars of Malwa and the Chandelas of Bundelkhand emerged as rulers after the decline of the Gurjara-Pratihara dynasty.
9th Century AD	Nannuk established the Chandela dynasty. Nannuk's grandson, Jejjak renamed the state Jejjakbhukti.
10th-13th Century AD	Chandela Dynasty - King Dhang was the greatest ruler of the Chandela dynasty. His kingdom extended from Gwalior in the north to Vidisha in the south and to Allahabad in the north-east. Most of the Khajuraho temples were built during the reign of King Dhang and his father, Yashovarman Chandela. Hammirvarman was the last of the Chandela kings.
14th-16th Century AD	Bundela Dynasty - The Bundelas emerged victorious after the decline of the Chandela kingdom. In 1531 AD, Rudrapratap Bundela made Orchha his new capital. Clashes between the Mughals and Bundelas started during the reign of Madhukarshah Bundela. Chhatrashal Bundela is considered one of the greatest Bundela kings. He fought the Mughals for the freedom of the Bundelkhand region. He was helped by Bajirao Peshwa in his struggles against the Mughals.
Medieval Period	The Marathas ruled the Malwa region. The area was distributed among the Sindhias, Holkars and Pawars.
British Rule	The Marathas ceded some parts of Bundelkhand to the British in 1802, under the Treaty of Bassein. In 1818, after the end of the third Anglo-Maratha war, the Peshwa of Pune ceded all his rights to Bundelkhand to the British. The various states in Bundelkhand were organized into the Bundelkhand Agency in 1811.
Independent India	The princely states under the Bundelkhand Agency were combined with those of the former Baghelkhand Agency to form the state of Vindhya Pradesh in 1950. After the States Reorganization Act of 1956, Vindhya Pradesh was merged into Madhya Pradesh on November 1, 1956.

Source: Planning Commission (1998). Study on Bundelkhand. Available at http://planningcommission.nic.in/reports/sereport/ser/bndel/stdy_bndel.pdf

While there is a pride in this identity of Bundelkhand, there is at the same time, a perception that they do not belong to the larger whole. This perception is not uncommon when regions are located administratively and politically in a larger collection, with which they find little in common. This sentiment results in the reinforcement of a distinct common identity. In Bundelkhand, this is primarily an upper caste/class reaction. The continued reinforcement of regionalism and the building up of the perception of being ignored or persecuted also comes from the growing insecurity among the local elite (who in Bundelkhand are both the social elite and the landed elite). This is what has kept alive the more aggressive identity of Bundelkhand, compared to most other regions/cultural zones.

There are no distinct geographic features that bind the region, except for the general character of being located in central India, lying south of the Indo-Gangetic plain and north of the Deccan plateau. The 13 districts from Uttar Pradesh and Madhya Pradesh are generally considered to be part of Bundelkhand, though if the 'cultural aspect' is considered then Bundelkhand may include some additional areas as well. Box 1.2 shows the administrative zones from which these districts were carved out in 1956, to become a part of UP and MP, respectively.

The boundaries of Bundelkhand are the plains of the Yamuna and the Ganga to the north, the Vindhya hills and the Panna-Ajaigarh ranges to the east, the Kali-Sindh and Chambal rivers to the west, the Malwa and Udaipur-Gwalior regions to the south, the Narmada and the tributaries of the Ken and the Betwa, and in the south and east, the Vindhyachal and Baghelkhand regions. Towards the north and north central area, lie the undulating plains of Bundelkhand covering nearly two thirds of the region, while the rest of the region has a more hilly terrain, with heights between 300 metres to 450 metres above sea level. Some parts of the Vindhyanchal table-land in the west and south even attain a height of up to 600 metres above sea level. The Bundelkhand region is sub-divided into four sub-regions: the Bundelkhand plain in the north, the Bundelkhand upland in the centre and south, and the Sagar and Damoh (Vindhyanchal) plateaus in the south. The Sagar plateau is part of the Malwa region and the Damoh plateau is part of Vindhyanchal.

Topography and geology

Bundelkhand is an old landmass composed of horizontal rock-beds resting on a stable foundation. The landscape is rugged, featuring an undulating terrain with low rocky outcrops, narrow valleys and plains. Granites of varying

Box 1.2: Pre-independence administrative zones for Bundelkhand's districts

District	Pre – Independence
Lalitpur	Part of Chanderi state
Jhansi	Part of Gwalior state
Datia, Chhatarpur, Tikamgarh, Panna, Damoh	Vindhya Pradesh
Hamirpur (Mahoba was carved out of Hamirpur district)	Part of Northern Bundelkhand/Kalpi. In 1823, it became an independent district
Banda (Chitrakoot carved out of Banda district)	Southern Bundelkhand
Sagar	Part of Central Provinces of Berar
Jalaun	Independent district until British annexation in 1856

Source: Official websites of each district

types from the Lower Pre Cambrian/ Archean[22] period are the predominant geological materials found across the region. Some Dharwarian and Vindhayan[23] rocks present in the region contain minerals of economic value. Sandstone, shale and limestone of high quality, alluvial deposits of clay, silt and sand and the famous pink Archean gneiss rocks are also found in places.

Spectacular ravines in the north and deep gorges in the south are the result of the active erosion of the unconsolidated alluvial material deposited by the major rivers in the region - the Betwa, the Dhasan and the Ken. These ravines and gorges are uncultivable and pose an increasing threat to the adjacent farmlands, as they continue to expand.

Climate and rainfall

Bundelkhand falls in the hot and semi-arid climatic zone, and is marked by extremes of temperature, crossing 40 degrees centigrade during summer and dropping to as low as 1 degree centigrade in winter. May to June are the hottest months, the temperature is moderate from October, and then drops to its lowest in December and January, and starts rising again from February. During the summer months, hot breezes, are common.

The rainfall distribution pattern is uneven, and approximately 90 percent of the rain falls during the monsoon months, between June to October, in 50-60 days of precipitation. Average rainfall per year is 800-900 mm but most of the rain is lost to runoff. July and August are months with the maximum rainfall, while November and April are the driest months of the year. There is some rainfall during the winter months, which provides water for the rabi crop, but this needs to be accompanied by other sources of irrigation.

The region is characterized by droughts and drought-like conditions in summer and flood situations in the monsoon. The dry plains in the north usually receive less rain than the south-eastern part of the region.

Soil composition and erosion

Soil types in Bundelkhand are a mix of black and red; the latter being relatively recently formed, gravelly and shallow in depth, and thus unable to retain moisture well. The *rakar* soils are residual, slightly acidic, coarse-grained, shallow and excessively permeable. The *parua* soils are alluvial and mildly alkaline. The black soils, *mar* and *kabar* extend for upto 40 inches and are confined to low lying landscapes, have a fine texture and the property of shrinking on drying and expanding when wet. Red soils are more predominant in the north-western region and are usually gravelly and shallow, with poor moisture retention. The characteristics of these soils make them vulnerable to over-irrigation. Conversely, black soils, which are found mostly in the south, retain water better and are therefore preferred for wheat, gram and sugarcane cultivation.

Box 1.3: Soil types in Bundelkhand

Soil Association	Local Name
Bundelkhand-coarse grained-reddish brown soil	Rakar
Bundelkhand-coarse grained-gray to grayish brown soil	Parua
Bundelkhand-clay loom black soil	Kabar
Bundelkhand-fine clayey black soil	Mar

Source: District Gazetteers, different districts, Govts. of UP and MP

[22] The Archean Eon began about four billion years ago with the formation of the earth's crust and extended to the start of the Proterozoic Eon two and a half billion years ago; the latter is the second division of Precambrian time. See www.britannica.com/EBchecked/topic/32681/Archean-Eon

[23] The Dharwar rocks refer to the first metamorphosed sedimentary rock systems in the Indian geological time scale. These were first studied in the Dharwar district of Karnataka, hence the name. They are composed largely of igneous debris, schist's and gneisses. The Vindhyan rocks are a classic example of Proterozoic intracontinental basin that developed in the central part of the Indian shield. The strata are exposed in three major sectors: Son valley, Bundelkhand and Rajasthan. See http://www.dghindia.org/27.aspx

Much of the region suffers from acute ecological degradation due to top-soil erosion and deforestation, leading to low productivity of the land. Soil erosion is a persistent problem that is aggravated by the hilly landscape, high winds and the poor quality of the soil, leading to the widespread growth of gullies.

Forests and natural vegetation

Bundelkhand was densely forested until the late 18th century. Demand for wood and agricultural expansion led to heavy deforestation, starting from the middle of the 19th century. Post independence, population growth and the green revolution brought even larger tracts of land under the plough and further increased wood-based energy needs. These factors, combined with poor land management and government approved commercial logging, drastically reduced forested area in the region. Today, only small patches of dry miscellaneous and thorn forests of *dhak* (Anogeissus latifolia), teak (Tectona grandis) *mahua-chiranji* (Madhuca longefolia/ Madhuca Indica), *khardai* (Anogeissus pendulai), *khai* and *thar* trees remain. The flora of Bundelkhand is of the tropical dry deciduous type. Vegetation primarily consists of scrub forest *siari* (Nyctanthes arbortristis), *katai* (Flacourtia Indica), *gunj* (Lannea coromendelica), *bel* (Aegle marmelos), *ghout* (Ziziphus xylopyra) trees) and scrub brush, much of it open canopy with large tracts of land classified as 'wastelands'.

In the Bundelkhand plain sub-region areas of Banda, Hamirpur and Datia districts, along the banks of rivers like the Pahuj, Betwa and Yamuna, there are acacias like *babul* (Acacia nilotica) and *khair* (Acacia catechu), *palash* (Butea monosperma), *ber* (Zizyphus varieties), *tendu* (Diospyros melanoxylon), *mahua* (Madhuca Indica), *semal* (Salmalia malabarica) and *khardai* (Anogeissus pendulai).

In the intermediate sub-region there are *salai* (Boswellia Serrata), *seesham* (Dalbergia sissoo), *dhau* (Anogeissus Latifolia), *jamun* (Syzygium), *seja* (Lagerstroemia parviflora), *karaundha* (Carissa spinarum) shrubs and occasionally, teak. Teak is also found in the southern Bundelkhand Upland sub-region (Panna, Chhatarpur, Tikamgarh), besides the above-mentioned species. In the Damoh and Sagar plateaus, trees known locally as *dhawda* (or *dhak*) (Anogeissus latifolia), *tinsa* (Ougeinia dalbergiodes) and *bija* (Pterocarpus marsupium) are found.

Tendu (Diospyros melanoxylon), which provides seasonal income to people living in and around forests, is found in abundance in Panna and Chhatarpur districts. Another very useful tree for people living around the forests is *mahua*. There is little timber production in Bundelkhand. Forests of teak are found only in Sagar and Damoh districts, and only in small patches. Bamboo is also found in small patches across the region. Forests and scrub-lands are used to source firewood.

Mahua flowers, fruits and seeds, *tendu* leaves and firewood are a major source of livelihood for people living in hilly areas of Bundelkhand, like the Kols in the Patha area of Chitrakoot, tribal groups living in and around forests of Panna district and the Sahariyas of Lalitpur district. In terms of value, *tendu* leaves are the most important forest produce in Bundelkhand and the collection and sale is done through state agencies in both UP and MP. Other forest produce collected and sold are medicinal plants and products like *harra, gond, imli, khair, chiraunji, babul, anjan* and *salbeaj*.

Water resources and river systems

Bundelkhand is surrounded by rivers – the northern boundary is defined by the Yamuna; the western boundary is defined by the Kali Sindh; in the south, the Narmada flows a few kilometres from the border of Sagar district. However, none of these rivers play a direct, large role in Bundelkhand's economy.

The major drainage of the Bundelkhand region is through its numerous perennial rivers and their tributary rivulets and seasonal *nallahs* (water channels/ravines), which carry all the water including rainwater to the Yamuna river in the north. The main slope of the entire region is towards north and north-east. The flow in most of the water sources varies considerably according to the season. The monsoon brings heavy floods and the highest flows in all the rivers and tributaries. During the dry season, *nallahs* often become dry and the flow in the major rivers dwindles. As a consequence, irrigation becomes difficult and greater stress is placed on groundwater resources.

The main water sources in the region are perennial rivers and rivulets, the numerous lakes formed through embankments built along the lower side of the valley and the traditional ponds that are found in almost every village. The Betwa contributes around 50 percent of the water available in Bundelkhand uplands and in the Bundelkhand plains sub-regions; the Ken contributes around 25 percent of the water. Both the rivers are inter-state rivers, originating in MP, and flowing through UP, to join the Yamuna.

Except for the Yamuna, which flows from north-west to south-east, and some streams in Panna and Chhatarpur districts, all the rivers flowing through Bundelkhand are useful for irrigation. However, most rivers are dry or almost dry in summer. At Hamirpur, the average discharge of the Betwa is 700,000 million cusecs[24] during the rainy season, but in summer it is almost nil. The Betwa (known as Vetravati in ancient times) rises from the Vindhyan ranges in Bhopal district, at an elevation of about 1300 feet above sea level and meets the Yamuna in Hamirpur district. The total length of the river is around 590 kms, of which 232 kms is in MP. The Betwa basin includes several districts: Sagar, Tikamgarh, Lalitpur, Jalaun and Hamirpur. The catchment area of the basin is around 44,000 square kms, of which around 30,000 square kms is in MP, while the rest of the area is in UP.

[24] 1 cusec is approximately 28 litres of water flowing per second.

The river flows through rocky terrain with steep gradients; and many sites are suitable for hydel power stations.

An important tributary of the Betwa is the Dhasan, known as Darsana is earlier times, which also rises in Bhopal district. It then flows through Sagar district and forms the southern boundary of Lalitpur district. It joins the Betwa in Jhansi district. The Ken river, (known as Karnavati in ancient times) rises from the Vindhyan hills in Damoh district of MP and enters UP in Banda district for a little, then turns towards Chhatarpur district of MP, and comes back to Banda tehsil in Banda district. It then flows in a north-east direction and finally turns east to meet the Yamuna at a place called Chilla Ghat. The total length of the river is 427 kms, out of which 292 kms lies in MP, 84 kms in UP and 51 kms forms the boundary between the two states. The Ken basin covers the area of Jabalpur, Sagar, Damoh, Panna, Satna, Chhatarpur and Raisen districts of MP and Hamirpur and Banda districts of UP. Most of the catchment area of around 28,000 square kms lies in MP. The river flows through deep channels and has many waterfalls. Its right bank is generally high and steep, and the land along this bank is scarred with ravines. The left bank slopes more gently. As it reaches the Yamuna, the Ken is blocked by the larger river, resulting in submergence of even high-level land.

In the southern upland region, the rivers mostly flow through straight courses but in the lowlands, the rivers go through several tortuous loops and bends. In the upland region, the gradient of the rivers is steep and the water-course is narrow and deep as the rivers pass through deep valleys with gorges and waterfalls. In the lowland, the rate of flow of water is slower and the rivers are broad. The lower courses of the rivers, towards the Yamuna, are in fertile alluvial plains, where the rivers cause much erosion and create ravines.

The Baghain river has its source in Panna district. It then enters UP, in Banda district and flows in a north-east direction, separating Banda from Chitrakoot district, before it meets the Yamuna. The Baghain brings with it little alluvial soil but it often deposits a large amount of sand near its junction with the Yamuna. The river has six tributaries including the Ranj and Barua.

The Yamuna is the longest river of Bundelkhand, forming its northern boundary. It causes much destruction along its high southern bank, swallowing land as it flows ahead. The Sindh forms Bundelkhand's western boundary for some distance. It rises in Vidisha district of MP and flows through Datia district. The Sindh basin is in the Bundelkhand upland and its catchment area is almost entirely in MP, covering around 27,700 square kms.

Among the other rivers of Bundelkhand are:

- The Paisuni, which rises in Satna district, MP and enters UP in Banda district, flows through Chitrakoot district (where it is known as Mandakini) and runs almost parallel to the Baghein for some distance, before it turns and joins the Yamuna.
- The Garara, which flows through the central portion of Banda district and then meets the Yamuna, at Jalalpur.
- The Pahuj, a small but deep river, which rises in Gwalior district, flows through Jhansi district, forming its boundary with Datia district and then meets the Sind. (The Pahuj has been dammed near Jhansi town and the reservoir meets the drinking water requirements of the town.)
- The Sonar and its tributaries flow through Sagar and Damoh districts and join the Ken river.
- The Bina, which forms the boundary between Sagar and Vidisha districts, meets the Betwa near Bina town, in Sagar district.
- The Jamni, which rises in Sagar district, flows through Lalitpur district and meets the Betwa in Tikamgarh district.

In spite of the existence of a number of rivers, the area remains largely dry and drought prone.

The irrigation potential of the rivers has not been exploited adequately, so far.

A demographic profile of Bundelkhand

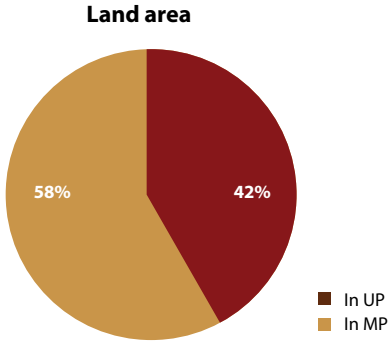
The larger land area of the region of Bundelkhand lies in MP, while more people live on the UP side (see Figures 1.2 and 1.3). The largest city in the region is Jhansi (in UP), which is located on the main railways' north - south trunk line[25]. The other large town is Sagar. This district is the centre of *bidi*-making in MP, and is blessed with a rich forest cover, encouraging forest-based livelihoods and development.

The Jhansi (associated with the Rani of Jhansi) to Tikamgarh to Chhatarpur belt is a tourism zone, along with Orchha and Khajuraho (with its internationally renowned temples). The tourism circuit continues onto the Panna Tiger reserve and the Panna diamond mines. To the north lie Jalaun, Hamirpur, Mahoba and Banda, with Chitrakoot to the extreme east. Chitrakoot is a place of religious pilgrimage, associated with Lord Rama.

The entire region of Bundelkhand is at an approachable distance to the large commercial cum urbanized zones of Gwalior, National Capital Region (NCR)/ Delhi, Kanpur and Allahabad. Banda and Chitrakoot are next to Allahabad, Orai (Jalaun) and Banda are near Kanpur, and Jhansi and Datia have an easy access to National Capital Region Delhi via Gwalior.

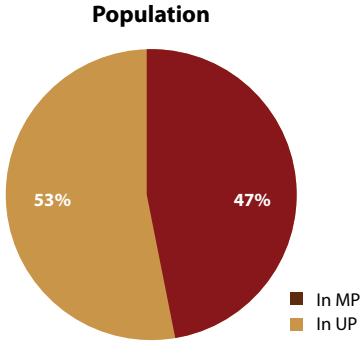
The Bundelkhand region, within these boundaries, has an area of 7,53,700 square kms with a population of 18.3 million people[26], 78 percent of whom live in rural Bundelkhand. The level of urbanization at 22.4 percent, is low compared to the national level of 31 percent (Census 2011). In the decade from 2001 to 2011, urbanization in Bundelkhand crawled up from 22 percent to just 22.4 percent (Census 2001 and 2011). The states of MP and UP also saw a plateau in the growth of urbanization over the same period. In Bundelkhand, only Jhansi (42 percent) and Sagar (30 percent) have seen reasonably high levels of urbanization. In 2001, Jhansi, Sagar and even Jalaun were urbanized enough to be able to launch onto a more sustained path of urbanization, but none of the three districts moved in this direction and saw only a marginal increase in urbanization in the decade that followed. Now, Jhansi and Sagar have been identified to be developed as Smart Cities under the Smart Cities Mission launched by the Government of India.[27]

Figure 1.2: Bundelkhand - land area



Source: Census 2011

Figure 1.3: Bundelkhand - proportion of population



Source: Census 2011

[25] Jhansi is also connected to the national highway (NH) grid through NH 25, 26 and 75, and has easy access to Gwalior (en-route to Delhi) and to Shivpuri (access to NH3).
[26] Census of India, 2011
[27] Jeelani, M. (2015). Centre unveils list of 98 smart cities; UP, TN strike it rich. The Hindu. Available at http://www.thehindu.com/news/national/centre-releases-list-of-98-cities-for-smart-city-project/article7586751.ece

Population density: A feature that distinguishes Bundelkhand, especially from UP, is the density of population. UP has a population density of 829 persons per square km, while the density in the UP districts of Bundelkhand is just 329. The population density in Bundelkhand as a whole is 260, and that of Bundelkhand in MP is even lower at 210. The population density in Bundelkhand is roughly two thirds of the national population density of 382[28]. Even with high population growth rates and large populated areas in its vicinity, this region remains one of low population density. The growth rate of population for India as a whole in the decade 2001 to 2011 was 17.6 percent, while for Bundelkhand it was only marginally higher at 18 percent[29].

Fertility rates and the sex ratio: An examination of the Total Fertility Rate (TFR) for Bundelkhand shows that the rates are 3.6 for 2010-11, 3.7 in MP-Bundelkhand (MP-B) (compared to 3.1 for MP), and 3.5 in UP-Bundelkhand (UP-B) (compared to 3.6 for UP).[30]

Since the population rate of growth is similar, the explanation for the low population density probably lies in out–migration, once people reach working-age, they probably migrate in search of employment.

In Bundelkhand, men outnumber women, and the sex ratio in Census 2011 was 885. There has been some improvement since 2001, when the sex ratio was 873 (Census 2001), but the sex ratio is far lower, less than both UP (912) and MP (931), and much lower than for India as a whole – 943 (Census 2011). The child sex ratio was 899 (2011), having declined from 914 in 2001. Tikamgarh, Chirakoot, Jhansi, Datia, Panna, Hamirpur and Chhatarpur showed the largest declines in this decade. In all parameters like literacy, education, infant mortality, employment, women exhibit poor attainment compared to men. There are a number of social practices in Bundelkhand that discriminate against women, all coming from a strongly patriarchal society.

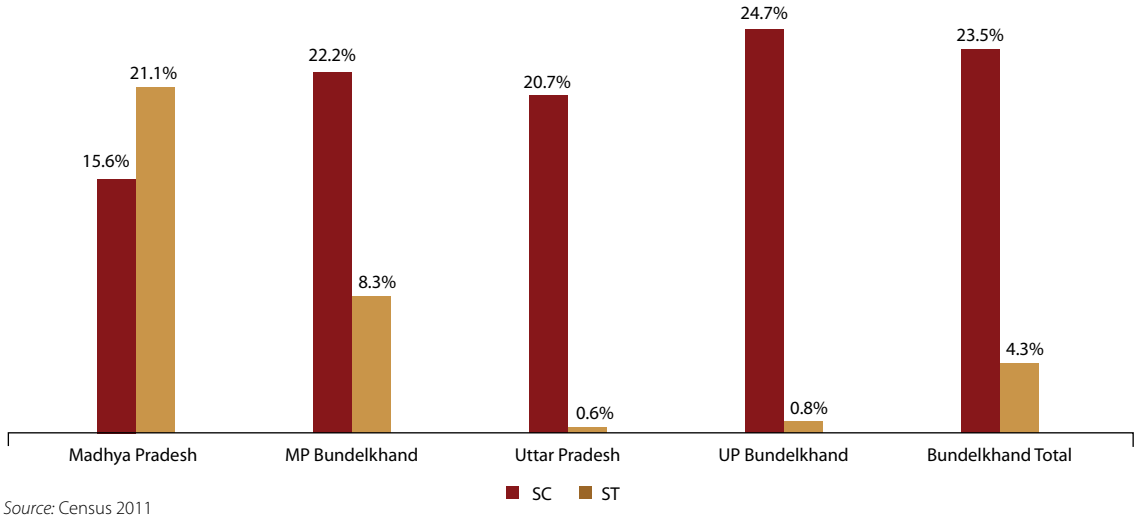
Marginalized communities: The other communities that are backward and discriminated against are the Scheduled Castes (SCs) and Scheduled Tribes (STs). People belonging to the SCs and STs are poorer, and more disadvantaged than in most other regions. In Bundelkhand, these inequalities are more acute due to the strong hierarchical nature of society, historical legacy of feudal land relations and caste -based controls and the lack of any political or social movement for reforms. Evidence from surveys, programme data and Government records shows that women and members of the SCs and STs are the most disadvantaged in this region. The region has a large presence of SCs who constituted 23.5 percent of the population in 2011, and were equally distributed in the two parent states. The STs account for only 4.3 percent of the population of Bundelkhand, and are concentrated almost entirely in MP, making up 8.3 percent of MP-Bundelkhand's population and account for just 0.43 percent of the population of UP-Bundelkhand. This large difference has been due to two factors – first that communities which have been listed as STs in MP are not listed as STs in UP, and second the depleted forest cover in UP has not augured well for the continued sustenance of local tribal communities, hence they tend to migrate out more than others.

Human Development - the idea and its measurement

In 1990, drawing inspiration from the writings of Nobel Laureate, Amartya Sen and responding to the growing demand

[28] Census of India, 2011
[29] Census of India, 2001 and 2011
[30] Data for state and districts is from Annual Health Survey 2010-11 and for Bundelkhand and its sub-regions, it has been analyzed by Sanket.

Figure 1.4: Composition of population, 2011



Source: Census 2011

Box 1.4: About Human Development

The first HDR in 1990 opened with the simply stated premise that has guided all subsequent Reports: "People are the real wealth of a nation". By backing up this assertion with an abundance of empirical data and a new way of thinking about and measuring development, the HDRs have had a profound impact on policies around the world.

"The basic purpose of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives."

- **Mahbub ul Haq** (1934-1998), founder of the Human Development Report

"Human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it."

- **Amartya Sen**, Thomas W. Lamont University Professor, and Professor of Economics and Philosophy, at Harvard University and Nobel Laureate in Economics, 1998

The human development approach is as relevant as ever to making sense of our changing world and finding ways to improve people's well-being. Human development is an evolving idea, not a fixed, static set of precepts. And as the world changes, analytical tools and concepts will also continue to evolve. Yet the core insight at the centre of the human development approach remains constant and as valid today as it was two decades ago: Development is ultimately best measured by its impact on individual lives.

Source: About Human Development, UNDP, extracted from http://hdr.undp.org/en/humandev

for defining development beyond income, UNDP, led by Dr. Mahbub ul Haq, produced the first Human Development Report (HDR). It extended and expanded the way in which development was defined and the way in which it was measured. Not only did this report discard purely economic parameters, it put the human being at the centre of development, stating forcefully that many hitherto ignored aspects are crucial for human development and attempted to measure human development by the Human Development Index (HDI). The idea of entitlements, rights, capabilities, freedom, choices, equity being essential to human happiness and human development came to be flagged from the first HDR and subsequent reports have developed these ideas further.

The HDR measured the state of human development in a country through the HDI, a composite measure of longevity, knowledge and access to resources (combining life expectancy, adult literacy, school enrolment and PPP adjusted per capita income). The indicators used and the formula for measuring the HDI has undergone some revision over the years, but it has become the most important indicator of the state of development of a nation, along with the economic indicators of GDP and per capita income (PCI). Currently, the HDI is a composite index of life expectancy at birth, mean years of schooling, expected years of schooling, and gross national income per capita in PPP terms. In regional reports, since exactly the same data is often not available, reports have used different but related indicators for estimating such indices.

In addition, the HDRs measure gender equity in development (the Gender Inequality Index and Gender related Development Index), poverty and deprivation (Multi-dimensional Poverty Index), inequality (inequality adjusted HDI), etc. These measures have generated a very healthy debate and forced a re-examination of how we measure progress and how we compare nations with one another.

Following the international reports, national and sub-national reports have been prepared across the world, and India has done pioneering work in the preparation of state level HDRs. The outcome of state and sub-state reports has been to identify gaps in human development, assess the fault lines in development and come up with strategies to ensure growth that is equitable and improves the lives of people. In many states, district level HDRs have also been published. At the national level, in India, two human development reports have been published (NHDR 2001 and India HDR 2011).[31]

The impact of the HDRs:

The reports have helped to articulate and draw attention to what constitutes human development. This is important for policy makers, bureaucrats and for the common people. Efforts are then made to better the human development situation in many states, and at the Government of India level. Human development involves the delivery of simple things – education for example - but it means to ensure that children do go to school, that once enrolled they attend school, that the quality of education imparted and received improves, education includes secondary level education and not just elementary education and that education becomes meaningful and productive for people. Similarly, to ensure that people remain healthy, it is critical to ensure that mothers remain healthy before and after child-birth, ensuring their own longevity and the health of their new-born children. It is equally important to see that infants do not die, adolescent health needs are met, morbidity goes down, preventable diseases are eliminated and treated, and that health facilities work properly with the provisioning

[31] Planning Commission. (2001). National Human Development Report [India]. Available at http://www.undp.org/content/india/en/home/library/hdr/human-development-reports/National_Human_Development_Report_India.html and
Institute of Applied Manpower Research. (2011). India Human Development Report 2011. Available at http://www.iamrindia.gov.in/ihdr_book.pdf

of adequate infrastructure facilities, doctors and supporting personnel. Governments are also conscious of providing an enabling environment for economic progress through physical connectivity, ensuring basic amenities such as drinking water, sanitation, and productive infrastructure such as electricity, financial services, and economic infrastructure. Serious attention is also focussed on nutrition, going beyond basic food security, and on equity between genders and between communities. Over the course of the last two decades, human development reporting in India has resulted in an improvement in the budgetary commitment to the social sectors, and in treating women as a separate yet an integrated category in Government initiatives.

The second change has been that instead of comparing GDP or per capita GDP measures, indices such as the HDI, the Infant Mortality Rates (IMR), gender ratios, child sex ratios, poverty measurements beyond income poverty, etc. have become popular indicators

Box 1.5: The impact of the HDRs at the national and international level

The HDR is by definition an assessment of human life. ' People are the real wealth of a nation' that is the simple premise of the HDR, published each year since 1990, by the United Nations. By backing up this assertion with an abundance of empirical data and a new way of thinking about and measuring development, the HDR has had a profound impact on policies around the world. The HDR looks beyond the conventional theories that rely on measurements of Growth and Per Capita Income. It looks at more fundamental indicators to measure development, such as literacy, access to quality health care, political participation and suffrage. The HDR discusses the quality of life, in so far that it makes the assertion that income is not the highest in the table of needs. For instance, in 1990 the UN analyzed development in a group of countries by looking at human development indicators and economic prowess. What they found is that countries with higher GNP per capita do not necessarily have a more developed citizenry. Countries such as Jamaica and Costa Rica with a lower GDP than Saudi Arabia or Oman faired higher on the development scale, as the citizens were more literate, had better access to health care and had the freedom to make choices. The HDRs emphasize that human capabilities are the indicators of development, i.e. education, health, participation in the community and society. It is not just the presence of these indicators that makes a country developed but also the ability of its people to use these capabilities to their optimum.

This concept of development has guided the HDRs for more than 25 years now, and more than 600 National HDRs—all researched, written and published in their respective countries—as well as many regionally focussed reports have been published, supported by UNDP's regional bureaus. Perhaps most important, the human development approach has affected an entire generation of policy-makers and development specialists around the world—including thousands within UNDP itself and elsewhere in the UN system. The HDR process does not end with the publication of the report. An important share of the value added of HDRs lies in the fact that the reports articulate a consistent human development message that the report teams can deploy through a carefully constructed advocacy strategy to press for change.

Source: United Nations Development Programme. (1990). Human Development Report 1990. Available at http://hdr.undp.org/sites/default/files/reports/219/hdr_1990_en_complete_nostats.pdf
Haq, M. (1992). Human Development in a Changing World. United Nations Development Programme. Available at http://hdr.undp.org/sites/default/files/mahbub_ul_haq.pdf

to assess the development status of a region. These new measures have in turn accelerated the focus on the social sectors. However, these changes should not be attributed to human development reporting alone, but to the overall shift in the development discourse that began even before the advent of HDRs.

This regional HDR – draws its inspiration from its predecessors. The aim of this report is to document the human development condition of the people of this region, and to identify and understand the status and reasons for the backwardness, the human poverty and the under-development in the Bundelkhand region. It outlines the status and gaps in both the economy and the social sectors and addresses the issue of equity by looking at the marginalized communities of women, Dalits and Adivasis. This report tries to focus on two institutional issues that are part of the character of the region but have hindered its growth and have kept it shackled, as it were. These are the feudal nature of relations, and its strong correlation with caste; both of which dominate the social and economic structure.

The report makes an unbiased appraisal of the region and compares it with the two states that it spans administratively. As a regional HDR, there is a comparison not only between the administrative units – the districts, but also between the two sub-regions, falling in the two parent states of UP and MP. The report details some initiatives that can be undertaken to address the issues that emerge from this analysis.

Framework of the Report

This report analyses the reasons for the backwardness of this region, from the perspective of human development. It looks at the three broad fields that make up human development –

(a) income that determines quality of life, the ability to sustain and survive, and help achieve progress and one's aspirations;

(b) knowledge that determines the ability to negotiate life, to be able to take advantage of

options and opportunities and to have a life of dignity, self-reliance, confidence and pride;

(c) health - the ability to live a long and healthy life, fully nourished and able bodied, that enables a fuller life, reduces disease and misery, eliminates unnecessary morbidity and mortality.

Encasing these aspects is the state of development that exists and the other inputs that ensure a good quality of life, such as the availability of roads, power, infrastructure, security, etc., and making sure that these are available to all people. This aspect prompts a specific examination of the marginalized communities of women, Dalits and Adivasis.

The first section of this HDR examines the growth of income and per capita incomes in the region and looks at livelihood options in agriculture and industry and at migration and livelihood strategies. The second section looks at human capabilities and examines issues in health and education. Parameters like the IMR, Child Mortality Rate and Maternal Mortality Rate (MMR) give a fairly good idea of the health status, and variables like immunization, nourishment and health infrastructure coverage help to complete the health assessment. In education, aspects such as basic education, literacy and school participation are detailed. Enrolment, drop-out and retention are input ratios and do not directly reflect actual quality or learning levels. However, in regions where access itself is a challenge, these indicators do reflect indirectly on the likely outcomes of education. This assessment is followed by a discussion on marginalized communities, women, Scheduled Castes and Scheduled Tribes. Infrastructure and development issues are addressed, as are concerns regarding the specific institutional character of the region and the environmental challenges.

Since the Bundelkhand region spans two states, there has been a pan-region feeling of consolidation of a belief in a common identity, with a common feeling of having been discriminated and neglected by both the states, and of being considered as being peripheral to the main state, in both cases. This makes it essential that a comparative analysis on this perceived grievance is attempted.

Each chapter presents an analysis of the data, reviews of other studies, peoples' voices and field observations that help to put the picture presented by the data in the correct perspective, highlighting what the data hides and emphasizing what it shows. The data analysis outlines the status, the gaps and the achievements, specific issues are illustrated in boxes and relevant feedback and perceptions from the Government and the people is presented as **People Speak.**

2

Incomes and employment - examining Bundelkhand's economy

Chapter 2

Human development as a way of looking at development and progress emerged from the growing realization that economic progress and increase in income alone is not an adequate measure of development. Although human development includes factors other than income, yet, because income ensures a quality of life, access to resources and the ability to tackle extreme situations, it continues to be one of the three components of human development, the other two being knowledge/ education and longevity / health.

While income data tells us how much a region and its people have travelled economically, poverty and deprivation numbers show the extent and depth of deprivation and poverty among people and reveal what income averages do not. Income data also shows the strength of the local economy and individual households to buy goods, services and other facilities. Besides, there are a number of things that a human being gets as a citizen, such as rights, entitlements, and so on, and these are important determinants of the quality of life. Public utilities and services such as infrastructure, education and health care, law and order are examples.

Economic growth is an incomplete measure of the state of development of a people, their well-being and their quality of life. Even though it is an inadequate indicator, yet economic prosperity of an area, town, state or country does show the average 'well-being' for the area.

Examining Income data

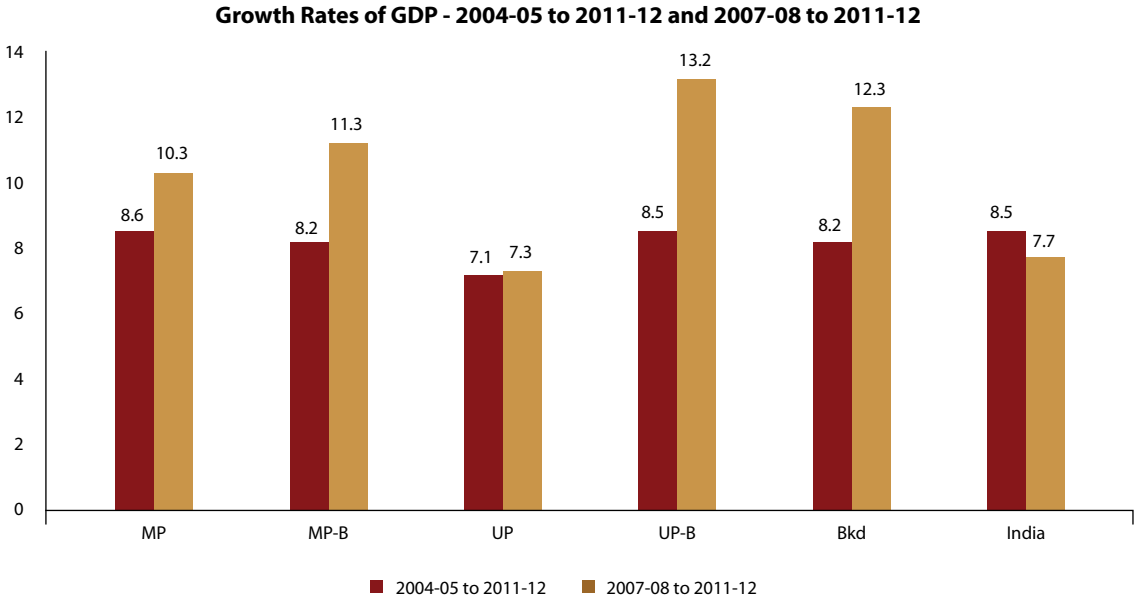
In this section, the district domestic product (DDP) has been used to make an assessment of economic strength of the district and the average condition of the people.

The Figure 2.1 and the data sets that are its basis represent DDP growth rates for all-India, UP, MP, the composite Bundelkhand region located in both states, and for the regions of Bundelkhand, in each of the two states. Average growth rates for the state and regional incomes have been tracked for the seven-year period 2004-05 to 2011-12, with a subset for the four-year period 2007-08 to 2011-12. State and sub-state level data is derived from DDP and Net State Domestic Product (NSDP)[1] estimates from the respective states.

Interestingly and significantly, in the period between 2007-08 to 2011-12, India grew at a slower rate than in the longer time period 2004-05 to 2011-12. In the same period (2004-05 to 2011-12), the rate of growth in UP-Bundelkhand was higher than entire UP, while the growth rate of MP- Bundelkhand was lower than that of MP. The growth in composite Bundelkhand was less than that for the whole of India.

In the period 2007-08 to 2011-12, Bundelkhand[2] outperformed the parent states, as well as India. Changes in the service sector, which grew even faster than the primary sector, and growth in agriculture in MP-Bundelkhand were responsible for this trend. If this growth can be sustained, and assuming that India grows at a relatively slower rate than Bundelkhand, it will take another two decades before Bundelkhand comes to the all-India level (in terms of per capita income). Clearly, a 20 year perspective and growth planning is required, assuming best possible scenarios. What is of some concern, although it pertains to just one year, is the severe drop in growth rates in the UP districts of Bundelkhand, for the period 2010-11 to 2011-12.

Figure 2.1: Growth rates of GDP



Source: Directorate of Economics and Statistics, GoMP and GoUP

[1] Data taken for NSDP at State and District Domestic Product for districts has been added to give the regional figures. Current data is available till 2011-12, however there are district level discrepancies for the year 2011-12; hence for district level analysis data for 2010-11 has been used.
[2] Some of this higher growth is due to the preceding years of drought in Bundelkhand, which had kept growth low.

An examination of the per capita income (PCI) gives a better idea of the current status. The regional PCI and the related growth rates are presented in Table 2.1.

In terms of growth, MP-Bundelkhand (MP-B) grew at a rate less than entire MP, although in the 2007-08 to 2010-11 period this trend reversed and MP-B grew faster than the rest of MP. In the UP-Bundelkhand (UP-B) region, the opposite is true – all the UP-B districts have higher per capita incomes than UP and have grown faster in the last six years and even more in the 2007-08 to 2010-11 period. Compared to India on the other hand, the per capita incomes in the region are much lower, being consistently between 50 to 55 percent of the national average. Bundelkhand is an income poor region compared to India, but between the two states, the per capita income in UP-Bundelkhand region is higher than in the MP-Bundelkhand region, and it is also growing faster per annum in UP-Bundelkhand than in MP-Bundelkhand.

Table 2.1: Per capita income in Bundelkhand, MP, UP, India, 2004-05 to 2010-11

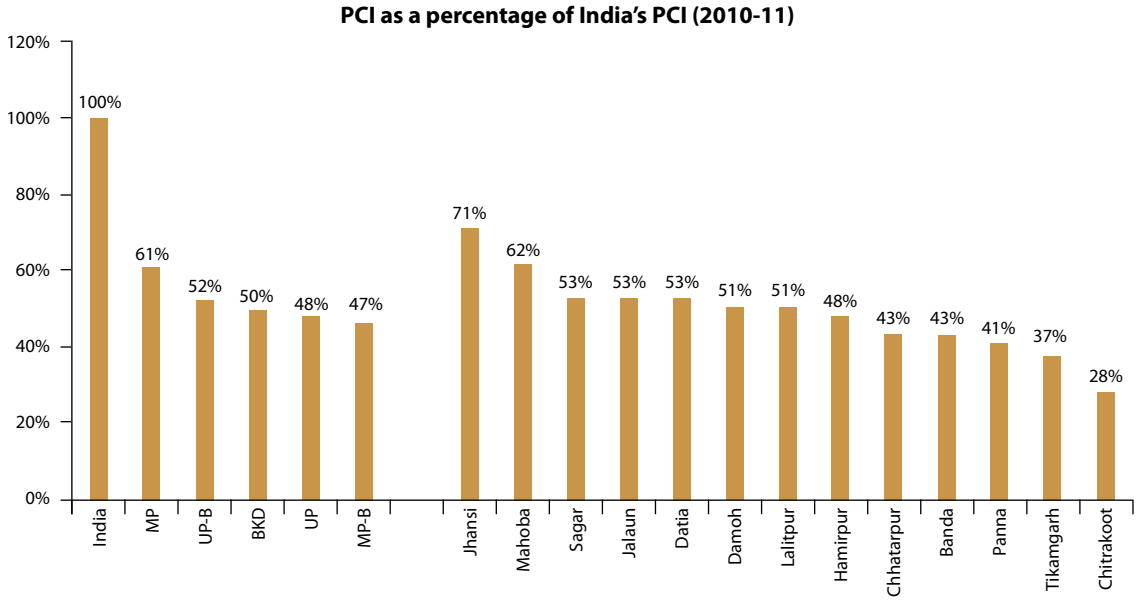
State/District	Per capita Income and growth rate at Current Prices (Rs)				Per capita Income and growth rate at Constant Prices (Base year 2004-05) (Rs)			
	Per capita Income 2004-05	Per capita Income 2010-11	Growth per annum 2004-05	Growth per annum 2007-08 to 2010-11	Per capita Income 2004-05	Per capita Income 2010-11	Growth per annum 2004-05	Growth per annum 2007-08 to 2010-11
Madhya Pradesh	15,442	32,223	13.0%	15.5%	15,442	22,091	6.1%	7.9%
MP-Bundelkhand	12,320	25,182	12.7%	16.3%	12,320	17,030	5.5%	8.8%
MP-B over MP	79.8%	78.1%			79.8%	77.1%		
Uttar Pradesh	11,941	26,355	14.1%	14.4%	12,840	17,349	5.1%	5.5%
UP-Bundelkhand	13,694	28,757	13.2%	20.2%	13,694	18,982	5.6%	11.0%
UP-B over UP	114.7%	109.1%			126.2%	122.7%		
Bundelkhand	13,045	27,068	12.9%	18.4%	13,045	18,060	5.6%	10.0%
India	24,143	53,331	14.1%	14.2%				
PCI of MP-B as a % age of PCI in UP-B	90.0%	87.6%			90.0%	89.7%		

Source: Directorate of Economics and Statistics, Govt. of UP and Govt. of MP

The economy of the region is certainly backward compared to the national situation and PCI has remained consistently at about half the nation's average. Five districts are at an even more disadvantaged position in PCI (those with PCI less than 45 percent of national average). The national PCI is low, and needs to be doubled at the minimum to ensure a decent standard of living for the people. Incomes in Bundelkhand then will need to be quadrupled, to bring the region at par with the rest of the country. While the Gini-coefficient in incomes is not known, the figures do reveal some of the inequalities that are hidden even in these extremely low per capita averages. For example as reflected in Table 2.2, the average PCI of people in agriculture/ primary sector (agriculture provides employment to 70 percent of the population) was Rs 7,173/- per annum, which was only 13.4 percent of the national per capita income in 2010-2011.

The Figure 2.3 shows the percentage of population dependent on agriculture and the average PCI in the primary sector[4], as well as the population dependent on the non-primary sector and the average PCI in the non-primary sector. All districts, with the exception of Sagar and Jhansi, have populations that are highly agriculture-dependent; over 60 percent of the population survives on PCI below Rs 10,000 per month, except in Mahoba, where agriculture PCI goes upto Rs 12,000. In Sagar and Jhansi, while agriculture incomes are poor, people are engaged in the *bidi* industry in Sagar and they find employment in the services and small manufacturing secondary sector in Jhansi, due to the presence of a large urban area. Even in the secondary and tertiary sectors, the average PCI is lower than the national average, except in Datia. (Datia district also has relatively better parameters for other human development indicators.)

Figure 2.2: PCI as a percentage of India's PCI, Bundelkhand and its districts, MP, UP



Source: Bundelkhand data from Directorate of Economics & Statistics, Govt. of UP and Govt. of MP and India data from Planning Commission

[3] Planning Commission (2006). *Towards Faster and More Inclusive Growth, An Approach to the 11th Five Year Plan.* Available at http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/apppap_11_1.pdf

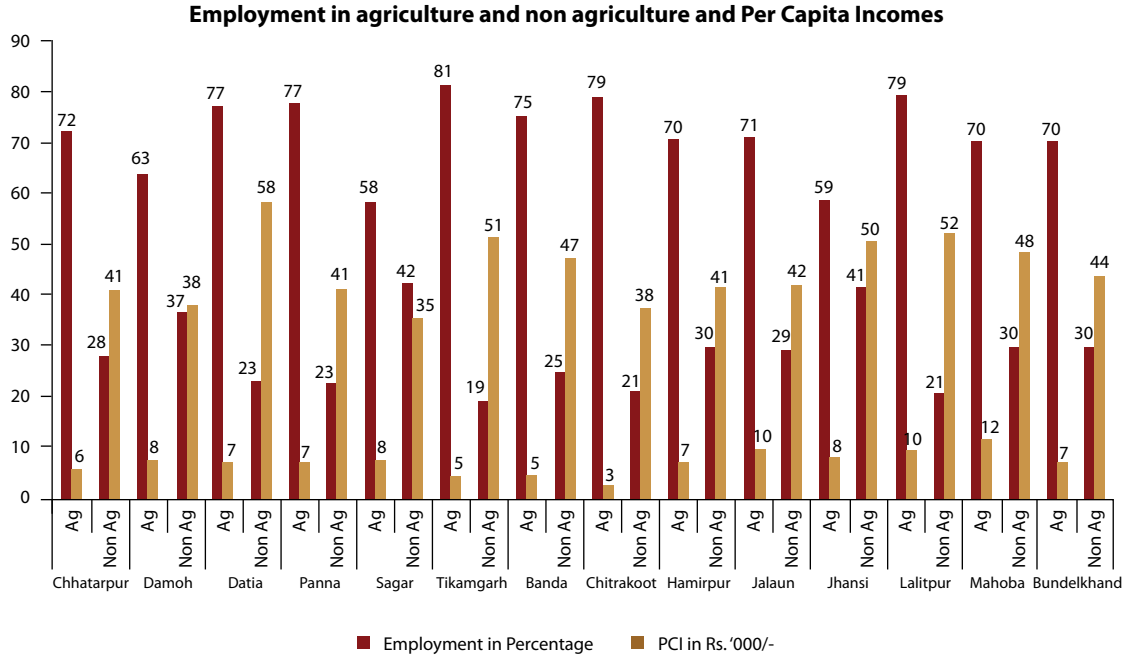
[4] A full comparison between employments in the primary sectors is not possible, as this data has not yet been released for Census 2011. Employment in agriculture and in non-agriculture, have been taken as best estimates for primary sector and non-primary sectors for the purpose of this analysis.

Table 2.2: Estimate of PCI in different sectors, 2010-11

Region	Sector	Population in Primary Sector	Estimated Sectoral PCI	PCI as % age of national PCI
MP-Bundelkhand	Agriculture	69%	6,612	12.4%
	Non Agriculture	31%	40,715	76.3%
UP-Bundelkhand	Agriculture	71%	7,658	14.4%
	Non Agriculture	29%	46,355	86.9%
Bundelkhand	Agriculture	70%	7,173	13.4%
	Non Agriculture	30%	43,587	81.7%

Source: Directorate of Economics and Statistics, Govt. of UP and Govt. of MP

Figure 2.3: District wise Employment in agriculture and non-agriculture and respective per capita incomes



Source: District Estimates from Directorate of Economics and Statistics, GoMP and GoUP

The situation as compared to the parent states is worse in MP than in UP. The PCI of people living in the six Bundelkhand districts (in MP) is 20 percent lower than in other parts of the state. UP-Bundelkhand region has higher PCI compared to MP-Bundelkhand, mainly due to better agriculture in UP-Bundelkhand, due in part to better irrigation and better economic infrastructure.

A closer examination of the districts has been undertaken to ascertain if there are any features that can be identified which can help us to design economic interventions. The districts have been divided into four groups. The two districts with highest per capita incomes are Jhansi and Mahoba, and their PCI was over 20 percent higher than entire Bundelkhand (taking a two year average for the period 2009-10 to 2010-11). These two districts push up the average for Bundelkhand, which would otherwise be even lower, compared to the all India figure and even compared to the PCI in MP. Jhansi, an urbanized region, with all the economic dynamism of a city, has a higher PCI. Good agriculture is responsible for the higher PCI in Mahoba.

The second group of districts comprises of the average performing areas, which are the districts of Sagar, Jalaun, Damoh[5] and Datia, and their PCIs are close to each other. In case of each of them, while they are all poorer than MP, they are better off than the averages for UP and something special in each of these districts has kept them from even lower PCIs. Sagar has the *bidi* trade and significant collection and trading in Minor Forest Produce (MFP), and a similar situation exists in Damoh. Jalaun has fairly productive agriculture, which is evident when we compare value of agriculture output to total workers involved in agriculture or to the cropped area. The best per capita output for agriculture separates Jalaun from all other districts (for more details see next chapter). Datia, ensconced as it is in a corner of Bundelkhand, has the benefit of best irrigation amongst all the districts, with over two-thirds of the gross cropped area under assured irrigation. This helps both in agriculture and in downstream off-farm economic activities.

In the third group are the districts of Lalitpur, Hamirpur and Chhatarpur districts, where PCIs are either the same or just below the average of PCI for Bundelkhand. These three districts do not have any outstanding feature that defines them, as moving on towards growth or stagnation, nor do they have any characteristics that dampen growth and development. The last group comprises of the districts that perform most poorly in economic terms – the districts of Banda, Panna, Tikamgarh and Chitrakoot. These districts, with the possible exception of Tikamgarh, are poor in infrastructure and have little non-farm economic activity.

The Bundelkhand economy is dependent on agriculture and due to the low productive base of agriculture, farming output is not able to match western UP or the Malwa region of MP. The terrain is undulating, soil is often not very productive, assured irrigation is not available in all places, especially in the Bundelkhand uplands, and there is water scarcity, and groundwater extraction is difficult due to the strata and low water tables. Industrial investment has been low, and no alternate sectors have emerged for growth.

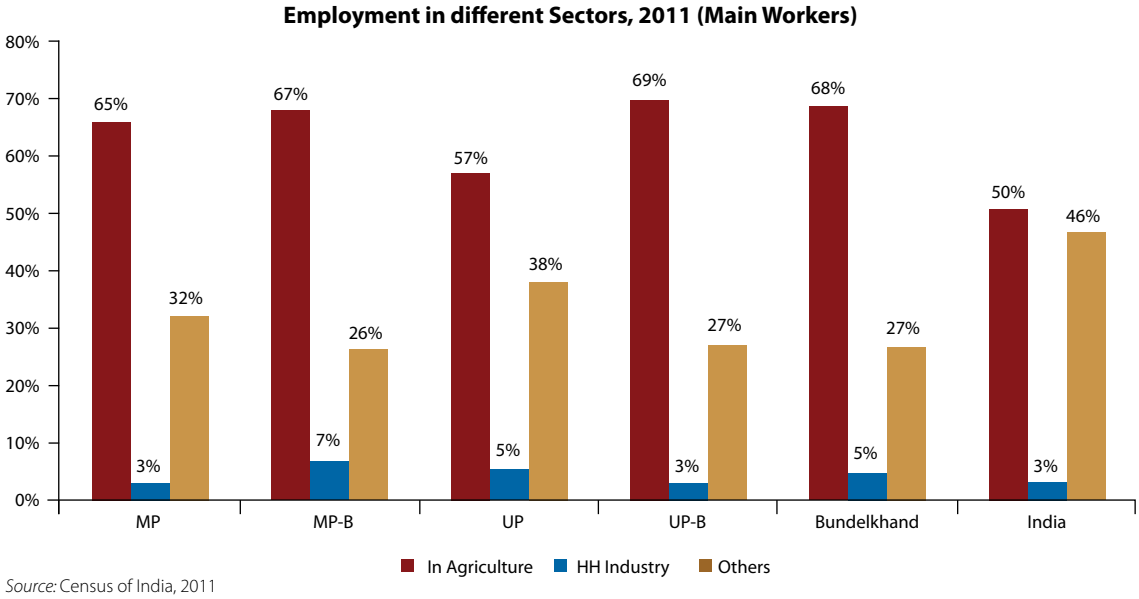
Two factors stand out – urbanization leads to or is led by growth and good agriculture, sustained on relatively flatter lands with good irrigation is key to the growth in the districts. The other associated economic characteristic that brings prosperity to a region is growth and progress in the non-agriculture sectors, providing alternate opportunities for employment and giving surplus to the economy to further boost diversity in agriculture, sustain higher wages, and give choices to labourers. At least one of these factors must operate to energise the economy of an area, and if two are present then the region can break out of the low cycles in which the region operates. Initiatives should thus focus on increasing sustained sources of irrigation, incentives for land improvement to ensure higher productivity, help through credit and promotional institutions to one or more non-agriculture sectors, and incentivising urban growth, through local infrastructure and civic amenities, in the small towns.

Employment continues to be largely in the primary sector

The people in Bundelkhand region are predominantly engaged in agriculture and the activities allied to it like farm labour, and animal husbandry in dairying, goat rearing and fisheries. In agriculture, people primarily sow foodgrains; vegetables and fruits are usually grown in the homestead, for personal consumption, while commercial level horticulture is rare. There is some employment in the services sector, with limited employment in industries. A comparative regional profile is attempted using

[5] Damoh is one of the more industrialized districts in Bundelkhand, primarily due to a large cement plant set up in Narsingarh, a small village 20 kms from Damoh, in 1980s. This village has limestone deposits.

Figure 2.4: Employment in different sectors



Source: Census of India, 2011

the Census figures[6] on employment, in different sectors, by broad categories of workers[7].

As can be seen in Figure 2.4, employment in agriculture, as cultivators and agriculture labour, sustains an overwhelming portion of the population. The share of people employed in agriculture in Bundelkhand is higher than the two parent states, and much higher than the average for India. While close to 70 percent workers engage in agriculture and related activities, the figure at the national level was 50 percent in 2011. A comparison with the data for 2001 shows that, in Bundelkhand, over these 10 years livelihood dependence on agriculture, amongst main workers, has actually gone up, although marginally, unlike for all India, where there has been a significant jump in non-agriculture workers. This breaks with the trend between 1991 and 2001, when agriculture dependency reduced in Bundelkhand. Within Bundelkhand, this continued dependence on agriculture for employment is seen throughout the region.

There seems to be a lack of employment opportunities that provide a viable alternative to agriculture. The percentage of cultivators employed as main workers to all workers has declined from 51.4 percent to 40 percent, between 2001 and 2011. The share of cultivators to all workers between 1991 and 2001 also saw a decline but this was marginal, but what was encouraging in this decade was the decline in agriculture labourers, and movement of people towards 'other' work opportunities. This reversed in the last decade (from 2001 to 2011) when more and more people had to return to being agricultural labourers as their principal source of incomes. The overall dependency on agriculture remains, but the share of cultivators (who till their lands[8] or are in some way directly involved in farming operations on their own or leased lands) is declining, while

[6] Data or information on sources of livelihood or employment (the two while not the same, are usually counted in the same category of "employment" in all surveys and census operations in India) exists in a number of sources but a comparison can only be done using Census data.

[7] Census operations enumerate people for employment, categorizing them as main and marginal workers. Main workers – are "Those workers who had worked for the major part of the reference period (i.e. six months or more)."
Marginal workers are "those workers who had not worked for the major part of the reference period (i.e. less than six months)."
Registrar General of India. (2001). Census Data 2001 / Metadata. Available at http://censusindia.gov.in/Metadata/Metada.htm#2

[8] "For purposes of the Census, a person is classified as cultivator if he or she is engaged in cultivation of land owned or held from Government or held from private persons or institutions for payment in money, kind or share. Cultivation includes effective supervision or direction in cultivation. A person who has given out her/his land to another person or persons or institution(s) for cultivation for money, kind or share of crop and who does not even supervise or direct cultivation of land, is not treated as cultivator. Similarly, a person working on another person's land for wages in cash or kind or a combination of both (agricultural labourer) is not treated as cultivator."
Registrar General of India. (2001). *Census Data 2001 / Metadata.* Available at http://censusindia.gov.in/Metadata/Metada.htm#2m

Table 2.3: Workers in different sectors, 1991 to 2011 (Main Workers)

1991	Cultivators	Agricultural labour	In Agriculture	HH Industry	Others
MP	49.5%	23.7%	73.2%	2.8%	24.0%
MP-B	50.4%	20.8%	71.2%	9.3%	19.5%
UP	53.2%	19.6%	72.8%	2.5%	24.7%
UP-B	55.3%	24.2%	79.5%	2.0%	18.4%
Bundelkhand	**53.0%**	**22.6%**	**75.7%**	**5.4%**	**18.9%**
India	38.7%	26.1%	64.8%	2.4%	32.8%
2001	**Cultivators**	**Agriculture Labour**	**In Agriculture**	**HH Industry**	**Others**
MP	46.7%	20.3%	67.0%	3.8%	29.2%
MP-B	48.9%	17.1%	66.0%	10.7%	23.3%
UP	47.0%	15.1%	62.1%	5.3%	32.6%
UP-B	53.9%	16.2%	70.1%	3.6%	26.3%
Bundelkhand	**51.4%**	**16.6%**	**68.0%**	**7.2%**	**24.8%**
India	33.1%	20.3%	53.4%	3.9%	42.7%
2011	**Cultivators**	**Agriculture Labour**	**In Agriculture**	**HH Industry**	**Others**
MP	36.2%	29.2%	65.4%	2.9%	31.8%
MP-B	37.7%	29.7%	67.4%	6.5%	26.1%
UP	34.9%	21.8%	56.7%	5.4%	37.9%
UP-B	42.4%	27.1%	69.4%	3.4%	27.2%
Bundelkhand	**40.0%**	**28.4%**	**68.4%**	**5.0%**	**26.6%**
India	26.5%	23.8%	50.2%	3.4%	46.4%

Source: Primary Census Abstract, Census 1991, 2001 and 2011

that of agricultural labour (people with no direct stake in the land and who only sell their labour and skills) is on the rise. Is there a trend to get out of being tied up with land and move to occupations that provide more assured, and higher incomes? Is there a movement of farmers to non-farming occupations, leaving their lands under family-managed farming or under different types of share-cropping? This is what is becoming increasingly more common and shows that farming own land or hired land as a livelihood option is unattractive. Since there are no viable alternate options available, livelihood strategies such as migration, multiple jobs and casual labour are the only options.

The other feature is the increasing casualization of the work-force, an increase from 16.6 percent agriculture labourers in 2001 to 28.4 percent in 2011, a trend that is much more conservative at the all India level (the increase is from 20.3 percent in 2001 to 23.8 percent in 2011). Once again, this is a departure from the trend in the 1990s, when agriculture labour declined, and opportunities from other sectors absorbed people seeking work. This points to the absence of any significant economic phenomenon working to strengthen the sustainability of livelihoods in the region, and generating enough factors (both pull and push) to take people out of agriculture to other sustainable and skilled options. Jhansi (36 percent of total employment) and Sagar (28 percent of total employment) are the only two districts with any significant non-agricultural employment, due to urbanization and *bidi* work respectively. Mahoba, Hamirpur and Jalaun have just about a fourth of their employment outside of agriculture, and in these

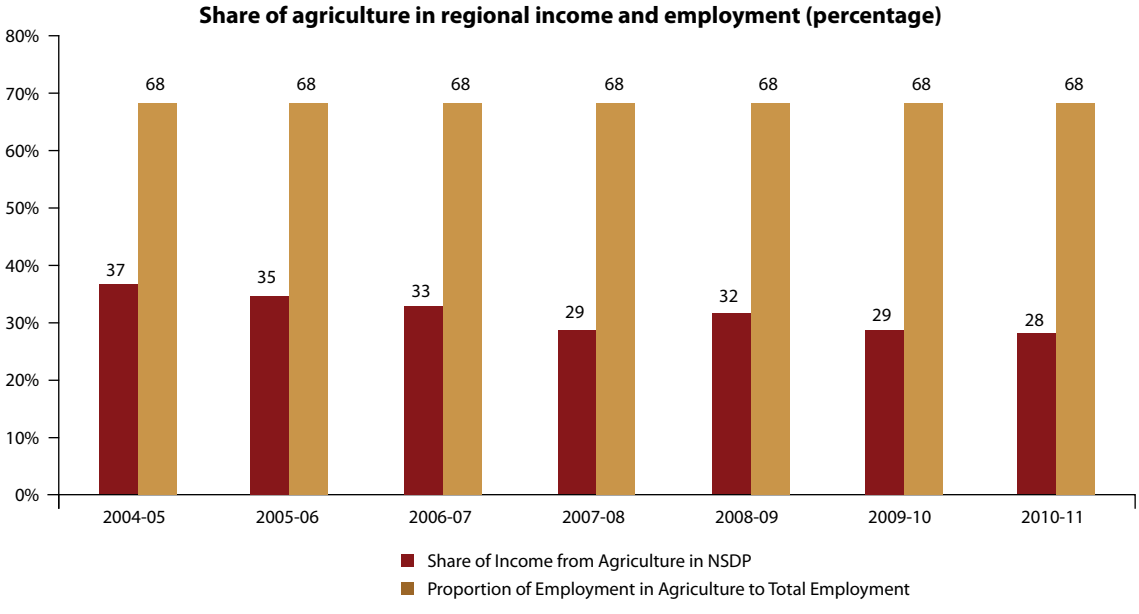
districts some agriculture prosperity is leading to investments and growth in non-farm activities, both urban and rural.

The graph below (Figure 2.5) plots the share of agriculture and allied sectors in the regional economy (regional domestic product), and the share of these sectors in employment. The graph shows that while workers dependence on agriculture remains absolutely the same over the period from 2004-05 to 2011-12, the share of agriculture and allied activities is declining as a percentage of the state's income. Seventy percent of the people account for 30 percent of the state's income. The agriculturist is turning less efficient compared to workers employed in other sectors, and this profession is increasingly less remunerative compared to the rest of the economy. The inability of people to turn to non-agricultural jobs means that there are few jobs outside of agriculture, and points to the lack of skills required for jobs outside agriculture as well, or there may be other factors that keep people working on land.

A feature commonly reported in Bundelkhand is seasonal out-migration of un-skilled and skilled persons. In village after village, people move out for work, and in some places almost entire villages empty out, with hardly any able-bodied person left. This phenomenon has been seen to peak particularly in the drought years, but even during years with a normal monsoon, out-migration is common. Since there is seasonal out-migration in Bundelkhand, the Bundelkhandi is very ably employed in non-agriculture; hence it must be lack of other jobs that have kept employment shares stagnant over a decade or more.

The average size of the landholding is 1.53[9] hectares (approximately about three acres), which has come down from 1.74[10] hectares in 2000-01. Further, 77 percent of land-owners, own just 39 percent of land. The marginal farmer, who makes up 51 percent of all land-owners, tills an average land area of just one acre. The small farmer category accounts for another 25 percent of land-owners[11] and

Figure 2.5: Share of agriculture in income and employment



Source: Directorate of Economics and Statistics, GoMP and GoUP; Primary Census Abstract 2001 and 2011

[9] Agriculture Census, 2010, Governments of UP and MP
[10] Agriculture Census, 2000, Governments of UP and MP
[11] Ibid

averages a farm size of just about three acres. Combined with the situation of water scarcity that has been a feature of Bundelkhand for long (only 42 percent of gross cropped area is irrigated[12]), it is no surprise that agricultural productivity is low.

As the trends show, agriculture will continue to dominate the employment base, and there is no significant action/ trend/ movement to indicate that this may change in the near future. While only 61 percent of the total geographic area is cultivated, only 40 percent farmers are able to take more than a single crop, and 70 percent of the population survives on agriculture that has a poor capital base of land and technology. The low average per capita incomes in the primary sector shows that most people in agriculture are very poor/ chronically poor or living on the margins/ transient poor. The only signs of some prosperity are in regions that are better irrigated, or urbanized or have some industrialization.

Incomes, assets and inequality

The economic situation and the income scenario in Bundelkhand shows that the area struggles to cope with the averages of the parent states. Even these averages, as seen in the discussion above, hide the inequalities between agriculture and non-agriculture, between different groups of landowners and tillers, between the land owners/ cultivators and casual labourers.

The inequality of land ownership displayed in revenue records is not really reflective of actual inequalities in land holdings. The larger landlords or zamindars exist and they distort actual landholding pattern even more towards the extremes, with large landholders on one side and small and marginal farmers on the other side. As is evident in the later chapters, this inequality is further heightened when inequities in land and access to amenities, etc. are examined between the general population and SCs and STs.

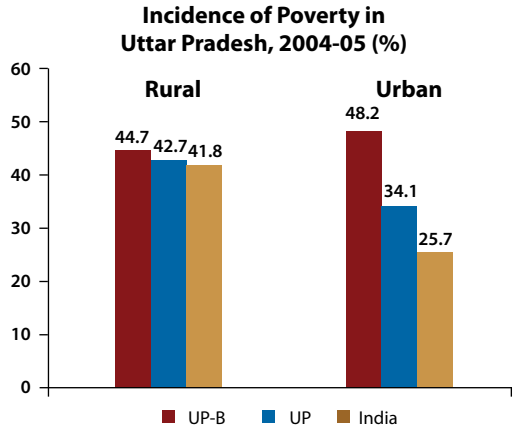
Poverty and deprivation

Poverty can be described and measured in many ways. To assess the spread and depth of poverty, income or expenditure based estimates are the most commonly used. Though income/ expenditure based poverty by itself does not reveal everything about deprivation, these numbers will still indicate the status vis-à-vis other regions. Comparable data on poverty is not available across all the Bundelkhand districts to be able to make accurate comparisons. The National Sample Survey provides us with regional estimates only, below state level. The entire region of Bundelkhand in UP falls in one complete region for which estimating poverty estimates is possible - UP-Bundelkhand falls in the UP South region of NSS. On the other hand, the six districts of MP-Bundelkhand fall in three separate NSS regions. Therefore, to assess poverty in MP-Bundelkhand, the picture has to be constructed from the three regions.

UP-Bundelkhand - In UP-Bundelkhand or NSS UP-South region, poverty levels were high in 2004-05 (61st NSS round) at 44.7 percent rural poor and 48.2 percent urban poor, compared to UP's average of 42.7 percent and 34.1 percent, respectively[13]. The estimates for rural poverty in fact indicate an increase in poverty, as assessed in the 66th round held in 2009-10, when UP-South estimates put rural poverty at 45.9 percent, although urban poverty did decline to 31.7 percent (the corresponding figures for UP are: 39.4 percent rural poor and 31.7 percent urban poor). Compared to the national level too, UP-Bundelkhand districts are

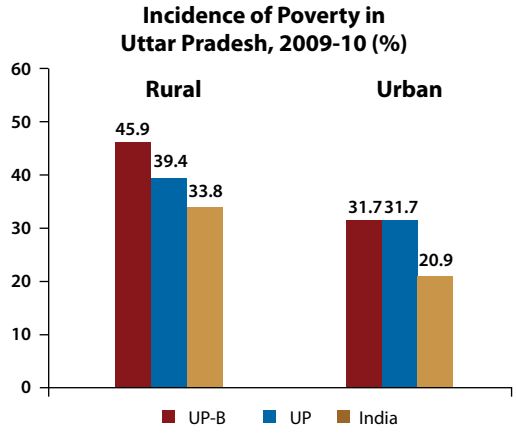
[12] Statistical Abstracts, Governments of UP and MP, 2010, 2012, 2013
[13] The estimates for State level poverty for MP and UP for 2004-05 and 2009-10 have been taken from the Planning Commission's revised estimates on poverty based on the Tendulkar Committee Report (Press Note on Poverty Estimates, GoI, Planning Commission, January, 2011, and Press Note on Poverty estimates, 2009-10, GoI, Planning Commission, March, 2012). The regional estimates for NSS regions have been taken from "Incidence of Poor and Poverty Risk in India across NSS Regions for Rural and Urban areas, 2004-05 and 2009-10", Srijit Mishra, IGIDR, June 2014

Figure 2.6: Poverty in UP (2004-05)



Source: NSS 61st Round - Employment & Unemployment and Household Consumer Expenditure 2004-05

Figure 2.7: Poverty in UP (2009-10)



Source: NSS 66th Round - Employment & Unemployment and Household Consumer Expenditure 2009-10

much poorer, with national poverty figures in 2009-10 standing at 33.8 percent in rural areas and 20.9 percent in urban areas.

MP-Bundelkhand – The MP-Bundelkhand districts fall in three NSS regions, hence unless district wise estimates are available, no concrete estimate can be made about the incidence of poverty. The Directorate of Economics and Statistics of Govt. of MP has poverty estimates for the districts for 2004-05, and the data shows that except for Datia (falling in MP-Northern, a generally lower poverty region compared to other parts of MP), all other districts had very high incidence of poverty and ranked amongst the worst performing districts in their region and in MP. In MP-Bundelkhand poverty in 2004-05 is estimated to be approximately 62 percent in rural areas, and 50 percent in urban areas, averaging 59.4 percent overall, higher than the UP-Bundelkhand estimates. All the districts had poverty ratios much higher than the averages for the NSS-regions under which they fell in 2004-05 (except Datia). The comparable poverty estimates for MP from the Tendulkar Committee Report were 53.6 percent for rural areas and 35.1 percent for urban areas, with a combined poverty head count ratio for MP of 48.6 percent[14].

Table 2.4: District wise Poverty ratios in MP-Bundelkhand, 2004-05

	District Rural Poverty (DRP)	Regional Rural Poverty (RRP)	DRP as percent of RRP (*)	District Urban Poverty (DUP)	Regional Urban Poverty (RUP)	DUP as percent of RUP (*)
Datia	22.70%	40.10%	56.61%	44.50%	15.20%	292.76%
Tikamgarh	68.70%	59.70%	115.08%	45.00%	28.30%	159.01%
Chhatarpur	70.60%	59.70%	118.26%	63.50%	28.30%	224.38%
Panna	78.70%	59.70%	131.83%	55.90%	28.30%	197.53%
Sagar	56.50%	64.50%	87.60%	47.30%	36.60%	129.23%
Damoh	59.80%	64.50%	92.71%	38.90%	36.60%	106.28%

Source: District Poverty Estimates from Directorate of Economics and Statistics, Govt. of MP and regional data from NSS 61st round
* This ratio indicates the position of poverty (rural or urban) in the district vis-à-vis the region's average in 2004-05. If this is lower, then district poverty rates would normally be lower in subsequent years to the region's rate and if it is higher, then the reverse trend may be expected.

[14] Planning Commission. (2009). Report of the Expert Group to Review the Methodology for Estimation of Poverty. Available at http://planningcommission.gov.in/reports/genrep/rep_pov.pdf

Each NSS region comprises of a few districts. Since we do not have district-wise poverty information we can only infer as to what may be happening within each district in the region. Thus, when a region with high poverty has a sharp decline in poverty between the period 2004-05 to 2009-10, we can safely infer that districts in the region with high poverty rates in 2004-05, would have had a much higher decline in their poverty compared to other districts with lower levels of poverty. The table below provides this information.

There is another indirect measure of deprivation, derived from the Census. From 2001, the Census data lists households with certain assets – radio/ transistor; television; internet connectivity; land line phone; mobile phone; Bicycle; Scooter/ motor cycle; moped; car/ jeep/ van etc. and while doing so it also lists households that have none of these assets –television, computer or laptop, scooter or car, or even a bicycle.

In Bundelkhand in 2011, 26 percent of households did not own even a bicycle. MP B region has a much higher number of such households, 33 percent to UP-B's 17 percent. Compared to their parent states, there is no difference in MP (states average for such households was 32.6 percent), but in UP the difference is quite large. UP as a whole had just 11.4 percent of such asset-less households.

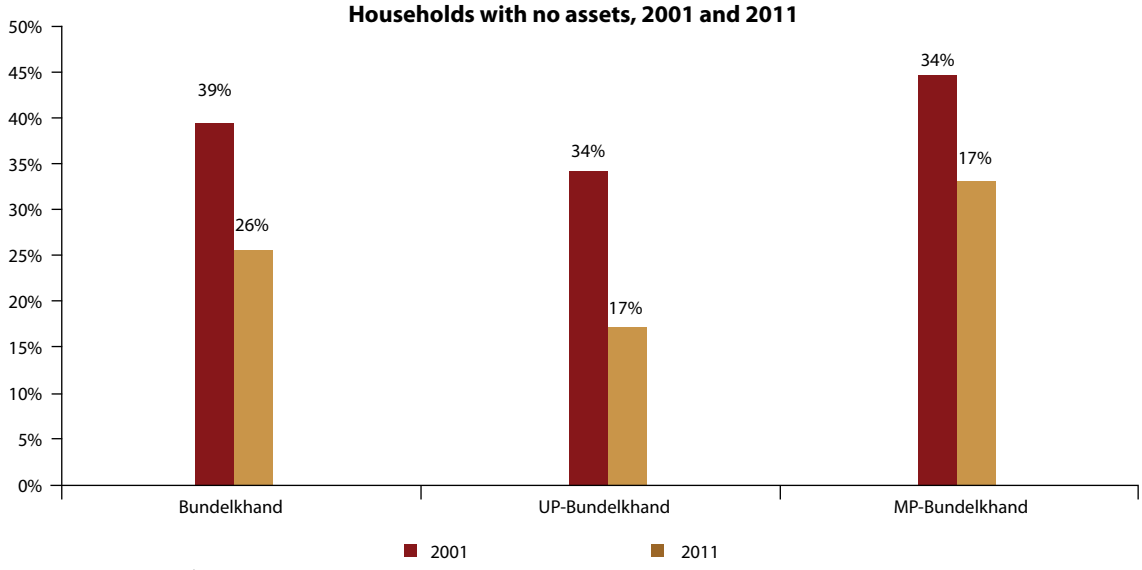
What is interesting is the number of households that have all the assets that the Census has accounted for – television, care/ jeep/ motorcycle, bicycle, telephone/ mobile,

Table 2.5: Estimates of Poverty

Region and Area	Poverty in 2004-05 (%)	Poverty in 2009-10 (%)	Application to districts
NSS-Vindhya *(Chhatarpur, Panna, Tikamgarh)*	Rural 59.7 Urban 61.5	Rural 28.3 Urban 37.7	Since there is a very high decline in rural poverty, and a 24 percent decline in urban poverty, we can estimate that rural poverty in these districts would have gone down by between 20-25 percent. Estimates suggest that rural poverty would be: Tikamgarh, 33-40 percent, Chhatarpur, 33-40 percent and Panna 37-44 percent. Urban poverty would hover between 30-40 percent, depending on the dynamism of economic activities in respective towns.
NSS-Central (Sagar, Damoh)	Rural 64.5 Urban 36.6	Rural 43.2 Urban 28.2	There has been a substantial reduction in rural poverty and a decline in urban poverty rates. The estimates for 2009-10 rates are in the range of 38 to 40 percent in rural Sagar and 35 to 38 percent in urban Sagar; 35 to 40 percent in rural Damoh and 30 to 35 percent in urban Damoh.
NSS-North Datia	Rural 40.1 Urban 44.5	Rural 21.7 Urban 27.0	This suggests an estimate of 14-15 percent for rural Datia and a poverty rate for urban Datia between 25-30 percent.
MP	Rural 53.6 Urban 35.1	Rural 42.0 Urban 22.9	
India	Rural 42.0 Urban 25.5	Rural 33.8 Urban 20.9	

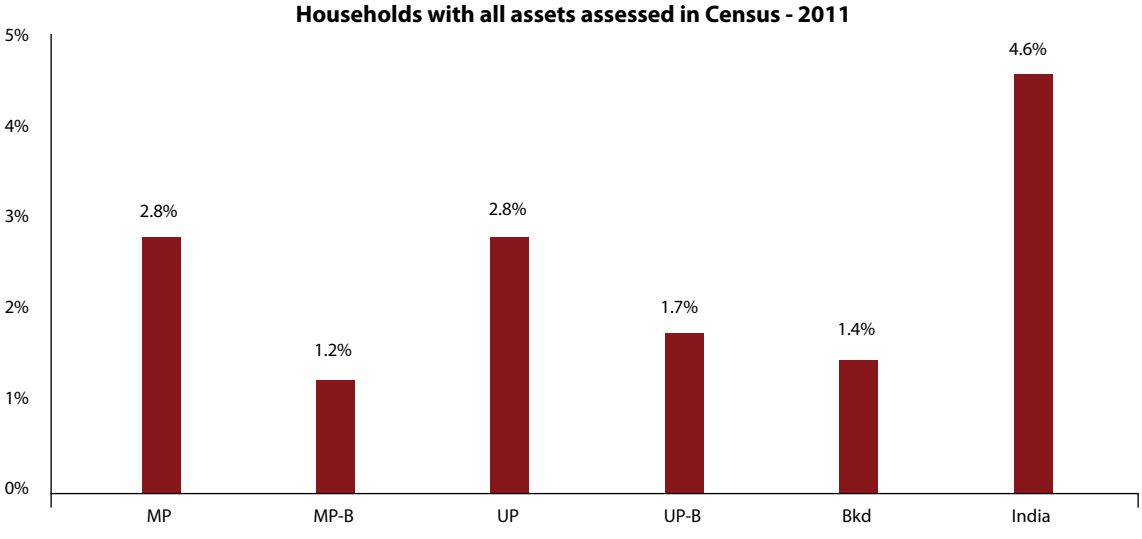
Source: Mishra, S. (2014). Incidence of poor and poverty risk in India across NSS regions for rural and urban areas, 2004-05 and 2009-10. Indira Gandhi Institute of Development. Available at http://www.igidr.ac.in/pdf/publication/WP-2014-021.pdf

Figure 2.8: Households with no assets



Source: Primary Census Abstract 2001 & 2011

Figure 2.9: Households with all assets



Source: Primary Census Abstract, Census of India 2011

computer/ laptop. These households have become a part of India's modern economy. Nationally in 2011, there was one such household for every 20 Indian households, while in Bundelkhand there were only 1.4 such households for every 100 households. The economic elite is such a minority, signifying an economic enclave that they are not large enough to create any regional momentum of growth and do not have any natural competition amongst them, but are content to reinforce the feudal character of the region.

Apart from local and institutional support and opportunities, any region needs entrepreneurial skills to take these opportunities to scale. Till such time as most of the economic leaders continue to live off land-based incomes and continue to invest locally only in expanding their ownership of land, or in trading activities, the economy will find it difficult to take off. This is what is possibly happening in most parts of Bundelkhand, with the exception of Jhansi and Sagar, to some extent.

Child Labour - economic conditions force children to work

Child labour exists in Bundelkhand, but its extent is declining. Children are nearly universally enrolled, although attendance and retention are not fully complied with. There are two significant areas where quasi-child labour exists. The first is in family labour, or family promoted labour on another enterprise, farm or non-farm. Due to the precarious condition of small and marginal farmers and labourers, entire families are involved in agriculture, providing labour. Even school-teachers have often spoken of poor school attendance due to the involvement of children in agriculture. However, there has been substantial retention in schools, therefore we can assume that children being out-of-school for occupational work is declining. The reasons for children being used for farm labour is poverty and lack of adequate earnings by other members of the family, or the incidence of disease or a mishap in the family, which forces children to work. Children who work in agriculture go to school, but regularity in classes is affected, and these children are unable to take full benefit of school education.

The other occupations where child labour is prevalent are much more serious. Children from migrating families and from families in especially difficult circumstances, often work in mining and quarrying, where they have to work extra long hours. Conditions in the workplace are not safe and there is no schooling, or any teaching assistance, or proper child-care. Along with work in quarries and mines, children are also involved in small manufacturing, small repairs (common in urban centres). Working conditions here are usually in enclosed hovels, in industrial ghettos and slums, beyond the sight and reach of the law. The relations with the employers are tough, and since child labour is illegal, they are kept out of view of the administration. Not only do these children suffer from exclusion in education and a lost childhood, they lack even the basic rights and facilities that other labourers usually get

People Speak: Child Labour

- Fourteen-year old Jitendra Ahirwar has been working in a factory for the last three years. He earns between Rs 50 to Rs 70 per day and does 'light work' like handling fibre blocks. He was born in a family of five. His father is a *beldar* (construction worker) and earns Rs 100-150 per day, which according to his father is not enough to sustain the family.
- In village Dhanwaha in Tikamgarh, around 20 children aged between 12 to 16 years were working on other people's farms and were being paid daily wages of between Rs 80 to Rs 90 per day, working for 8 to 10 hours, per day. This was due to economic hardship being faced by their families. What was encouraging was that the children had not left school, but missed it on the days that they went to work, although this has had a negative impact on their studies. Parents explained that the children work only seasonally, to supplement other incomes. A similar case was reported from Anjani Mohalla in Jhansi, where 22 children aged between 12 to 16 years were working in people's fields, earning Rs 80 to Rs 90 per day.
- Some 20-25 children, aged 14 and under, from Anjani Mohalla, in Jhansi, were working in factories. They spend at least eight hours a day at work, and all of them belong to families who have migrated due to farm distress. They do not go to school, as they have to work to sustain their families.

Source: HDR Team

in similar circumstances. The hard work and long hours takes its toll on the physical and mental development of these children, and they often resort to smoking *bidi*, cigarettes and even chewing tobacco. While other forms of intoxication are not reported, these may be prevalent, as experience with child labour in cities has shown[15].

There is not much information available regarding the extent of children working in non-family enterprises. However, the quantum of child labour has without doubt declined in Bundelkhand, as well as in migrating families, as cases of entire families migrating are much less. Campaigns for school enrolment, greater consciousness amongst authorities against child labour, active civil society organizations in many parts of Bundelkhand, and an agile media and press have together created an environment in which this malpractice has declined.

Expanding the economy – growth in agriculture, tourism, transport and logistics

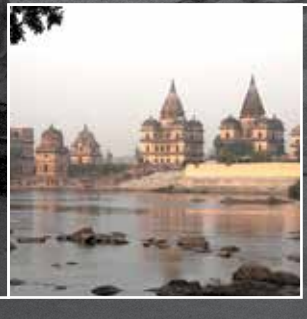
Economic growth in Bundelkhand has picked up only recently, and it is still largely dependent on the primary sector (especially for employment), although some growth is seen in manufacturing and services. However, the non-agricultural growth seems to be placed upon a weak foundation. There are no industrial conglomerations or clusters, no specific industries that have an invested advantage in Bundelkhand, nor does any such cluster growth appear to be planned for in the near future. Tourism is the most obvious area, with the most potential, but it has not received any special impetus so far.

Migration, casual labour and diversified work portfolio and dependence on natural resources is how the people manage to make-do. It is like a self contained sphere and either the sphere will need to increase or escape routes will need to be created. People's strategy at the individual or household level – migration, labour, leasing out land, investing in other regions of India, seeking jobs elsewhere (by the educated); these are the escape routes. However, the real change will come only when the sphere expands – by adding to the agricultural space by region specific selection of crops and vegetables for example, or from growth in new sectors, trades and activities, or from adding to traditional strengths in tourism, logistics and transport infrastructure or from growth in all these sectors.

[15] Field Report by HDR Team

3

Livelihoods and Migration – limited choices



Chapter 3

Livelihoods - agriculture, animal husbandry, fisheries and mining

Agriculture - the mainstay of the Bundelkhand people

Agriculture continues to be the chief occupation of the people of the Bundelkhand region. Inspite of the variable soil quality and the rocky terrain, it is what most people are engaged in even though the returns from agriculture are rather limited.

Crops grown and cropping patterns: The major crops grown are cereals (largely wheat), pulses (primarily gram) and oilseeds (soyabean in MP). Cereals are sown in over a third of the gross cropped area (GCA), and pulses in another 40 percent of the area. In the last ten years, the Bundelkhand farmer has taken to farming oilseeds, which accounted for about a tenth of the cropped area at the start of this century, but within the last decade has doubled its share in the total cropped area. This diversity is an encouraging trend and reduces dependence on a limited number of crops and crop mixes.

In the last decade, farmers have begun to grow sesamum, rapeseed/ mustard, soyabean, *bajra*, *tur*, maize and wheat, while the sowing of gram and paddy has declined (see Figure 3.2). Modern agriculture has promoted a shift to cereals and some selected oilseeds. In the past, farming in Bundelkhand was based on sustainable practices such as mixed cropping

People Speak :

Many people feel that the soil, water and climate of Bundelkhand is most suitable for pulses and oilseeds. The Government's strategy of Minimum Support Price (MSP) to wheat and paddy, without implementing the MSP in pulses and oilseeds has forced farmers to move to cereals and this is unsustainable.

Farmers claim that local traders purchase oilseeds and pulses from them at very low prices, thus taking the profit from agriculture and leave them with just a small surplus.

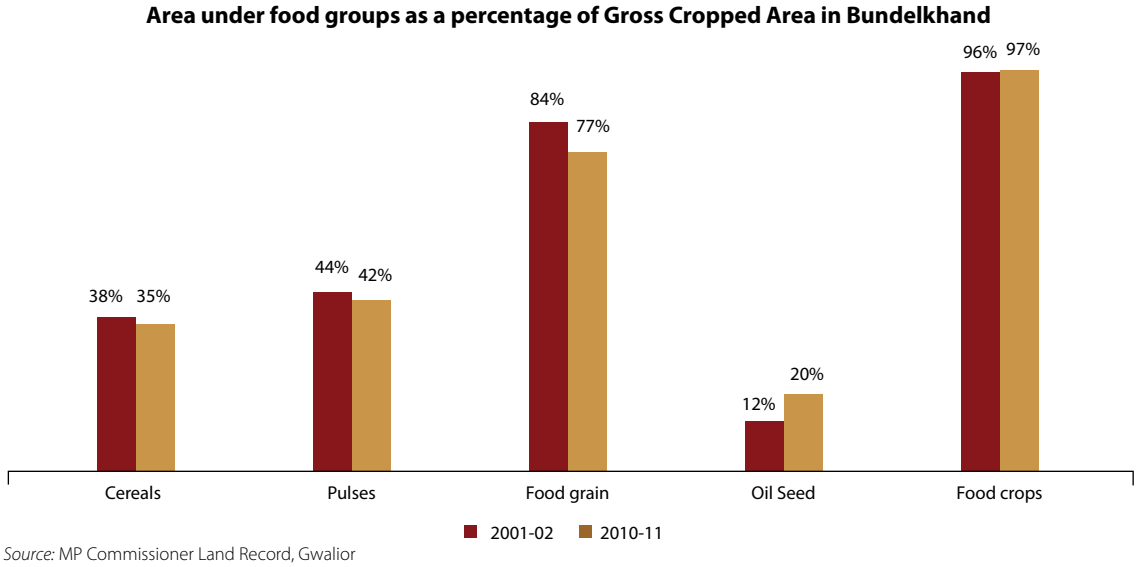
and staggered sowing. The choice of what was sown was drawn from a basket of relatively drought-resistant crops such as coarse cereals, millets and mixed-use grain and fodder. The region was known for coarse cereals, oilseeds and pulses, which were sustainable in the water-challenged zone and were cheaper to plant and grow. Over time, prompted by Government interventions, the farmers have changed to new techniques and adopted new crops such as soyabean, sunflower, castor, menthe, etc. which require chemical fertilizers, pesticides and a substantial amount of water.

On a balance, diversification has benefitted but the Government pushed crops like menthe and castor have not had a very positive impact on farmers, especially in water scarce zones. At the same time, it has brought benefits for farmers in water-managed regions and areas where choices have been more balanced, based on water availability and crop needs. There is a feeling that the change in the cropping pattern is responsible for much of the misery arising from droughts, but this is only partially true. Undoubtedly, the choice of crops that demand a lot of water has impacted farmers adversely and the years of drought have made the situation even worse in many areas.

Diversification into 'high value crops' and allied activities is not common in Bundelkhand. These include fruits and vegetables (horticulture), and some own-farm based animal husbandry, not only for supplementary income but for commercial purposes as well. The usual practice is that since the small farms are unable to sustain their families, a small number of buffaloes and/or cows (between two to six), or goats and sheep (between six to forty) are reared. They supplement farm incomes, providing much-needed cash from sales and supplement own consumption. Similarly, vegetables are grown in the homestead or in farm peripheries, usually to supplement family consumption. The supplementary nature of these activities helps in survival and sustenance but they are not pursued to a level where substantial commercial advantages can be sourced from them. The current Government extension and support mechanism for promoting these activities is not very well suited for small farmers though.

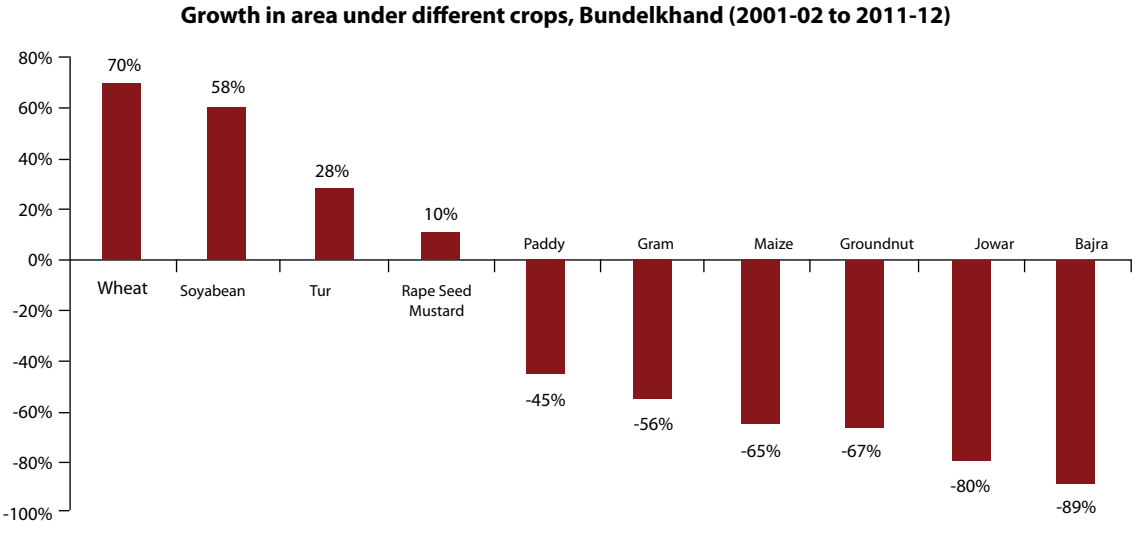
There is a definite change in dietary preferences across India, even amongst very low-income households. Food items such as vegetables, fruits, pulses, oils and meats are a larger constituent in people's diets today, reducing the quantity and share of food grains consumed. At the same time, there is a very small but sure increase in demand for coarser cereals. Food grains remain remunerative to grow primarily because of the Minimum Support Prices (MSP), and the advantage of assured returns and markets (through state run agriculture marketing yards or *mandis*), and there is certainty of both production and incomes. On the other hand, there are high value crops like fruits and vegetables that give between four to five times as much return per hectare, compared to any cereal crop, resulting in higher profits to farmers. However, the certainty of price and assured purchases in *mandis* is not an option in high value crops, where prices are uncertain and markets tend to fluctuate and are not farmer friendly. Various studies have suggested different types of fruits and vegetables that are suitable for different parts of Bundelkhand, which together with proper water management efforts could generate

Figure 3.1: Area under different food groups, Bundelkhand



Source: MP Commissioner Land Record, Gwalior
Agricultural Statistics at a Glance, 2013 Ministry of Agriculture, GoI

Figure 3.2: Growth in area under different crops, Bundelkhand



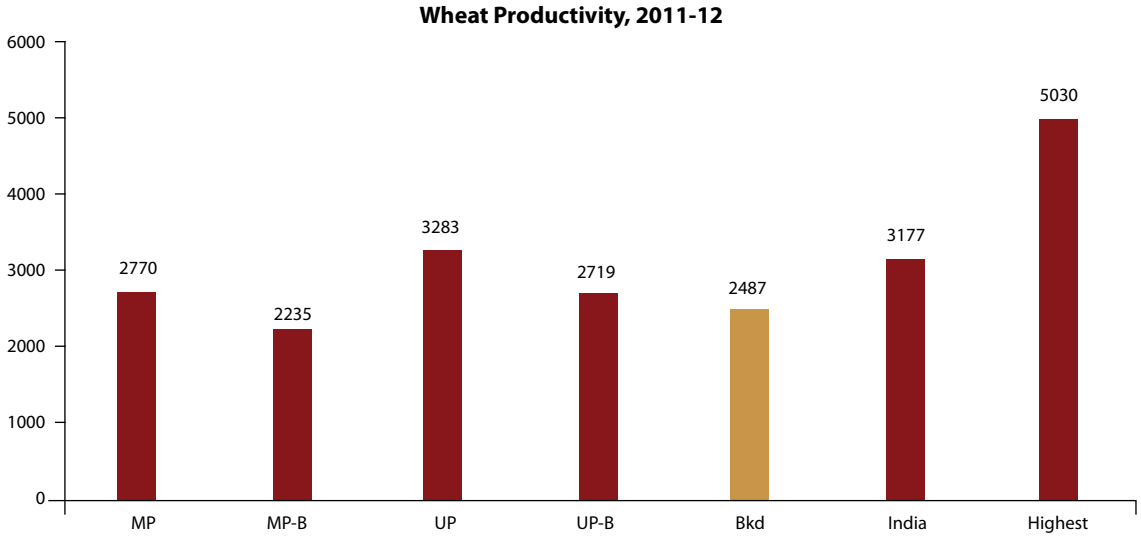
Source: MP Commissioner Land Record, Gwalior
Agricultural Statistics at a Glance, 2013 Ministry of Agriculture, GoI

adequate incomes. These cropping choices have to be made in keeping with the local hydrology, combining water harvesting and water management techniques.

Some major crops

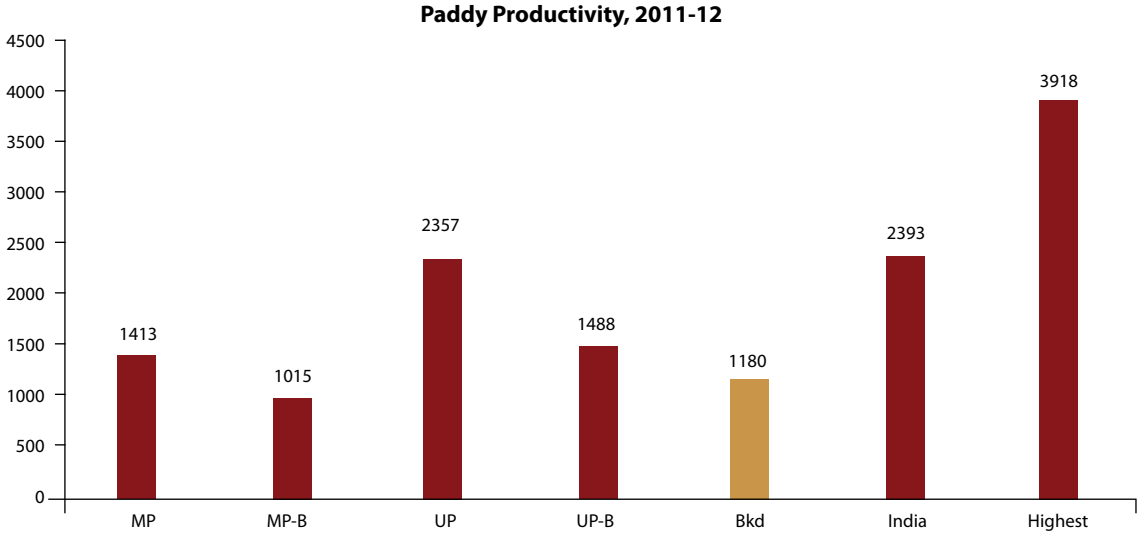
Incomes or profit in agriculture depends largely on productivity of crops. For wheat and paddy, productivity in Bundelkhand is lower than the state averages, for both UP and MP (2011-12). The national average is much higher, and the gap is even greater when compared with the leading states in India. The area under wheat falls about 55 percent in UP and 45 percent in MP, whereas most of the paddy is grown in MP (65 to 70 percent).

Figure 3.3: Productivity for Wheat (kg/hectare)



Source: Statistical Abstract UP, 2012; MP Commissioner for Land Records, Gwalior, MP; Agricultural Statistics at a glance 2013

Figure 3.4: Productivity for Paddy (kg/hectare)

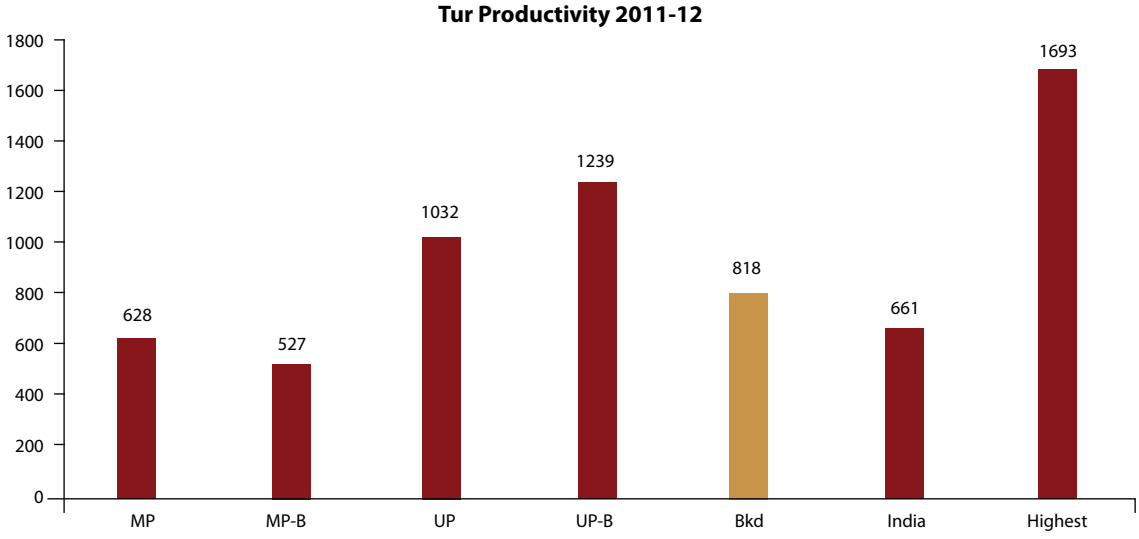


Source: Statistical Abstract UP, 2012; MP Commissioner for Land Records, Gwalior, MP; Agricultural Statistics at a glance 2013

Many districts in UP-Bundelkhand grow mainly pulses, like *tur* and gram. In *tur*, the productivity is quite high in UP-Bundelkhand, and two thirds of land under *tur* in Bundelkhand is in UP. As far as gram sowing is concerned, MP has the larger share, accounting for nearly 60 percent of the land under gram. The productivity for gram in MP-Bundelkhand is higher than that for MP, while for UP-Bundelkhand it is lower than for the state. The average productivity in Bundelkhand is higher than the national average.

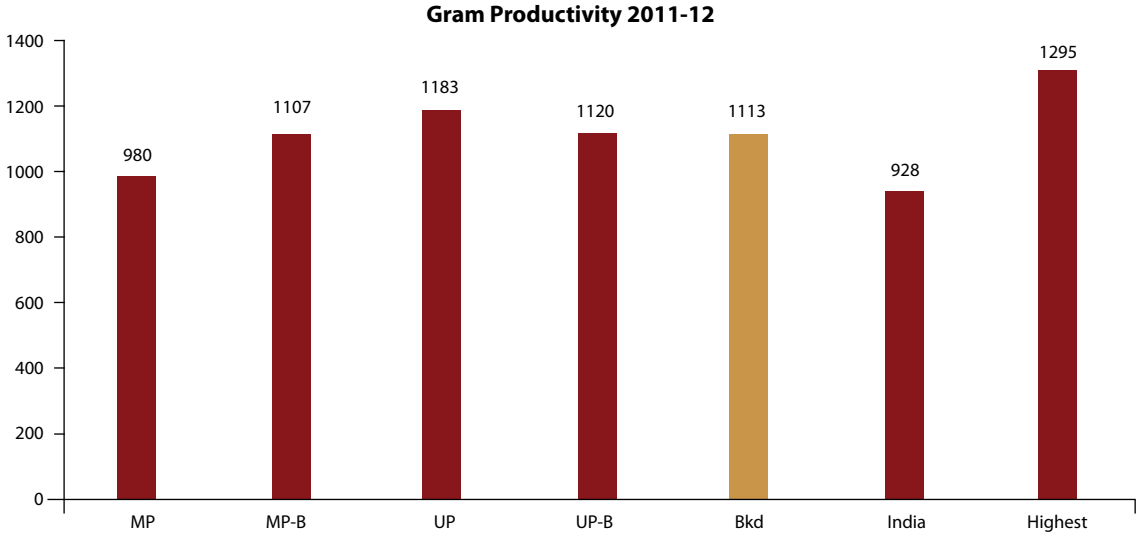
In the case of soyabean too, although MP is a leading producer, and soyabean is grown extensively in the Bundelkhand districts of MP, the productivity levels are low compared to the highest productivity achieved, nationally. Soyabean is grown almost entirely in the MP part of Bundelkhand, and is sown

Figure 3.5: Productivity for Tur (Kg/hectare)



Source: Statistical Abstract UP, 2012; MP Commissioner for Land Records, Gwalior, MP; Agricultural Statistics at a glance 2013

Figure 3.6: Productivity for Gram (Kg/hectare)

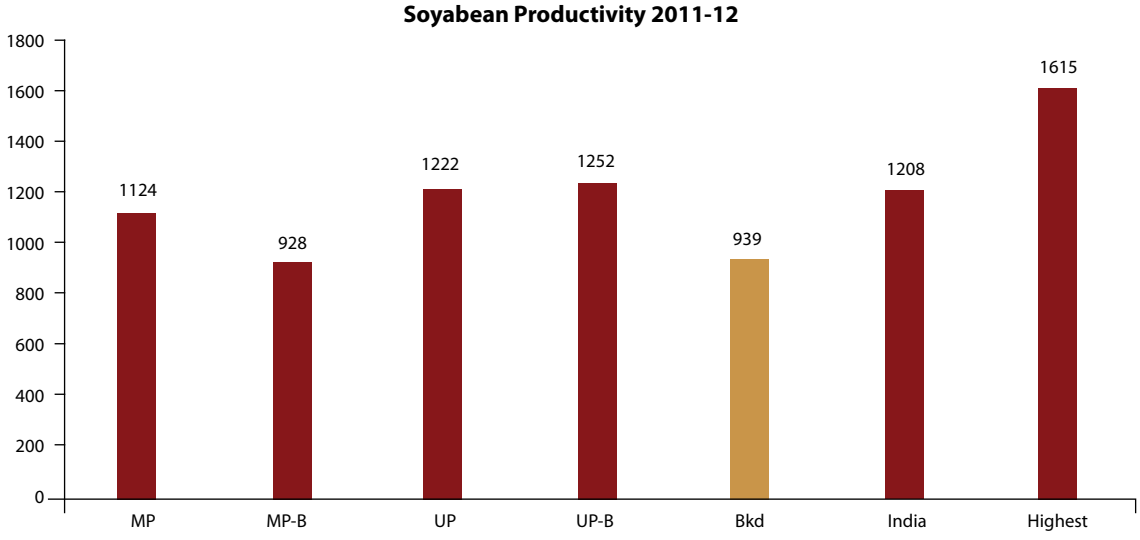


Source: Statistical Abstract UP, 2012; MP Commissioner for Land Records, Gwalior, MP; Agricultural Statistics at a glance 2013

only marginally in the UP districts, primarily because the Government of MP, following a Government of India initiative, aggressively encouraged the growing of soyabean.

A specially focussed package of interventions sponsored by the Government of India on Bundelkhand has had an impact on yields in the region, and it is possible that with a package mix of water to fields, agriculture extension, use of water efficient techniques and so on, the region can catch up with the higher productivity of other parts of India. Box 3.2 illustrates the changes in productivity in some crops in the region between 2009-10 (just before the introduction of the package) and 2012-13, which is two years after this package was implemented.

Figure 3.7: Productivity for Soyabean (kg/hectare)



Source: Statistical Abstract UP, 2012; MP Commissioner for Land Records, Gwalior, MP; Agricultural Statistics at a glance 2013

Box 3.1: Cropping choices and patterns

Villages and individual farmers vary in their cropping choices. In Padheri village, in Panna district, farmers grow soyabean and *arhar* in the *kharif* season, and wheat and *chana* in the *rabi* season, while in Gohna village in Tikamgarh, they grow peanuts, soyabean and urad in the *kharif* crop and wheat, *chana*, mustard and peas in the rabi crop. In Rehwata village, in Chitrakoot, paddy, maize, bajra and *shakarkandi* (sweet potato) are sown in the *kharif* period and wheat and *chana* in the *rabi*, whereas village Madna, in Lalitpur, grows soyabean, *urad*, peanuts and sundry oilseeds in the *kharif* crop and grows peas, *chana* and *masoor* in the *rabi* crop. Kohna village in Jalaun district grows *urad, moong* and *arhar* in the *kharif* crop, and wheat and *chana* in the rabi crop. In many parts of Jalaun district, peppermint and arkali are sown, both fetch very good prices in the market. These crops are largely responsible for the agriculture-led prosperity in this district.

Value of output in agriculture

The value of economic output from agriculture and allied sectors can be estimated through the regional domestic product. This aggregate can be seen as output per worker and output per hectare sown. The output per worker is calculated by including all agriculture workers and output per hectare is by taking the figure for sown area as net sown area (NSA)[1]. Income or value of output from agriculture has been derived from DDP estimates for each district[2]. Estimate of workers (main and marginal workers working as cultivators and as agricultural labourers are drawn from Census 2001 and 2011 data) have been extrapolated for the inter census period, while data for NSA is derived from the estimates of the relevant

[1] Output on NSA provides insight into what a farmer is achieving on the land he/ she owns, since NSA is the asset they own, and multiple cropping is only increasing the output from that asset. Output on GCA provides information about the relative efficiency of land or agriculture practices in single cropping or multiple cropping.

[2] Value of economic output from agriculture is measured through the agriculture and allied sector component of State/ District Domestic Product. This divided by number of workers involved in this sector provides the value generated by each worker. Similarly, the domestic product value with land to assess how much value is land is generating. Since a farmer/ land owner/ tiller is concerned with total output from his assets, NSA is thus a better divider than GCA, as the asset is really the total area owned/ tilled (which is the NSA). For an analysis of livelihoods from agriculture, output for NSA is a better indicator.

Box 3.2: Productivity increases as a result of Bundelkhand package

Both UP and MP regions of Bundelkhand have seen a rise in productivity in many crops from 2009-10 to 2012-13. Some remarkable improvements occurred in MP-Bundelkhand, where paddy productivity rose from 576 kg/ hectare to 976 kg/ hectare (an increase of 70 %), wheat productivity rose from 1675 kg/ hectare to 2379 kg/ hectare (an increase of 42 %), and food grain productivity overall rose from 1088 kg/ hectare to 1493 kg/ hectare (an increase of 37 %). In the same period, in UP-Bundelkhand, paddy productivity rose from 1319 kg/ hectare to 1488 (an increase of 13 %), wheat productivity from 2382 kg/ hectare to 2719 kg/ hectare (an increase of 14 %), and food grain productivity increased from 1452 kg/ hectare to 1696 kg/ hectare, an increase of 17 %. While the quantum of increase in MP-Bundelkhand is higher, in UP-Bundelkhand productivity levels increased as well, though at a slower rate, and they remain higher in UP than in MP, for most crops.

Both the regions have benefitted from a rise in productivity levels and this can be attributed to the special interventions, which are part of the Bundelkhand package.

Source: Directorate of Economics and Statistics, Government of UP and Government of MP, respectively

departments of the State Government in both the states. Two periods are taken, the triennium averaged outputs from 2004-05 to 2006-07 and from 2008-09 to 2010-11.

Two aspects that stand out are:
i) Bundelkhand's output on land utilized in agriculture is much lower than what could be achieved, when compared to values for UP, indicating the untapped potential of sown land. The UP averages for the 2008-09 to 2010-11 period are nearly Rs 50,000/- per hectare, and the values in the agriculturally prosperous districts are even higher. The average output for

Box 3.3: UP Government Schemes related to Agriculture

1. Integrated Horticulture Development Mission: All the seven districts of Bundelkhand have been covered under this plan. *Amla*, *ber*, *shareefa, nimbu*, seasonal fruits, pomegranate and other fruit-bearing trees are being planted, as outlined in the planning report. Apart from this, guava orchards are also being developed using the cluster approach.

Under this plan, the production of high-value crops (flowers and green vegetables) is being undertaken inside polyhouses and shednet houses. In the past three years, project proposals for polyhouses in 11,532 sq m area and shednet houses in 11,008 sq m area have been accepted. Under this, work is being undertaken for the production of flowers and green vegetables.

2. National Agriculture Development Plan: Under this plan, a provision has been made for grants to the farmers of all districts of the Bundelkhand region, for the cultivation of hybrid green vegetables.

3. Bundelkhand Special Package: Under this plan, efforts are being made to establish top working on wild berries, nutritional orchards, vegetable strips and horticulture estates. Various fruit-bearing plants are being sown and programmes of vegetable production are being assimilated into the package.

4. Industrial Development Plan for Bundelkhand and the Vindhya Region: All seven districts of Bundelkhand are included in the plan. Through this plan, the cluster approach will be used and the selected beneficiaries will be provided with a quarterly incentive amount at the rate of Rs 3000 per hectare, per month, for developing and maintaining new plantations.

5. Pradhaan Mantri Krishi Sinchai Yojana- Per Drop More Crop (Micro Irrigation): With a view to optimize the use of available water for irrigation in the seven districts of Bundelkhand, the provision of grants has been made for the establishment of drip and sprinkler irrigation techniques in the region.

6. Horticulture Development Plan for SC/ST dominated areas: Under this plan, all the SC/ST beneficiaries from the seven districts of Bundelkhand will be provided with grants for the cultivation of vegetables, spices and flowers and for practicing sericulture.

Besides these schemes and programmes, a centre for training and experiments in horticulture has been established in Baruasagar in district Jhansi. Here, technical training programmes in horticulture are being conducted for farmers of the Bundelkhand region. Under the Uttar Pradesh Government's Food Processing Industry Policy 2012, various grants and subsidies are being provided for the establishment of food processing industries.

Through MIDH, grants are being made available to small farmers through the programme to establish small processing units and small pack houses for the purpose of post harvest management.

Source: Note from Department of Horticulture, GoUP

Box 3.4: Achievements of the Department of Agriculture, GoUP

- Rainfed agriculture is practiced in most parts of the Bundelkhand region. In order to increase the area under oilseeds and the production of the same in the *Kharif* season of 2015, the State Government increased the target of certified seed distribution for *til* by five times, at subsidized rates. Consequently, the area under *til* increased by 88.74 % between *Kharif* season of 2012 and that of 2015. In the *Kharif* season of 2012, the area under til was 2,08,804 hectares. It increased to 3,94,103 hectares in 2015.

- The production of *til* increased from 38,771 metric tonnes in 2012 to 1,14,859 metric tonnes in 2015. This was a growth of 196.25%. As a result, the increase in produce was 76,088 metric tonnes. In the Bundelkhand region, *til* productivity increased by 56.96%. Consequently, the productivity of *til* in 2012 increased from 1.86 quintals per hectare to 2.91 quintals per hectare.

- In Bundelkhand region, the scheme for rainwater harvesting has been taken up under the overarching Rashtriya Krishi Vikas Yojana. Through this scheme, rainwater conservation will ensure timely sowing and irrigation for as many districts of Bundelkhand as possible. The aim of the scheme is to optimize the use of rainwater to enhance productivity and crop production, so as to ultimately increase the income of the farmers. Under the scheme, a target of constructing 2,000 farm ponds has been laid down. The per unit cost for the same is Rs 1,05,000. While 50% of the cost will be borne by the plan, the other 50% would be borne by farmer, for financing the construction. To ensure the participation of the farmers in the process, a provision has been made for farmers to contribute in terms of their labour as well.

- Through the Agri Junction Plan, training programmes are being conducted under RSETI (Rural Self-Employment Training Institutes) across all the seven districts of Bundelkhand.

- Keeping in view the uneven distribution of rainfall and the problems of rainfed agriculture in the region and with the aim to conserve rainwater for irrigation, the Integrated Rainwater Management (Watershed Development) Project financed by NABARD through RIDF (Rural Infrastructure Development Fund) is operational in the Bundelkhand region.

- Under the National Food Security Mission, 13,600 hectares have been selected under pulses and 7,400 hectares under wheat for cluster promotion.

Source: Note from Department of Agriculture, GoUP

Bundelkhand during the same period is around Rs 20,000/- per hectare, with productivity in some districts being even lower. Thus, doubling of incomes from the same asset base is possible in Bundelkhand. What is needed is investment in irrigation, ensuring that it is sustainable and affordable, as well as watershed management and water conservation (this requires intensive watershed management, protection and promotion of water bodies). It will also require use of fertilizers (both organic and chemical fertilizers, as the case may be), greater use of quality seeds (ensuring quality of such seeds and timely availability), higher mechanization, better access to credit and diversity in crops, especially high value crops.

ii) The other aspect is that when per worker output is compared, the difference between Bundelkhand and the averages for UP and MP narrow down. The average Bundelkhand worker dependent on agriculture for his/ her livelihood produces a value 20 percent less than his/ her counterpart in UP. Within the MP districts, the difference in the second triennium average was between 10 to 12 percent.

Jalaun is the most productive district, both in value output on land and on workers employed along with Jhansi and Lalitpur. The comparative prosperity is mainly due to the quality of land – the district has largely plains area with good quality soil, unlike some parts of Bundelkhand, where land is rocky and undulating. The district lies at the confluence of five rivers, referred to as '*panchmahanad*'. Sometimes called the Punjab of Bundelkhand, crops like peppermint are grown here.

On the other side, Chitrakoot, Banda and Mahoba are the poorest performing districts. Banda district has two regions namely

Table 3.1: Value of Output per Agricultural Worker and Net Sown Area, 2004-05 to 2010-11

	2004-05 to 2006-07				2008-09 to 2010-11			
	Output per Worker		Output per hectare (Net Sown Area)		Output per Worker		Output per hectare (Net Sown Area)	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Madhya Pradesh	**14779**		**19664**		**16671**		**23627**	
Chhatarpur	13890	9	17898	6	12841	10	16544	11
Damoh	17332	2	17397	7	16810	5	18457	7
Datia	13642	10	17269	8	16434	8	20174	5
Panna	15192	6	19229	5	15476	9	19696	6
Sagar	16711	4	15287	11	17447	4	17660	9
Tikamgarh	10683	12	22222	3	11474	11	23205	4
MP Bundelkhand	**14425**		**17719**		**14816**		**18801**	
Uttar Pradesh	**19315**		**42868**		**20891**		**48242**	
Banda	10790	11	15596	10	11075	12	16535	12
Chitrakoot	5898	13	9585	13	6563	13	11420	13
Hamirpur	15173	7	16004	9	16586	6	17870	8
Jalaun	26058	1	30681	1	27243	1	33961	1
Jhansi	17047	3	22252	2	18740	3	27120	3
Lalitpur	15676	5	20891	4	22025	2	28957	2
Mahoba	**14911**	8	**14844**	12	**16539**	7	**17322**	10
UP Bundelkhand	**15392**		**19464**		**17261**		**22895**	
Bundelkhand	**14929**		**18611**		**16073**		**20858**	

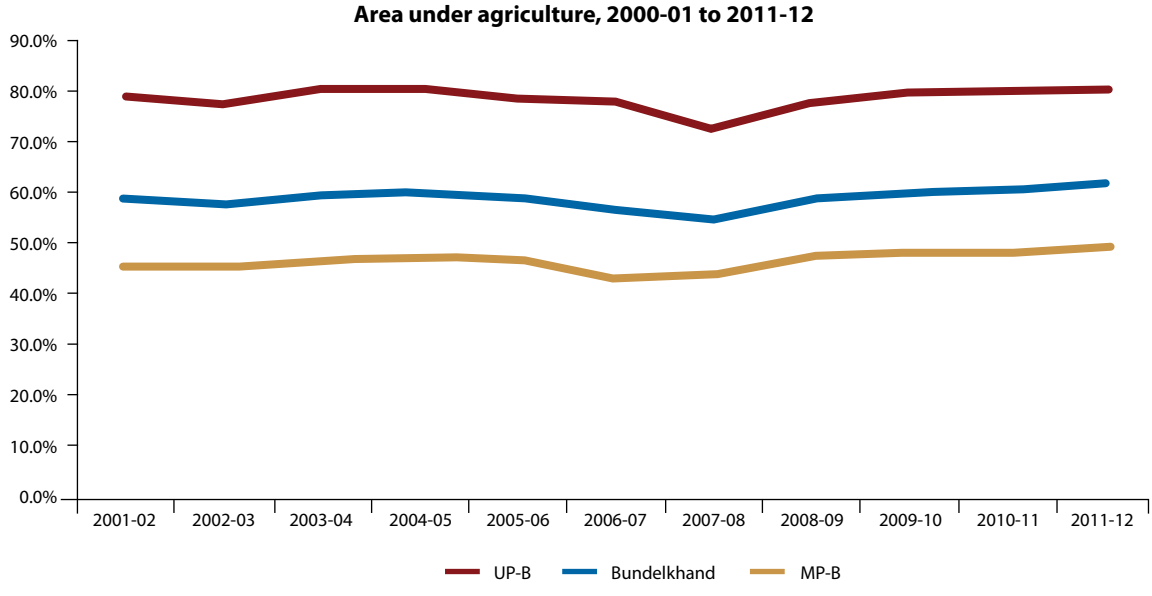
Source: Primary Census Abstract 2001 and 2011; Directorates of Economics and Statistics of MP and UP – Volumes on Sectoral Incomes (various years)

the Narainee and Artara, known for good agriculture, and suitable for wheat and paddy. Artara is known as a paddy (*dhaan*) *mandi*, but the other parts of Banda and Mahoba (carved out of Banda) are poor in agriculture. Chitrakoot has a smaller plateau area, making agriculture un-remunerative. Interestingly, both the leading districts and the lagging districts in agricultural production are in UP.

Land Utilization and Irrigation

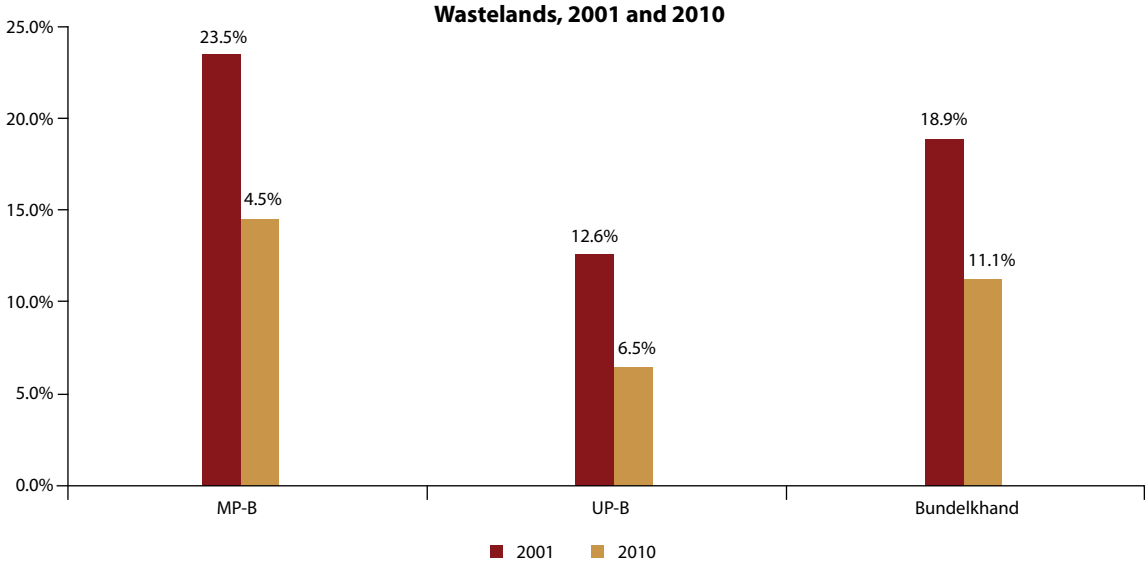
The proportion of land under agriculture in this region is lower than the adjoining areas, averaging 61 percent. The area under agriculture in UP-Bundelkhand is 80.4 percent, while in MP - Bundelkhand it is 49.8 percent. What are the reasons for this huge difference? One reason is the forest cover, which covers 16.8

Figure 3.8: Area under agriculture



Source: MP Commissioner Land Record, Gwalior; Department of Economics and Statistics, GoUP; Agricultural Statistics at a Glance, 2013 Ministry of Agriculture, GoI

Figure 3.9: Percentage of Wastelands



Source: Complete Wasteland Atlas of India 2011, Department of Land Resources

percent of land area in MP, but just 2.7 percent in UP. However, this does not fully explain the large difference in area under cultivation. Another explanation for this difference is the large tracts of wastelands in the region[3], which is considerably higher in MP-Bundelkhand (23.5 percent in 2000) compared to UP-Bundelkhand (12.6 percent in 2000).

There has been some decline in the wasteland area in 2010 (14.5 percent in MP-Bundelkhand and 6.5 percent in UP-Bundelkhand). Adding forests and wastelands together MP-Bundelkhand had about 18 percent less land available for agricultural use.

Cropping intensity in the Bundelkhand region was 138 (2010-11), a little higher in MP-Bundelkhand (142) than in UP-Bundelkhand (134). The cropping intensity in UP, on average, was 154 in 2010-11. The relatively lower double cropping in Bundelkhand has to do with both the local practice of '*chhooth pratha/ anna pratha*' (see Box 3.5) as well as the lack of irrigation facilities. The *chhooth pratha* system has been in prevalence for a long time. Under this practice, farmers leave their lands fallow after the *rabi* season. The Government has been trying to persuade farmers to give up this practice but it continues and farmers lose out on the *kharif* crop. This practice means that the cattle is free to graze during the *kharif* season, so farmers who wish to grow a second crop in the *kharif* season have to deal with the problem of stray cattle and some destruction of their crops.

Table 3.2: Cropping Intensity

	2001-02	2010-11
MP-Bundelkhand	127	142
MP	128	146
UP-Bundelkhand	118	134
UP	151	154
Bundelkhand	122	138

Source: MP Commissioner Land Record, Gwalior; Statistical Abstract, GoUP; Agricultural Statistics at a Glance, 2013 Ministry of Agriculture, GoI

The area sown under *kharif* and *rabi* in Bundelkhand, in the years 2009-10 and 2011-12 illustrates this aspect. In 2009-10, the *kharif* crop was sown on 21 lakh hectares, while the *rabi* crop was sown on 33.4 lakh hectares (60 percent more), and in 2011-12, the kharif crop was sown on only 18 lakh hectares, while the rabi crop was sown on 34 lakh hectares (90 percent more). Changing this practice and making land available for sowing the *kharif* crop alone could bring a transformative change to the local economy.

Water and Irrigation: The continuous drought-like conditions from 2003 to 2008 or so, brought the region into focus and highlighted the scarcity of water in agriculture. While the situation has been somewhat better in recent years (from 2008-09 till 2013, although reports of severe drought are once again reported in 2015), the few years of severe water stress focussed public and institutional attention on this region.

The proportion of GCA under irrigation in Bundelkhand is only 40 percent. There are huge variations between the districts, and the percentage of irrigated area ranges from 67 percent in Datia to as low as just 26 percent in Damoh and 25 percent in Chitrakoot. Geographically, Datia falls somewhat on the corner and has the advantage of the Rajghat Command Area to boost its canal-based irrigation infrastructure. Apart from Tikamgarh, Jalaun and Lalitpur, all the other districts have very limited irrigation. Even though the gross irrigated area is 40 percent, there are several reports that indicate that the quantity of water from these sources is inadequate, sub-optimal and untimely, affecting adequate irrigation[4]. The Samra Committee Report[5], for example,

[3] Department of Land Resources. (2011). *Wastelands Atlas of India.* Available at http://www.dolr.nic.in/WastelandsAtlas2011/Wastelands_Atlas_2011.pdf Department of Land Resources. (2000). *District and Category Wise Wastelands of India.* Available at http://www.dolr.nic.in/wasteland.htm

[4] Irrigation needs to be available on time, especially during the critical phases of a crop's life, and the adequacy of the water makes a lot of difference to productivity.

[5] National Rainfed Area Authority. (2008). *Report On Drought mitigation strategy for Bundelkhand region of Uttar Pradesh and Madhya Pradesh.* Available at http://nraa.gov.in/pdf/drought%20mitigation%20strategy%20for%20bundelkhand.pdf

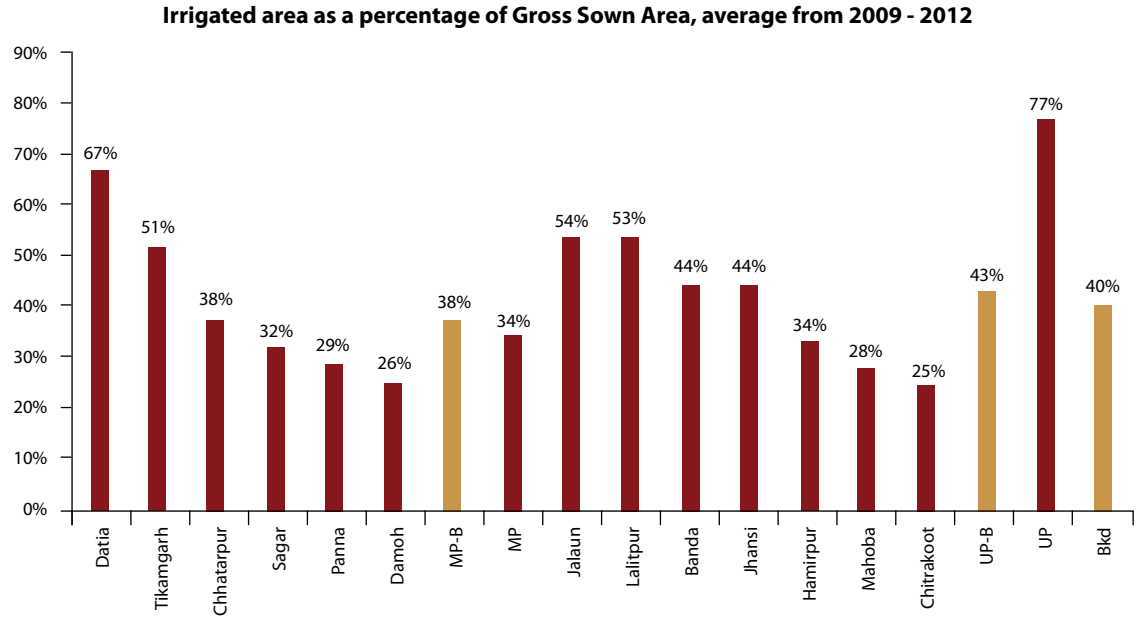
Box 3.5: Anna pratha or Chhooth pratha – leaving cattle free to roam

Free grazing or anna pratha (also called chhooth pratha), refers to the practice where animals are free to roam after the rabi crop is harvested. Usually, the farmers in Bundelkhand region abandon their cattle during the lean season and during the rainy season. Discussions with the villagers revealed that from April onwards thousands of animals are left to graze free, till September or October, before the onset of the sowing for next season's rabi crop. When this system was started, a long time ago, fodder and water was available in abundance, but now the conditions have changed. Every year, this roaming cattle destroys almost 25 to 35 percent of the agriculture produce during the kharif crop. Most of the animals remain underfed and often move too far away from their homes and die.

In addition, this practice adversely affects the breed improvement programmes, as local bulls are free to graze in the open fields and impregnate cows that are also left free. The artificial insemination programme suffers as a result.

Source: Gram Onnati Sansthan. (n.d.). Anna Pratha. Available at http://www.gramonnatisansthan.org/case/anna_pratha.html
Shodh Ganga. (n.d.). Introduction. Available at http://shodhganga.inflibnet.ac.in/bitstream/10603/12052/5/05_chapter%201.pdf

Figure 3.10: Irrigated area as a percentage of Gross Sown Area



Source: Land Use Statistics Report for various years

found that water supply from irrigation sources, like canals, irrigation projects, etc. was largely inadequate, and these sources were operating at only 40 to 50 percent of their capacity.

In Bundelkhand region as a whole, canal irrigation covers nearly 30 percent of cultivable land. In 2011-12, 42 per cent of gross irrigated area in UP-Bundelkhand was under canal irrigation, while the figure in MP-Bundelkhand was about 15 percent. The other major sources of irrigation are tubewells and wells (where private investment has been taking place).

According to data from land use statistics, the area under irrigation by wells has increased from 51.4 percent of GIA in 2001-02 to 56.3 percent in 2011-12. Much of this increase

in gross irrigated area in MP-Bundelkhand (approximately 3.55 lakh hectares) is because of tubewells and other wells, which together accounted for 57.4 percent of the increase (of the 3.55 lakh hectares) and new canal irrigation, which contributed 22.4 percent to the 3.55 lakh hectares.

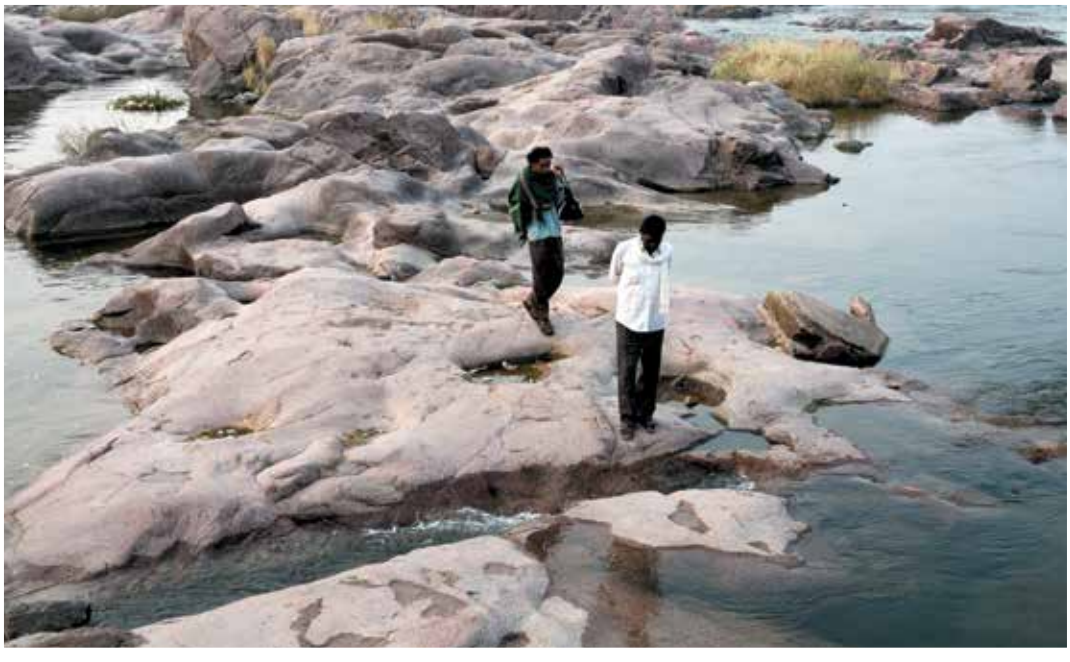
The tanks of Bundelkhand

A distinct feature of Bundelkhand is its water tanks – built hundreds of years ago by the Chandelas, and following them, the Bundelas. Built in the hundreds, they were the source of sustained irrigation for Bundelkhand[6]. These tanks were a strategic response to the terrain

Table 3.3: Growth in Irrigation (canals and wells) from 2001-02 to 2011-12

	Area Irrigated by Canals as a Share of Gross Irrigated Area		Area Irrigated by Wells as a Share of Gross Irrigated Area		Growth in Gross Irrigated Area
	2001-02	2011-12	2001-02	2011-12	Between 2001-02 and 2011-12
MP	19.4%	16.6%	63.8%	66.7%	68.0%
MP-Bundelkhand	11.4%	14.7%	64.4%	62.3%	42.5%
UP	21.8%	19.6%	77.0%	79.5%	9.2%
UP-Bundelkhand	48.4%	41.7%	40.4%	50.7%	29.6%
Bundelkhand	31.3%	28.6%	51.4%	56.3%	35.5%

Source: Land Use Statistics Report for various years



[6] Some of the tanks built by Chandelas are so large that they are known as 'sagar' (meaning ocean), and the largest of these tanks are found in Mahoba, the capital of the Chandela kingdom.

Box 3.6: UP Government initiatives in Irrigation

The Government of Uttar Pradesh has made efforts in improving the irrigation status in Bundelkhand districts through funds from the Bundelkhand package and the RIDF (Rural Infrastructure Development Fund scheme of NABARD). Under this the following were the achievements in recent years in creating new wells and in deepening and rejuvenating existing wells –

New Wells Created

District	Funded by Bundelkhand Package	Funded by RIDF	Total
Jhansi	2302	599	2901
Lalitpur	2465	600	3065
Mahoba	1032	300	1332
Chitrakoot	1422	300	1722
Total	7221	1799	9020

Deepening and Rejuvenation of Wells

District	Funded by Bundelkhand Package	Funded by RIDF	Total
Jhansi	1944	600	2544
Lalitpur	3082	600	3682
Mahoba	818	300	1118
Chitrakoot	535	300	835
Total	6379	1800	8179

Source: Letter from GoUP regarding district wise data on wells created and rejuvenated under the Bundelkhand Package and RIDF Package upto March 2015.

and hydrology of Bundelkhand. The Bundelas, who came after Chandelas, continued this tradition, with some modifications in technology. "The ancient people of Bundelkhand, aided by the Chandela and Bundela kings, tapped many streams and made use of the sloping topography of the region to build embankments on the downstream sides to create big lakes and surface reservoirs."[7]

Tikamgarh has the maximum number of tanks (reported to be around 1,000) of which about a 100 tanks are used solely for irrigation. Government efforts linked these tanks with irrigation systems and the irrigated area under these tanks went up from about 3,000 hectares (just before the formation of the state of MP in 1956) to over 20,000 hectares by the 1990s. Many of the important towns of Bundelkhand continue to survive on these tanks, which provide water for drinking purposes as well.

Over time, many of the tanks have fallen into disuse, and in recent years due to population pressure, encroachment has turned many of the ponds into cultivable land, and some tank lands have been transformed into residential areas. This has meant the disappearance of many tanks and ponds, while many others have lost their original area and many have lost out on their watershed area (from where they get their water). There is also heavy silting in these tanks. Governments have taken steps to remove encroachment and improve their conditions, but little effort is made to maintain them.

[7] Dogra, B. (2014). Conserving Water: No Substitute for Traditional Wisdom. Grassroots. Volume 6, Issue 7. Available at http://pressinstitute.in/file-folder/grassroot/July%20grassroots%202014%20SN.pdf

Box 3.7: The lost ponds of Uttar Pradesh

In UP's Bundelkhand region, about 4,020 ponds have disappeared in the last decade. The UP Government admitted this in reply to a query filed under the Right to Information (RTI). Out of these 4,020 ponds, 151 were in Chitrakoot, 541 in Hamirpur, 869 in Banda and the remaining 2,459 in Jhansi. Jalaun and Lalitpur districts have not lost or gained any pond while in Mahoba water bodies have increased by 1,402 (includes small ponds dug during MGNREGA) in the last decade. The Government gave no explanation for the decline in the number of ponds except in Hamirpur, where land demarcation factors were blamed. Local residents believe that land sharks grabbed the plots after filling up the water bodies.

Apart from the vanished water bodies, 4,424 ponds and pools have been encroached upon in the region, leading the government to launch an anti-encroachment drive. The government has been successful in removing encroachments from 3,852 water bodies (in 2014).

Source: Jaiswal, P. (2014). 4,020 ponds disappear in water-starved Bundelkhand in a decade. *Hindustan Times*. Available at http://www.hindustantimes.com/india-news/4-020-ponds-disappear-in-water-starved-bundelkhand/article1-1249686.aspx

Note: The anti-encroachment drives of the UP Government are continuing. According to information supplied by the Board of Revenue of the State Government, in the year 2014-15, 4,428 cases of encroachment were detected, covering 8 percent of the total land of water bodies, out of which 3,862 encroachments were removed.

Source: Note from Board of Revenue, Government of UP, dated 6 May 2015, Ref No. R.G. - 171/ G-5-Vividh/ 2014 Revenue Drive

However, considering both the potential and the natural sustainability of tanks and ponds, attention needs to be refocussed on them. As many studies on these tanks have shown, the work required has to be substantive and will need both administrative and political will[8].

Box 3.8: From drought to floods – in a flash - in Bundelkhand

Bundelkhand's five-year drought is well-known but floods in the region are not uncommon either. The reasons for the flash floods that often occur here are:

- The water run-off in this region is exceptionally rapid and in recent decades this has been precipitated by relentless deforestation. According to a report entitled – 'Problems and Potential of Bundelkhand with Special Reference to Water Resource Base', prepared by the Centre for Rural Development (CRDT), IIT Delhi and Vigyan Shikshan Kendra (VSK), "The region's topography is marked by a succession of down sliding gradients from the south to the north. Within these successions, rise a number of plateaus, the total area of which accounts for no less than 24 percent of the region's geographical area. Due

[8] Dogra, B. (2008). Double trouble in Bundelkhand. Down to Earth. Available at http://www.downtoearth.org.in/node/5207 Bundelkhand.in. (n.d.) Traditional tanks. Available at http://www.bundelkhandinfo.org.in/environment/water/traditional_tanks.html
Welt Hunger Hilfe. (n.d.). Revival of traditional Chandela tank assures yearlong supply of drinking water in Bangai village, Bundelkhand. Available at http://welthungerhilfesouthasia.org/custom_page_one/revival-of-traditional-chandela-tank-assures-yearlong-supply-of-drinking-water-in-bangai-village-bundelkhand/ Khurana, I. and Mahapatra, R. (2008). Drought and drinking water crisis in Bundelkhand. Water Aid. Available at http://www.wateraid.org/~/media/Publications/drought-drinking-water-crisis-bundelkand-india.pdf

to this feature, the rain that falls in this region is drained at a very fast speed, creating flash floods during the rain and causing long-term water scarcity thereafter". The report goes on to add that, "the greatest event of far-reaching consequences in Bundelkhand was the destruction of forests. It changed the climate, the rainfall patterns, the perennial character of the rivers, the groundwater recharge pattern, soil productivity, people's life pattern, social mores and ethics. The loss of forest cover gave rise to the flash floods in streams and rivers, eroding the surface soils and gave rise to ravines."

- Talabs: The neglect of traditional water sources, which could retain and collect a lot of rainwater, has been very detrimental for water management in the region. As the CRDT-VSK report notes with reference to the water bodies, "With the onset of the colonial pattern of administration, divesting people of their control over local natural resources, the introduction of canal irrigation and decimation of forests, this culture began to decay and is now moribund." In the villages, these common resources have been privatized in the name of development of fisheries. Many tanks were flattened to raise paddy crops or for the expansion of village settlements.
- In urban areas, several posh colonies rose in the catchment areas and sometimes even on the beds of old tanks. Large-scale shopping complexes were raised, while the tanks filled up with filth and became drain/sewer disposals.
- Any beautification of the tanks that was undertaken was cosmetic. The measures were limited to fixing light-posts, repairing the boundaries and/or sometimes removing water hyacinth and other weeds. Encroachments on the tank-beds or the catchment area were never removed and the natural flow of fresh water to these tanks or lakes was never restored.
- Last but not least is damage done by indiscriminate and destructive mining practices in this region, particularly river-bed mining for sand. In addition, of course, there is the issue of overall increase in soil and water erosion caused by various mines in the region.

Source: Dogra, B. (2008). Double Trouble in Bundelkhand. *Down to Earth.* Available at http://www.downtoearth.org.in/node/5207

Box 3.9: The tanks of the Chandela and Bundelas – scientific water management

The Chandela dynasty ruled over the Bundelkhand region for long periods between the 10th and 13th centuries. The Chandela rulers took a keen interest in conserving water as a means of supporting the livelihoods and the development of the region. They established a network of several hundred tanks to ensure a satisfactory level of groundwater. The tanks, which had widths of 60 metres or more, were constructed by building massive earthen embankments. They stopped the flow of water in rivulets between the hills. The hills with long stretches of quartz reefs underneath them acted as natural ground water barriers, helping to trap water between the ridges. The earthen embankments were supported on both sides with walls of coarse stones, forming a series of stone steps. Lime and mortar were used to construct these tanks. The tanks enriched the underground water levels, increased the level of water in wells and the increased soil moisture resulted in the abundant growth of vegetation.

The Bundelkhand region also has bigger, more elaborate tanks built by the Bundela dynasty that ruled between the 16th and 18th centuries. The Bundelas built tanks near the palaces and temples with *chabootras* (tower-like structures with octagonal or pentagonal shaped enclosures at the top), pavilions, royal orchards, etc. These tanks were not as cost effective as the ones built by the Chandelas and were more expensive to maintain.

The British Administration, post 1860, constructed canals and linked them to the existing tanks in order to sell water to the farmers. Earlier the farmers used to use the wells, tanks, etc. for limited irrigation. During the 1950s, the Irrigation Department of the Government of Madhya Pradesh efficiently managed the Chandela tanks and even built some new ones. In the 1970s, however things changed. The Government was facing a cash crunch and stopped paying for the *Chowkidars* (guards) for the tanks and this led to a decline in the maintenance, which in turn led to the silting of the tank beds, etc. By the end of the 20th century, the total area irrigated by the wells, ponds, tanks etc. was about 4,00,000 hectares. Inspite of their usefulness, the tanks were neglected and fell into disuse.

The original irrigation systems have been largely neglected in the last couple of decades, since the advent of the Green Revolution and the use of bore wells. The local population encroached on the tanks. The decay of the tanks has affected communities like the Kahar, Dheemar and Nishad who used to depend on the wells, ponds, etc. for their livelihoods. (These communities practice livelihoods that depend on the water bodies, they depend on fishing and boating and the collection of vegetative produce that grows around the ponds.)

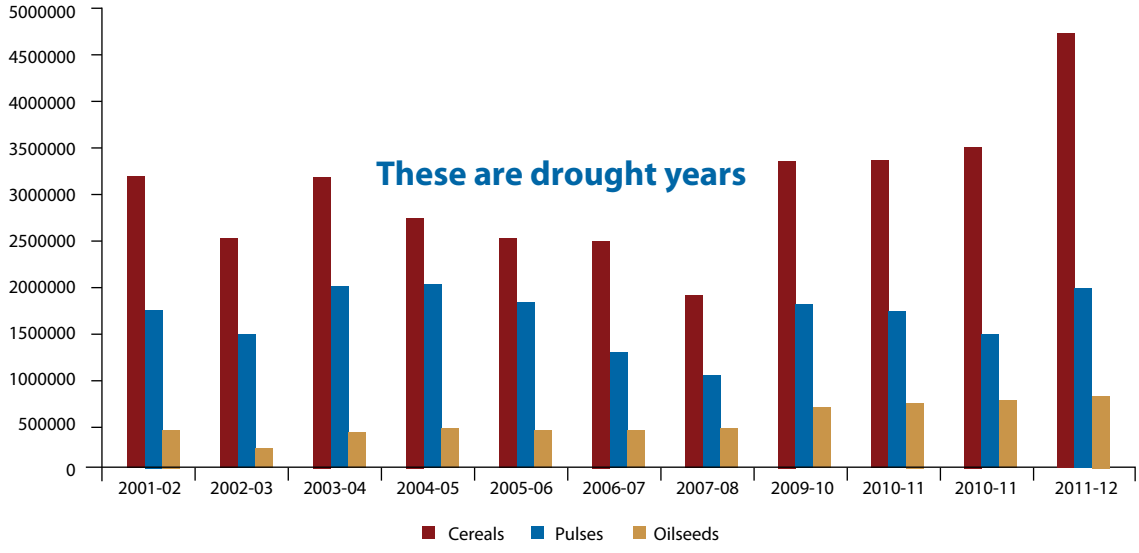
According to a new study by the International Water Management Institute (IWMI) and the Tata Water Policy Program, Tikamgarh district in Bundelkhand alone has 995 tanks, out of which 146 large tanks can be used to provide water coverage to about 29,000 hectares of land. The tanks and canals feed a large proportion of Tikamgarh's 43,000 wells. Re-energizing these tanks can irrigate large lands and make irrigation more assured.

The Ken-Betwa link project provides additional irrigation for 47,000 hectares In Tikamgarh and Chhattarpur, Hamirpur and Jhansi, apart from giving additional water support to 1.27 lakh hectares of land. At 1994 prices, the cost of this project was Rs 2,000/- crores. Re-developing the Chandela tanks and exploiting their irrigation potential is likely to be far more cost effective than the Ken-Betwa link project.

Source:

National Water Development Agency. (n.d.). Executive Summary. Available at http://nwda.gov.in/writereaddata/linkimages/0723832353.PDF
Water Resources Information System of India. (n.d.). Ken-Betwa Link. Available at http://india-wris.nrsc.gov.in/wrpinfo/index.php?title=Ken-Betwa_Link
Pallavi, A. (2014). Modi's victory may mean push for Ken-Betwa river-link project. Down to Earth. Available at http://www.downtoearth.org.in/content/modis-victory-may-mean-push-ken-betwa-river-link
Shah, T. (n.d.). Who Should Manage Chandeli Tanks? IWMI-TATA Water Policy Research Program. Available at http://publications.iwmi.org/pdf/H031795.pdf
Rain Water Harvesting. (n.d.). Chandela Tank. Available at http://www.rainwaterharvesting.org/Rural/traditional1.htm
Welt Hunger Hilfe. (n.d.). Revival of traditional Chandela tank assures yearlong supply of drinking water in Bangai Village, Bundelkhand. Available at http://welthungerhilfesouthasia.org/custom_page_one/revival-of-traditional-chandela-tank-assures-yearlong-supply-of-drinking-water-in-bangai-village-bundelkhand/
C.P.R. Environmental Education Centre. (n.d.). Traditional water harvesting systems of India. Available at http://www.cpreec.org/pubbook-traditional.htm

Figure 3.11: Crop production in Bundelkhand from 2001-02 to 2010-11 (in Metric Tonnes)



Source: MP Commissioner Land Record, Gwalior; Statistical Abstract, UP; Agricultural Statistics at a Glance, 2013 Ministry of Agriculture, GoI

Water scarcity and droughts

Bundelkhand has a history of frequent droughts; the most recent one lasted several years, starting in 2003 and continued till nearly 2009. This continuous drought-like situation led to drinking water shortages, severe depletion of fodder for animals, decline in water for irrigation, even in canal irrigated belts, decline in agriculture production, and to increased migration of people. The drop in the production of cereals and pulses due to this recent drought is quite significant, especially in the four years from 2004-05 to 2007-08.

People Speak :

In Padheri village in Panna and Gohna village in Tikamgarh, farmers said that wells and borewells dry up in the first few days of summer, confirming poor groundwater availability. Villagers of Madna in Lalitpur, said that due to the undulating terrain and rocky features of the area, they are unable to use the rainwater or draw groundwater for irrigation.

People of Gohna in Tikamgarh said that many ponds (*talaabs*) built hundreds of years ago have faced neglect by the Government and are no longer in use. These could have transformed the irrigation potential in the area, if they were functional.

The frequency of droughts in this region is due to the rainfall pattern. The monsoon rains, averaging from 75 cms to 100 cms, fall in a three month period and are usually erratic, and the local rivers, primarily the Betwa (which contributes 50 percent of the water available in Bundelkhand Upland and Bundelkhand plains sub-regions), the Ken (which contributes about 25 percent) and the Pahuj and Dahasan (all rivers that are very important for irrigation) have high seasonal fluctuations. For example, the Ken river has an annual discharge of 800 cusecs, but this drops to 300 cusecs in the winter months and then the river dries up by May. Further, the physical characteristics of Bundelkhand do not support irrigation based on extracting groundwater. An authoritative assessment of this has been done in the report of the National Rainfed Area Authority[9] (commonly known as the Samra Committee Report). The Report shows that the basic physical feature of this region is 'hard rock', and therefore due to this hydro-geological condition the 'water aquifer is inadequate and undependable'. Except for certain areas that are adjacent to the Yamuna

[9] National Rainfed Area Authority. (2008). Report On Drought mitigation strategy for Bundelkhand region of Uttar Pradesh and Madhya Pradesh. Available at http://nraa.gov.in/pdf/drought%20mitigation%20strategy%20for%20bundelkhand.pdf

River, the yield of groundwater is so low that it makes groundwater mining for irrigation an unsustainable proposition. Around 90 percent of the land in Bundelkhand is hard rock, with exceptionally poor yield of aquifers, quick exhaustion of water table and insufficient rate of renewal or recharging.

An examination of the district-wise status of availability of groundwater shows how critical the condition really is. Except for Jhansi, and about a third of the land in Chitrakoot, Banda and Hamirpur, all other districts have very poor ground water yield. Poor water yield and hard rock, means that deep digging is required, which increases the cost of digging and drawal pipes, pumps wires, etc. for the farmers. Since water is not available all the time or more reliably, the crop yield is low.

Given these conditions, water management, watershed development, sustainable use of surface water and better use of water savings technology are all crucial for Bundelkhand. There are instances of farmers moving to water saving techniques, new surface water storage and irrigation projects and diversification of crops to water resistant crops. There is a move to diversify into resistant and remunerative cropping choices, which have helped farmers. Many of these practices, promoted by State Departments and by local non-government organizations (NGOs) have shown potential.

The experience of such initiatives has shown that it is the combination of large scale water management/harvesting techniques, together with farmer-level interventions to make informed crop and seed choices, effective use of State programmes (that provide subsidized inputs like seeds, fertilizers, drip irrigation, etc.), crop rotation, and diversification both into the resilient traditional crops and to resilient new commercially profitable crops that has worked.

Whatever be the interventions at the farm level, unless there is a sustained change in overall water conservation, that includes re-generation of old *talaabs*, catchment area regeneration, an effective and planned control over activities like mining, encroachment of water bodies and urban expansion (including construction), it will not be possible to correct the imbalance.

Table 3.4: Ground water potential, as per yield rate, in the Bundelkhand region (area in %)

Districts	Ground Water Yield (litres per second)			
	<1	1 – 10	10 - 25	25 – 40
Figures below show the area of a district area under categories of Ground Water Yields				
Uttar Pradesh				
Chitrakoot	55	-	35	10
Banda	-	70	30	-
Hamirpur	-	70	30	-
Jhansi	-	20	80	-
Mahoba	65	35	-	-
Jalaun	80	20	-	-
Lalitpur	100	-	-	-
Madhya Pradesh				
Datia	55	45	-	-
Panna	95	5	-	-
Damoh	98	2	-	-
Sagar	100	-	-	-
Tikamgarh	100	-	-	-

Source: National Rainfed Area Authority (2009). Report of Central Team on Strategy for Bundelkhand Region of Uttar Pradesh and Madhya Pradesh.

Box 3.10: Droughts in Bundelkhand - past and present

The Bundelkhand region has a long-standing history of droughts and famines. The region witnessed 'the panic famine' of 1873-74 and the Indian famine of 1896-97 began in Bundelkhand, early in 1895. The Bundelkhand district of Agra Province experienced drought in the autumn of 1895 as a result of poor summer monsoon rains. When the winter monsoon failed, the provincial government declared a famine early in 1896 (Imperial Gazetteer of India Vol. III 1907, p. 490-91). During 1905-06, Bombay and Bundelkhand provinces were affected by severe drought and a cholera outbreak. However, drought associated mortality is unknown for Bundelkhand.

According to the report on drought mitigation strategies for UP and MP Bundelkhand, by the Inter-ministerial Central Team headed by Dr. J. S. Samra, the region experienced a major drought every 16 years during the 18th and 19th centuries, the frequency of which increased by three times during the period 1968 to 1992. All the districts of UP-Bundelkhand were affected by droughts during the period 2004 to 2007. Similarly, over the three-year period 2005 to 2007, hydrological drought or diminishing availability of water supply was evident from the situation of surface water reservoirs – the proportion of reservoirs that remained unfilled increased sharply from 15 percent to 47 percent, in MP and from 28 percent to 64 percent, in UP, indicating a three fold increase in the inadequacy of water supply. Around 70 percent of tanks, ponds and dug-wells dried up as a result of the steep fall in surface water and the ground water table. Drought affected all the six districts of MP -Bundelkhand and five districts of UP-Bundelkhand in 2009.

The climatic modelling experiments by United Nations Institute for Training and Research (UNITAR) has predicted that temperatures are likely to rise by about 2°C to 3.5°C in the Bundelkhand region, by the end of this century. The impact of the drought years is already visible. In the last four to five years, there has been news of mass migration, starvation deaths, farmer suicides and even the 'mortgaging' of women. To emphasize the uncertainty related to erratic rainfall, in the last decade Bundelkhand received normal to above normal rainfall in 2011 with the danger of flooding replacing the water scarcity associated with droughts. According to the state Met department, Banda district received 252.4 mm rainfall (214 percent above normal) between June 1 and June 30, 2011. During the same period, Hamirpur recorded 253.9 mm of rain (334 percent above normal), Jalaun 266 mm (153 percent above normal), Jhansi 266.1 mm (203 percent above normal) and Mahoba recorded 185.2 mm of rain (210 percent above normal). Lalitpur reeled under the threat of floods with 644 mm of rain, which is 5.8 times (588 percent) more than the normal for the district.

Over the last four years, the situation in Bundelkhand is improving since Rajghat dam and its distributaries have become functional. Further, under the Bundelkhand Special Package, various mitigation measures are integrated with developmental schemes. Although there has been marginal improvement in recent times, the region needs special attention in terms of mitigating the impact of droughts and to improve the social security and well-being of the people at large.

Source: Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand Drought: Retrospective Analysis and Way Ahead. National Institute of Disaster Management, New Delhi. Available at http://nidm.gov.in/PDF/pubs/Bundelkhand%20Drought%202014.pdf

A substantial intervention that has been initiated is the Ken-Betwa river-linking project. Although there have been concerns that have been raised about the project, due to its costs and the ecological impact of linking of rivers, the project is now nearing completion. Once completed, it is expected to bring huge additional irrigation and drinking water to many regions of Bundelkhand, by diverting the surplus water flow of the Ken river into the Betwa river (see Box 3.11).

There have been supporting interventions through the State Governments and the funds received from the Bundelkhand package to enhance irrigation potential and capabilities of individual farmers. These have directly brought irrigation and technology to farmers, and the Bundelkhand package has led to an increase in productivity in crops, both in UP and in MP. As the associated box from UP (People Speak, page 69) shows, there have been substantial direct benefits.

Livestock farming

The combination of livestock management with farming is a part of agriculture. Bundelkhand has its share of dairy and goat-keeping, apart from other sundry animal husbandry activities. However, neither dairying nor goat-keeping has grown to any level to be able to be a significant supplement to agriculture.

Most dairy is usually for home consumption, with the sale of surplus milk to local buyers. The breed quality of cattle is local, often mixed, with no distinct genetic variety, and these are poor producers of milk. Crossbred cattle is almost insignificant, and between 2007 to 2012, the percentage of cross bred cattle increased from 0.6 percent of all cattle to 0.82 percent. This is well below the 18.3 percent for entire UP and 4.3 percent for entire MP. There is considerable effort through State overnments to improve cross bred cattle numbers, but it appears that

Box 3.11: The Ken – Betwa river link project – using water resources better

The Ken-Betwa link project is one of the 16 river linking proposal under peninsular component of National Perspective Plan (NPP) for the development of the water resources of the states. The feasibility report of project was prepared by NWDA in 1995, and a tripartite Memorandum of Understanding was signed between the Union Government, and Governments of Madhya Pradesh and Uttar Pradesh, on 28 August 2005 in the presence of the Prime Minister. The project report of Ken-Betwa link Project was completed in December 2008.

In the first phase of the Ken-Betwa link project, the Daudhan dam project in Panna district of MP, with two power stations and link canals were proposed, at a cost of Rs. 9,393 crores. About 9,000 hectares of land was submerged, (5258 hectares of dense forest, 2171 hectares of agricultural land and 1571 hectares of tanks, rivers and streams). The advantages of irrigation are expected to benefit an additional 5,84,640 hectares (3,57,267 hectares in MP and 2,27,373 hectares in UP).

The objective of the second phase is to make water available to water-deficit areas, mainly in the upper Betwa basin and the drought prone, backward and water-scare areas of Bundelkhand, through the substitution of the surplus water of the Ken river.

Source: Department of Irrigation, Government of MP

People Speak :

A few good stories

Agricultural Innovation – organic farming and crop choices: In Berkhedi Sonpur village, Sagar district, Sitaram owns two acres of land, on which he cultivates *moong* during the summer months. Earlier, he used to leave his land fallow during the summer, because of lack of awareness, lack of irrigation facilities, and the practice of free roaming cattle. With the help of officials from the District Poverty Initiatives Project (DPIP), Sitaram has now done wire fencing around his land to keep out animals, availed loans to establish irrigation facilities, arranged organic manure for his farm and learnt about crops which can be easily cultivated. Following these measures, Sitaram is now able to take a summer crop, which he did not grow earlier, which helps his family's economic needs.

Drip Irrigation: In Kanjera village, Sagar district, Ramdas Patel owns two and a half acres of land, on which he grows both a *kharif* and a *rabi* crop. The earnings from this were enough to sustain the family but there were no savings. Under DPIP, Ramdas learnt about new techniques like poly mulching and drip irrigation, which he implemented on 30 percent of his land. Earlier Ramdas used to earn between Rs. 100,000 to 150,000 in a year. After the implementation of the new technology his land requires less labour and is giving him increased outputs. For irrigation purposes he installed a Sintex water tank in the upper levels of his land. This tank is on all the time and half an acre of land uses about 2,000 litres of water, every month. He sells about 30 – 35 kgs of chillies, every day in the market. The harvest of chillies is maximum during the winter and the monsoon, and harvest starts just four months after the sowing of the crop.

Irrigation project – Irrigating from reservoirs: In Damoh district, a 107 hectares Galaghat Reservoir was created in 2012. This reservoir has a separate enclave for pisciculture. After the establishment of the reservoir, agricultural land has increased by 50 hectares; a canal from the reservoir to Kevlari village is under construction, irrigation is now available for Ghagri, Patti, Kevlari, Nohta, and Kanehpur villages. The cultivation of *rabi* crops has been facilitated by the reservoir, per acre production has increased and canals have increased farm outputs. The fishing is done by big fisherfolk, as tenders are taken out on a district level, the small fisherfolk are engaged in the production of water chestnuts or work as daily agricultural labourers.

Water Technology: In Barkhedi village, Sagar district, soil testing is done to ascertain the composition of the soil and to suggest the appropriate seeds to be used. The water level is 200 – 250 feet below the ground level and bore wells have been sunk. Due to this, in the last few years the output has gone up to between four and four and a half quintals per acre.

Diversification of Crops: In Sagar village, between 200 to 250 hectares of barren land is being used for cultivating lemongrass and palmarosa. This land was earlier uncultivable. A plant has been set up to extract oil from lemongrass and palmarosa, by the DPIP and a Delhi based entrepreneur, under the PPP model. Five Gram Panchayats have come together to form a cluster to implement this scheme – Singpur, Devgaon, Kuchua, Madni and Tirkota. After sowing lemongrass and palmarosa, the benefits can be collected for four to five years without any labour or hard work. One acre of land produces about 80 to 90 quintals of lemongrass (lemon grass sells for about Rs 130 per quintal) and between 1 to 1.5 litres of essence can be extracted from every quintal of lemongrass, palmarosa, on the other hand, is sold for Rs. 225 per quintal and an acre of land produces about 40-50 quintals of palmarosa and 1.5 to 2 litres of oil can be extracted from every quintal.

Source: Fieldwork by Sanket HDR Team

Table 3.5A: Livestock in Bundelkhand, 2007

Region	Cattle			Buffaloes	Repro Buff %	Goats	Poultry Birds
	Cross Breed %	Total	Reproductive Cattle				
Madhya Pradesh	2.2%	21,915,438	34.0%	9,129,152	50.9%	9,013,687	7,384,318
MP - Bundelkhand	0.4%	3,328,718	38.1%	1,381,368	52.8%	1,340,363	228,063
Uttar Pradesh	10.3%	18,883,308	33.8%	26,440,393	47.6%	14,829,064	10,638,402
UP - Bundelkhand	0.8%	209,866,3	34.8%	1,430,931	45.4%	1,246,654	434,019
Bundelkhand	0.6%	5,427,381	36.8%	2,812,299	49.0%	2,587,017	662,082

Source: Livestock Census 2007, Dept. of Animal Husbandry, GoI

Table 3.5B: Livestock in Bundelkhand, 2012

Region	Cattle			Buffaloes	Repro Buff %	Goats	Poultry Birds
	Cross Breed %	Total	Reproductive Cattle				
Madhya Pradesh	4.29%	1,96,02,366	NA	81,87,989	NA	80,13,936	1,19,04,716
MP - Bundelkhand	0.94%	25,94,548	NA	10,84,090	NA	9,65,926	4,77,573
Uttar Pradesh	18.30%	1,95,57,067	NA	3,06,25,334	NA	1,55,85,615	1,86,67,832
UP - Bundelkhand	0.68%	23,50,882	NA	15,76,990	NA	15,09,729	7,29,138
Bundelkhand	0.82%	49,45,430	NA	26,61,080	NA	24,75,655	12,06,711

Source: Livestock Census 2012, Dept. of Animal Husbandry, GoI

while UP has taken considerable strides, and MP some humble steps, both states have not been able to make any dent in this field in their regions of Bundelkhand.

With a large population of inefficient cattle, with just 37 percent (See table 3.5 A, complete data is available only for 2007 and not for 2012) in the reproductive stage, the scarce feed and fodder is being inefficiently utilized. Amongst buffaloes (who are better milk- givers than local cattle), only 49 percent were in the reproductive stage (2007). According to industry standards in dairying, unless two thirds of the herd are in milking, returns will always be negative. In Bundelkhand, only a third of the cattle and half of the buffaloes are in the reproductive stage.

Comparing the data from the Livestock Census quoted in Table 3.5 A and 3.5 B, the number of cattle and buffaloes has reduced in Bundelkhand. Reduction is not an issue with better milk productivity per animal. The worrying part is that cross bred cattle has not increased in the period between the two livestock census, and should be an area of focus for Government efforts. The Bundelkhand Package has specific initiatives on animal husbandry, and may give the required impetus to this sector.

Goatery is quite popular in rural households and most households keep a few goats for milk and sell them, when required. Goatery provides secondary support in Chhattarpur, Tikamgarh, Jalaun, Jhansi and Mahoba. Large sized goatery is not common. Goats are reared more by people from the SC and ST community, providing them relatively quick and assured income with relatively low investment. The pattern of pure goat rearing families is small, but most people keep some goats, in their homestead. Large-scale goatery is extremely suitable to the undulating terrain of Bundelkhand, with a large variety and growth of bushes and shrubs. There is considerable emphasis through Government

employment support programmes to support goatery by supplying good quality goats (the Bundelkhand package has a substantial fund for support for small goat units), but the impact has not been significant as yet.

Infact, the livestock figures in table show decline in number of goats between 2007 to 2012 which is not a good signal. Whether this number reduced due to drought or veterinary causes or decline of their profitability, is not known, and is more surprising considering, as mentioned that there has been promotion of goatery in Bundelkhand by the State Governments and through the Bundelkhand Package.

Among other animals, the Jalauni sheep is one of the best recognized sheep breeds of India, and there was traditionally a high sheep population, in Jhansi district, which had a sizable woollen carpet industry in the 19th century. However, the market for coarse wool obtained from Jalauni sheep has greatly diminished and sheep are reared mostly to meet the demand for meat. Sheep rearers are still there in Bundelkhand and they tend to keep larger herds. There is some local poultry, especially in Chhattarpur, Tikamgarh and Jhansi, although the entire area has few poultry birds, and accounts for only three percent of the share of total poultry birds of MP, and four percent of the poultry birds of UP.

Both goat rearing and poultry have potential. There are large to medium sized urban centres like Jhansi, Jalaun, Sagar, and accessible urban conglomerations of Delhi on one side, Gwalior in the vicinity, Kanpur and Allahabad to the north and north-east and these can be exploited as markets.

The other livestock sector with potential is fisheries, especially in some districts where the large lakes and water bodies still exist, and mostly in the Madhya Pradesh districts, although districts like Banda, Chitrakoot etc.

Box 3.12: Goat Rearing under the Bundelkhand Package

In 2011-12, farmers were distributed the 10+1 units of goats of the Jamanapari, Barberi and Sirohi and indigenous breeds. Experience of farmers from Datia, Chhattarpur, Jhansi and Mahoba was –

- Goat rearing has fetched additional incomes and farmers claimed that they are able to sell four to five male goats, each year, which earns them between Rs 12,000 to Rs. 15,000. Goats have turned out to be excellent supplementary support to homestead incomes, in addition to providing milk, which is usually consumed at home.
- Farmers do not need to go to the market to sell their goats, as traders visit the villages to buy them.
- Profits from local mixed breeds have been better, since they survive better. They are sturdy and live off locally available feeds. Local breeds are less prone to diseases.
- Local breeds are easily fed in the open jungle (on duba grass and leaves of karonda, ragat and bedhada), while it is expensive to feed quality breeds.
- Farmers were given goat units, free of cost, but they had to pay for the insurance of goats, which was about Rs 6,000 to Rs. 7,000.
- Initially, when the goats were distributed, a veterinary doctor used to visit regularly but now he comes once a year for treatment and vaccination.
- Goat units of local breeds flourish while those provided with hybrid ones have discontinued due to mortality.

also have large surface water. Apart from the large water bodies, or lakes and ponds, the rivers of the region like Yamuna, Betwa, Ken and Dhasaan run across the area and are available for fisheries. A wide range of fish is found in Bundelkhand's rivers, including species known locally as *rahu, bhadur, mrigal, tingar, singahi, mangur, awda, baam, sooja, sinni and mahasir*.

Currently fishing in the numerous tanks and ponds is being carried out mostly in the MP part of Bundelkhand. There is, in recent years, some decline in this activity due to high silting and early drying up of ponds, due to poor maintenance. Fishing is the traditional occupation of Scheduled Caste groups like Kewat and Dhimar.

Fishing leases are given to fisherfolks cooperative societies but most of these societies are controlled by big landlords or '*dabangs*'. The fisherfolk themselves do not own the boats or nets they use; these are owned by the well-off landlords, who pay the fisherfolk daily wages. In some cases, the fisherfolk are controlled by middlemen, who finance the business. Nonetheless, with concerted action, some of which is already underway as evident from the MP experience, this can turn into an activity of commercial benefit. Promotional activities like providing seedlings, fish feed, guidance and extension support, equipment and subsidised inputs have helped.

The un-enviable situation of the Bundelkhand farmer

The farmer in Bundelkhand operates in a cycle of low output, low income and low surplus. Since all rural livelihoods are intricately linked to agriculture and allied activities, even non-farm livelihoods are under stress. These are further accentuated by water stress.

Incomes in agriculture – pressure on marginal and small farmers

As discussed, the low output per hectare (approximately Rs. 8,500/- per acre), has to be seen with the actual number of people engaged in agriculture and their asset base to get a fuller picture. The average land holding in Bundelkhand was 1.53[10] hectares in 2010-11, coming down over the years, from 1.74[11] hectares in 2000-01 and 1.63 hectares in 2005-06. The small and marginal farmers – marginal farmers constitute 51.5 percent of all landowners, owned an average of just 1.2 acres, and small farmers who constitute another 25.4 percent of all landowners, owned an average of 3.6 acres. The condition of the marginal farmers can be imagined with this size of land holding, and with 60 percent of these landholdings (assuming their share in irrigated area is same as the general average) having no irrigation, means that a third of all farmers in Bundelkhand own just an acre of un-irrigated land, and depend on possibly one crop, with a below average productivity, unable to afford adequate inputs. The small farmer, who owns just 3.6 acres on average, with little or no irrigation faces an equally tough situation with regard to access to inputs. From the statistical calculations of State Domestic Product, it appears that a marginal farmer earns between Rs 10,000 to Rs. 15,000/- a year at the maximum; and a small farmer earns about Rs 25,000 to Rs 35,000/- in a year. Farmers thus have no option but to lease more land or to look for employment elsewhere to supplement incomes.

The meagre resource base has to contend with expenses related to drawal of ground water, putting further pressure on cost, from higher power costs, more powerful pumps and piping,

[10] Agriculture Census, 2010, Uttar Pradesh and Madhya Pradesh State Governments
[11] Agriculture Census, 2000, Uttar Pradesh and Madhya Pradesh State Governments

Box 3.13: Fisheries Promotion by the Government of Madhya Pradesh

Madhya Pradesh possesses 3.94 lakh hectares of water area, out of this 3.31 lakh hectares of water area belongs to the reservoirs and 0.60 lakh hectares of water area belong to the village ponds and tanks i.e. a total of 3.89 lakh hectares of water area has been brought under pisciculture.

The objectives of the project are:
1. To generate rural employment
2. To enhance fish productivity and production by bringing additional water area under fish culture through adoption of scientific fish culture
3. To promote the co-operative sector for development and marketing of fish
4. To promote capacity building programme for fisher folk
5. To make available protein rich food (fish) to the masses in the rural areas

All ponds above five hectares of water area are leased out, preferably to cooperative societies formed by the fisherfolk. Fisherfolk cooperative societies are organized on the basis of available water area. To attain self-sufficiency in fish seed production, special attention is being paid for use of selected seasonal ponds for rearing seed on large scale by encouraging co-op societies and private pisciculturists. There is a provision of short-term loan on zero percent interest for working capital through the Fishermen Credit Card. Loans on easy instalments with low interest rate are also provided to fishermen for nets and boats. Peripheral fish seed rearing model and Pen culture techniques are being popularized to raise large fingerlings for stocking the reservoirs.

The scale of fisheries in Bundelkhand is visible from the following table:

District	Available water area (Ha.)			Fish Production (in Tonnes)			
	Village Ponds	Irrigation reservoirs	Total	Village Ponds	Irrigation reservoirs	Rivers	Total
Sagar	504.0	3518.4	4022.4	413	121	30	564
Damoh	1359.5	2803.5	4163.0	1799	259	325	2383
Panna	1372.2	2570.4	3942.6	835	111	291	1237
Chhatarpur	1396.0	2050.0	3446.0	916	1055	66	2037
Tikamgarh	2164.7	6852.4	9017.1	1520	915	68	2503
Datia	283.4	673.9	957.3	283	7	90	380

While the Bundelkhand region in MP had 6.7 percent share of the total water area under fisheries, it produced 11 percent of the total state production of fish in 2012-12. The sustained promotion of fisheries in this region has clearly benefited this sector, and some of the districts have emerged as major producers of fish in the state.

Source: Detailed Project Report for Fisheries Development of Bundelkhand region, Department of Fisheries, GoMP

Box 3.14: Landless and marginal farmers lease land

In the Bundelkhand region of UP, various type of short-term land lease arrangements under which farmers gain access to crop lands are prevalent. The findings of a study on land lease arrangements and factor productivity in UP-Bundelkhand revealed that 50 percent of the lessees belong to landless and marginal farmers category, whereas about 40 percent of the lessees belong to the small and medium farm category. Only 7 percent of large farmers took land on lease. The results show that the poor landless, marginal and small farmers form a major lessee group.

Source: Awasthi, M.K. (2005). Interspatial Total Factor Productivity analysis of alternative land lease arrangements in Bundelkhand region of UP. Indian Journal of Agriculture Economics. Vol. 60, No. 3.

etc. required, and the risks associated with deep mining of water. Private irrigation, and private sources of owning or hiring farm machines are adding to the costs of farmers, and small and marginal farmers with small land holdings are unable to meet these expenses.

Many marginal and small farmers along with the landless are taking to leasing in of land to cover their small land holdings. This leasing seems to be on the increase, and just as many families are seeking non-agriculture livelihoods outside of Bundelkhand and even locally, or taking to labour, their lands become available for leasing. A study on this phenomenon shows that majority of lessees are the small and marginal farmers and the landless.

The other options adopted are labour, migration, associated farm based activities and increasingly some non-farm work. This low income situation explains very clearly why labour of all family members (including children and women) cannot be expended with by farming families. It explains why seasonal migration is not just a life-saver during disasters, such as droughts, but even in normal years, it provides crucial supplementary income. It explains why these families cannot wait for institutional assistance for consumption loans, and fall into high debt situations due to usurious interest rates, and why a small incident such as a disease, or a death of an able-bodied member, or a disaster such as two or three years of drought, or an expenditure (such as a dowry) puts people back by many, many years, often pushing them from survival to destitution and penury.

Yet, there are many positive changes in agriculture – examples of people taking to new techniques, including water saving techniques that reduce costs and ensure good crops, the incomes from MG-NREGA has come as a major boon for families, providing critical additional incomes, the mid-day meal (MDM) programme provides a good source of food for school age children (whether they actually attend classes or not is not an issue as far as access to MDM is concerned), improvement in local health centres has saved costs of health related expenditure, etc.

The challenges in the farm sector are:

- Maintaining and enhancing productivity in agriculture, given the undulating topography, especially in rainfed farms and under recurring droughts
- Evidence of increased cost of agricultural inputs compared to agricultural incomes, primarily rise in cost of fertilizers and seeds, energy for agriculture and rising agriculture wage rates
- Untimely and inadequate availability of seeds, fertilizers and pesticides

Box 3.15: Estimating the cost of cultivation

A look at the costs to be borne by a farmer:

- A bore well (estimated at a depth of between 200 to 300 feet if the farmer is lucky) with pump set, bore pipes, wiring etc. costs Rs 35,000/- to Rs 60,000/-, with no guarantee that the boring will be a success.
- Basic cost of sowing wheat over an acre of land – seed costs Rs 1,500/- per acre, hiring tractor for sowing and cultivation @ Rs 600/- per hour, total cost Rs 1,200/- per acre, fertilizer, one bag DAP @ Rs 1,380/- and Urea Rs 800/- per acre. Assuming home labour is used and there is no power cost, costs are Rs 5,500 per acre. A farmer needs to spend a third of the estimated output into just input costs.
- A serious disease costs anything from Rs 3,500/- to Rs 8,000/- per incident, wiping out whatever savings a family may have.
- A single drought year will put back a family by Rs 6,000/- to Rs 8,000/- per year, effectively putting a family into a negative cycle of input-output, at least for the next two years.

Source: Field work by HDR team

- Land disputes
- Debt burden on farmers
- Unproductive indigenous livestock, with poor livestock services, small scale livestock production
- Little scope of agro-processing activities
- Subsistence and risky mono cropping, and not utilizing the full potential of rabi crop, leaving large lands fallow
- Rising rural population pressure leading to fragmentation of land holding
- Low crop productivity in most cases, much below national and below state averages

Debt burden and farmers' suicides

There is considerable evidence of the increasing debt burden on farmers. Most of the stories from the field, talk of a debt-trap owing to rising prices of agricultural inputs, and the impact of continuous drought for five to seven years following 2002-03.

Due to scanty rainfall since 2003, and a dearth of non-farming livelihood options, apart from government relief schemes, farms have become unsustainable and more and more susceptible to natural calamities. Sustained drought has led to increasing indebtedness. What has been of concern is that in this period, institutional support from banks and government has not been forth-coming. Although the region did get the Bundelkhand Package, this was not a priority for either of the two State Governments and its results have not been as effective as they could have been, especially since individual focussed initiatives were not implemented very efficiently.

People Speak :

Farmers in village Mahuabandh in Mahoba stated that credit from Kisan Credit Cards (KCC) has been most effective in accessing cheap credit and it has eliminated the local money lenders. The current credit limits of KCC need to increase, as they are not sufficient for both agriculture and home consumption needs.

Further, banks are using local strong men ('dabang') for repayments, and farmers under financial stress have been forced to commit suicide due to such pressures.

Villagers from Barkheri Raja in Sagar said that though KCC and bank loans are good, many households still go to local sahukars (moneylenders) for consumption loans leading to indebtedness.

In both villages, asset less households get no benefit of bank loans or KCC. Bank loans have transaction costs of 5-10 percent.

Source: Field work by HDR team

People Speak :

Many Government officials and members of Civil Society Organizations in Bundelkhand claim that nearly 2,000 farmers lost have their lives in the past eight years in Bundelkhand region of UP alone. Banda district is one of the worst affected districts. More than 300 cases of suicides were reported in the District Hospital, between January and May 2011.

Conditions in MP were equally bad if not worse, so the status here may be similar.

A study on farmer suicides in Bundelkhand[12] identified that the prime causes for farmers taking such an extreme step include 'regular droughts, crop failure, scanty rains, poor irrigation facilities, burden of agricultural and private loans, damage to dignity, and worry about their families' future'. These reasons appear to be the immediate cause of the farmers' suicides in Bundelkhand. This study pointed out that banks sponsored loan recovery processes threaten farmers with loss of their possessions and social esteem, and some people, who may not be able to cope with this pressure, may commit suicide. Suicides in Bundelkhand are not caste-specific, but occur across all castes. In fact, in a society ridden with caste hierarchies, farmers belonging to the higher castes are more conscious of their social esteem, and thus more vulnerable to suicides.

Many suicides could have been avoided had banks and lending institutions followed the directives of the Reserve Bank of India which exempt mortgaging farmers' land for Kisan Credit Cards (KCC) up to Rs. 1 lakh, and permit loan recovery in instalments over 10 years. The total outstanding rural bank debt in UP-Bundelkhand in 2011 was Rs. 4,370 crores, up

[12] Verma, A.K. (2011). Farmers' Suicides and Statehood Demand in Bundelkhand. Economic and Political Weekly. Vol - XLVI No. 28.

People Speak :

Debt burden leading to death

In village, Mahua Bandh, in Jaitpur block of district Mahoba, out of the 490 households, 80 percent have taken loans using Kisan Credit Cards (KCC) in the last four to five years from the State Bank of India and the Allahabad Gramin Bank.

Continued crop failure, due to erratic rainfall has resulted in little or no agriculture income for these households. Since these farmers were unable to pay off their loans, and many of them had taken private loans as well, the debt burden became so high that it has led to the death/suicides of 32 farmers in 2010-11. The average loan amounts were as little as Rs. 30,000 to Rs. 50,000/-

Source: Field work by HDR team

by 21 percent since 2010 (Rs. 3,613 crores). In Banda, Hamirpur, Lalitpur and Jhansi alone, farmers owe banks about Rs. 2,750 crores. In the 2008-09 Union Budget, the government announced the 'Agricultural Debt Waiver and Debt Relief Scheme' to exempt the agricultural loans of marginal and small farmers holding land up to five acres. This was revised in May 2008 to cover 237 dry land districts, where farmers with more than five acres were offered a one-time settlement rebate of 25 percent, subject to their paying the balance loan amount without interest in three instalments up to 30 June 2009. Though all districts of UP-Bundelkhand figured in that list, farmers did not adequately benefit from this, owing largely to administrative reasons.

A field-based study report by CASA and Jan Kendrit Vikas Mahasamiti, UP[13], further corroborates the high level of indebtedness with an in-depth analysis of the situation on the ground and supporting data. The study was carried out in seven districts of the UP-Bundelkhand region covering eight blocks and 16 Gram Panchayats and interacted with 400 indebted families. The results of the study show that in Banda district, 200 indebted households carried a debt burden of Rs. 2 crores. Further, the study showed that 50 indebted households in Mahoba district had a loan of Rs. 73.6 lakhs. Another 608 households in Jalaun district, had a total debt of nearly Rs 2.7 crores. In Lalitpur district, 40 households were indebted with a loan of Rs. 6 lakhs. Jhansi district had 50 households reeling under a debt of Rs. 3.54 crores. Chitrakoot, on the other hand, had 50 households with a loan of Rs. 26 lakhs. The debt amount for 50 households in Hamirpur district was Rs. 1.96 lakhs.

Broad findings of the study:

- Between 60 to 80 percent of the total households were found indebted, out of which 60 percent were defaulters.
- There is an increase in the tendency to meet other expenses from the loans that are taken for agricultural purposes (expenses on health, education, food, marriage and other social customs). This is because of the low income from available livelihood sources. Rising inflation is a major contributing factor.
- Due to lack of institutional credit for consumption requirements, farmers and others go to local money-lenders and are forced to take loans at rates ranging from 5-10 percent per month, compared to rates of 3-7 percent charged by banks, annually.
- Main reasons for which loans are taken are losses in farming (including impact of drought), expenses on weddings and social functions, purchasing tractors and for animal husbandry.

Other employment opportunities

Households employed outside farm employment are only 30 percent. There is some diversity in the livelihood portfolio, and traditional occupations co-exist with

[13] "Karz se dum todta Bundelkhand ka Kisan 2011-12", CASA and Jan Kendrit Vikas Mahasamiti, Uttar Pradesh

modern opportunities, although the former are gradually declining in number. Household industries employed 7.2 percent people in 2001, but this figure has dropped to just five percent in 2011. A large number of local trades and skills have been disappearing with the loss of markets (textiles for example), a decline in the availability of necessary raw materials and/ or increasing cost of such raw materials (goods made from *sarkanda* and other grasses and wood and metal casting for example), competition from competing industrial products (pottery/ terracotta and leather making), etc. The process of these trades being replaced with new skills has been a haphazard transition, during the course of which most households have had to go through periods of extreme hardship.

In this transition, new employment sectors have not been able to emerge fast enough to absorb people looking for work, hence agriculture labour, labour, and service sector jobs are the only available opportunities. Most households pursue a mix of livelihood options to secure incomes, hedge risks, and ensure work (and income) through the year.

Mining and quarrying – high risk and hazardous employment

There is a good mineral base in the region, both major minerals and minor minerals. The important minerals of Bundelkhand are diaspore, used in the paint and ceramic industries, glass sand, rock phosphate, a variety of stones and soils, and raw materials like lime, which is used in the cement industry. Panna is the only source of diamonds in India. Lalitpur, Jhansi and Mahoba districts account for around 15 percent of the country's reserves and nearly 40 percent of the country's production of diaspore. The mineral is found and extracted in large quantities in Chhattarpur district.

Silica or glass sand extracted from vast, shallow pits in a corner of Chitrakoot (Mau Tehsil) adjoining Allahabad district, is the best source of this mineral in India. Glass sand is required by thermal power plants and glass and ceramic units across the country. Rock phosphate, found in Lalitpur, is sold as a direct fertilizer and as raw material for phosphorus plants. Across the Bundelkhand Upland sub-region, stone quarrying is widespread and has grown rapidly. Apart from possibilities that may emerge as a

Box 3.16: Stone mining – 'forced' into harmful and risky jobs

This is extremely high-risk employment, with constant injuries to life and limb. Work here includes occupational health hazards like silicosis and lung diseases, there is no risk cover provided by contractors, and almost the entire labour contract system is based on semi-bonded forms of contracting. The entrapment is based on a system of advances and physical intimidation. Most people engaged in this work are there because of loans and credit taken for personal consumption or emergency needs, and the lack of alternatives both for credit and for livelihoods.

Over the last 40 years, more than 100 families from Kumraura village have been dependent on stone mining for employment. The average daily wage is between Rs. 300-350 per day. In this region, stone mining has become a popular choice of employment, as the work runs all year round compared to other seasonal jobs, such as agriculture. However, the physical work associated with mining has led to a number of deaths and illnesses. The dust inhaled due to stone mining has led to respiratory problems for many of the workers.

The labourers working at these sites have no formal training nor are they given any protective gear. There are no first aid or medical facilities at the mining sites and in case of death; the employers/ contractors give no compensation to the family. In case of any mishaps, the police are not sympathetic to the plight of the labourers, they do not register cases nor do they record the statements of the witnesses.

Furthermore, there are no unions that have been set up for these labourers and labour is not aware of their rights and is unable to demand compensation, when required.

In Kumraura, many villagers are displeased with the functioning of MGNREGA, they claim the disbursement of money is not timely and that the amount they receive is not sufficient. There are over 250 stone crushers (no permission from the village panchayat is required for setting up a crusher) that have been established by businessmen outside Mahoba. Locals do not get permission to break stone on their own land, and the labourers used at private crushing sites are often not from Mahoba. The employment opportunity at private sites for locals is not bright.

Mining in Village Khelar, Jhansi district

Khelar, which is about 18km from the district headquarters, is a hub from hand mining (refers to mining using simple handtools) as are the nearby villages of Gopalpura and Nalayan. In these villages, mining is the main source of income. There are over 740 acres of mines in the district, with approximately 10 labourers per stone mine, and there are a 100 operative mines. The process of mining requires a great deal of dynamite blasting; as a result large stones are propelled into neighbouring areas. The villagers living near these mines are constantly under the threat of falling stones, which can severely damage personal property, life stock and even take their lives. People continue to work here due to the regularity of jobs, pressure of contractors and no alternate opportunities. MGNREGA has not been effective in providing alternate employment.

result of new explorations, there is good scope for setting up sponge iron units in Lalitpur, sourcing large reserves of low grade (between 25 to 30 percent) iron found in the district, near Girar village. Quartz reefs, a striking feature of Bundelkhand's granite country, contain several minerals which are used in the ferro-silicon, iron and steel, refractory, ceramics, electrical, abrasives and silicon-based industries.

While there are a large number of good value minerals, their sustainable exploitation with better investments from the organized sector has not taken place, except in one or two industries. In fact, mineral based industrialization could have helped in industrial growth, adding to both local value addition and to downstream activities; but this has not happened so far.

On the other hand, minor mineral mining is abundant, and has a mixed experience in Bundelkhand. There are many mining and quarrying units in stones, sand gravel, building material, etc., but these are all low investment

operations, and operate in a quasi-legal field with constant forays into the regulatory no-go zones of environmental restrictions, labour laws, mining permits, etc. In Hamirpur district, excavation of sand from the Betwa river bank is done on a large scale. Clay is mined in Chhattarpur and Panna districts.

Most of this mining and quarrying operates either illegally or in collusion with the local mafia and political bosses. The legal licensees operate on the margins, over exploiting without any adherence to environment laws, leading to environmental degradation, directly affecting water, damaging water beds, catchment areas for rivers and surface water bodies, causing air pollution, land degradation through unscientific mining/ quarrying, etc. Although they do provide an alternative opportunity for labour, but since many are not entirely legal, labour conditions are poor, and workers are operating on the margins of law. Cases of semi-bonded labour are also reported.

Manufacturing – limited, sporadic growth

One economic sector that has a major downstream and upstream impact on an area is industries/ manufacturing. The industrial base of Bundelkhand is not impressive. The only major industrial investments in the region have been BHEL in Jhansi (from 1970s) and large Birla cement in Damoh (from 1980s). The Birla Diamond Cement factory provides direct employment to over a thousand people, and is Bundelkhand's only large private industrial unit.

There is a sprinkling of small industrial units in many districts, especially in Jhansi and Sagar, but there is no strong industrial belt or conglomeration or industrial sector that has established itself here. Data is sketchy, and unsuitable for quality analysis over time and for scale of enterprises., but gives an idea of scale of employment in industrial enterprises. In 2010-12 period, Madhya Pradesh showed an employment of 48,803 persons in industrial units[14]. In UP-Bundelkhand, the year 2011-12 reported 1,29,930 people employed in industries[15].

Though industrial employment is better in UP, the employment in industrial units is not substantive. In the last three-four years, however, there has been some improvement in the level of industrialization (UP Government estimates state that and data from UP Government itself claims fresh employment between 2012-13 and 2015-16 of about 40,000 persons).

In Bundelkhand's economy, manufacturing has a share of just about ten percent (10 percent in 2009-10 and 9.8 percent in 2010-11 at 2004-05 prices). Share of manufacturing in the regional domestic product for 2010-11 was just 6.5 percent for UP-Bundelkhand and 14.1 percent for MP-Bundelkhand. As a share of their respective states, MP-Bundelkhand had a share of 10.1 percent of the state's income from manufacturing (2010-11) while its population share was 12 percent, and UP-Bundelkhand's share was 2.5 percent while its population share was 5 percent[16]. The only districts that have some recognizable manufacturing activity were Jhansi in UP, and Damoh, Sagar and Panna in MP.

This weak industrial base reflects the endowment related and socio-cultural issues that seem to dominate Bundelkhand. Historically, Bundelkhand, being a region of principalities, and a region which played a significant role in the Revolt of 1857 or the First War of Independence, was never introduced to the modern economic investments that the British brought to British India. Of course, in the regions ruled by kingdoms, they were too small to be able to make such investments. Beginning

[14] Note from Infrastructure Development Section, GoUP
[15] Aoudhogik Vikas, Pragati Samichha (2009-10 to 2011-12), GoUP
[16] *Source:* MP Economic Survey 2012-13, Directorate of Economics and Statistics, GOMP and UP Directorate of Economics and Statistics (data sheets made available for Bundelkhand HDR separately). The population data is from Census 2011.

from a poor base, even after the formation of MP and UP, while industrial promotion from the State Governments has been seen by way of industrial estates and some road infrastructure, not much private investment has taken place. We do see moderate annual industrial growth, with new industries and new employment being created, though this is inadequate to change the livelihood and economic profile of the region.

The region has not seen any major industrial or infrastructure investment over the years, inspite of being home to Khajuraho and a city like Jhansi, private investors have been somewhat reluctant to invest here, since competing zones are more attractive (like Kanpur, Gwalior, NCR Delhi, etc). The other factor that has been discouraging for investors is the reputation of the area in terms of law and order and investment security. Adjacency to the Chambal region, known for its dacoits and crimes, tales of the folklore about Bundelkhand and its valour, co-existing with feudal control and powerful feudatories, has not helped in building up investor confidence.

Local surplus generated from agriculture, or tourism or other activities is normally put to use in either procuring more land and land-based assets, since feudal control and prestige flows from ownership of land, or it is invested by the people of this region in safer areas. This desire to expand the land base has kept investments in other productive sectors low.

Industrial entrepreneurism in the region will need better access to infrastructure, especially in air and rail connections (better highway infrastructure is being built) and a change in the perception of the region from being on the fringes of the rule of law to one of peace and economic progress; an idea that will need aggressive State promotion.

Services Sector - little or no growth in recent years

The third, the services sector commands a large share of the regions' income, but it is not growing in creating more jobs, nor is it growing in any substantial manner in its share of the region's income. The tertiary sector has had a share of 45 percent in income for the last 10 to 12 years, and has grown to 48.7 percent in the last three to four years[17]. Very little data is available on what these jobs are, but evidence from field studies shows that some of the employment in the tertiary sector has been in education, government jobs, small repairs and small manufacturing, tourism and travel related services (such as hotels, *dhabas*, roadside catering, transport services) and support activities in quarrying.

The non-agricultural employment in 2011 in Bundelkhand was just 30 percent, of which only 5 percent was in household based manufacturing (down from 7.2 percent in 2001), or what is termed as the traditional sector, including artisans, handlooms, handicrafts, etc. This decline is a nationwide trend, but unlike in other parts of India, the new jobs in Bundelkhand are not in 'other' industries or in the services sector, but only marginal absorption in the category of 'others'. A stagnant employment share shows a lack of opportunities for diversification, and lack of any dynamism in any new or emerging sector that can absorb the region's work seekers.

Non-farm Sector Livelihoods – some examples

In Sagar and Damoh the *bidi* industry, which gives employment to a large number of people is important. It is estimated that nearly 2,00,000 people are employed in this region in *bidi*-making. The industry is facing some distress due to the WHO led anti-tobacco campaign.

Other occupations related with traditional occupations that had a presence in Bundelkhand included pottery/ terracotta, metal making, artisan based paintings and painting work, skilled crafts, and stone making etc., but all these have declined or stagnated. They exist in niche markets or in the small spaces that the local economy provides for local craft-based services like pottery, blacksmithy, carpentry, etc.

The non-farm sector has hardly grown in Bundelkhand. Experience from elsewhere in India has shown that agricultural prosperity helps to promote non-farm employment[18]. Since agriculture itself is largely at a subsistence level, and there are limited new initiatives in agriculture, there are no pull factors for non-farm growth. Local entrepreneurship is lacking and the lack of urban growth, lack of industrial investments and dynamic trading zones are responsible for low growth of rural non-farm employment.

The factors that have led to a stagnant non-farm sector are:

- Poor industrial spread
- Few emerging livelihood sectors
- Shutting down of traditional livelihood occupations due to low profitability and limited market
- Lack of adequate non-farm employment and alternate sources of livelihood, locally
- Lack of entrepreneurial skill development

[17] *Source:* Data for income from manufacturing is from MP Economic Survey 2012-13, Directorate of Economics and Statistics, GOMP and UP Directorate of Economics and Statistics (data sheets made available for Bundelkhand HDR separately).
[18] As seen in Western UP, Punjab, Haryana. Lanjouw, P. & Murgai, R. (2009). Poverty Decline, Agricultural Wages, And Non-Farm Employment In Rural India: 1983-2004. The World Bank - Policy Research Working Paper 4858. Available at https://openknowledge.worldbank.org/bitstream/handle/10986/4054/WPS4858.pdf?sequence=1
Mukhopadhyay, A.K., D. Gangopadhyay & Saswati Nayak. (2008). Non-farm occupation in rural India. Available at http://www.nistads.res.in/indiasnt2008/t6rural/t6rur2.htm
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Haggblade, S., Hazell, P.B.R. & Reardon, T. (2009). Transforming the rural non farm economy. IFPRI Issue Brief 58. Available at http://www.ifpri.org/sites/default/files/publications/ib58.pdf

- Lack of basic assets, machinery and upgraded technology
- Lack of economic support, especially credit
- Lack of access to markets

Tourism – untapped potential

The tourism industry has been on the margins of 'take-off', in this region, for a long while now. This region has outstanding tourism sites, starting from the world famous Khajuraho temples[19], Jhansi, the town of Rani of Jhansi with its palaces, Orchha with its many palaces and natural beauty, the religious circuit of Chitrakoot, the National Park at Panna and the length and breadth of Bundelkhand which is dotted with a number of forts. Perhaps no other region in India has so many forts and palaces; and places of natural beauty in such a compact area. While some of these forts have been converted to hotels, there is a huge potential that remains untouched.

The region does not have easy connectivity with major tourist hubs like Delhi, Mumbai, and other big cities and air connectivity has been uncertain and limited. The infrastructure required to turn a region into a tourist hub that attracts tourists, both Indian and international, on a sustained basis over a longer period requires planned tourist-related activities and services, which are absent in Bundelkhand. On the other side, religious tourism, for example in Chitrakoot, is organized largely by small hotels with basic facilities (*dharmashalas*), and caters to religious travellers, without promoting any tourism and/ or entertainment aspect. This is an area that needs to be developed, so as to attract a larger number of visitors (especially those with larger spending capacity) and for a longer length of time.

Migration – on the long road

Team Speak :

During fieldwork for the HDR, the Team visited 60 villages in the first phase. Of these there were only six or seven villages, where there was no migration. Everywhere else there were many families who had migrated.

Migration to distant states and cities is a feature of modern day Bundelkhand. Lack of opportunities at home, and better remuneration elsewhere has made migration a regular feature, and people migrate both alone, or with their spouse or even with the entire family for long periods of time.

Depletion of once rich natural resources of the region and fragile farming due to frequent natural calamities - droughts, floods, hailstorms, etc. in the past few years has forced the people of Bundelkhand to migrate in search of income opportunities. It is not that migration is a new phenomenon. Until 2000, labourers and small farmers used to migrate for two to three months, during the non-agriculture season but this was largely limited to nearby cities and towns. It is when Bundelkhand region faced its longest and severest drought in recent years that this situation changed dramatically. As drought hit agriculture and consequently farmers and labourers, migration became an essential 'survival option'.

The period from 2007-08 to 2011-12 has seen a large amount of 'distress migration'. People often, at least in the initial years of this mass phenomenon, went to places unaware of the possible employment, kind of employment and wage rates at the destination. The primary cause of migration was failure of agriculture, low prevailing agriculture wages and water

[19] The temples of Khajuraho are listed on UNESCO's World Heritage list.

People Speak :

In conversations with people across Bundelkhand, except for the central plain's regions, and in Jhansi city, they spoke of what happened during the periods of 'mass migration'.

Located centrally in Bundelkhand with a good transport network, Chhattarpur district's bus stand reportedly observed a daily traffic of between 8,000 to 10,000 people migrating to Delhi, Punjab, Haryana, Western Uttar Pradesh, Gujarat and other locations.

Similarly, the passenger trains between Chitrakoot and Jhansi were crowded with people migrating, identified by the people or families carrying their 'necessities'. The severity may be judged from the fact that many already indebted families had to borrow Rs. 10,000 to Rs.15, 000 at an interest rate as high as 5 to 6 percent, per month, from the local money-lender.

In the last two to three years migration has come down, though scanty rainfall in 2013 may have led to another wave of migration.

About 15 to 20 percent of the families in the villages are still migrating. The form of migration has changed from forced migration of all adult members to willing migration and only adult males seeking seasonal and casual employment opportunities for six to eight months of the year.

Frequency of migration was lower in Jhansi, Jalaun and Sagar, due to the availability of alternate livelihood opportunities compared to other districts of Bundelkhand.

stress. In few cases, there has been permanent migration, as families have sold off all their assets, including land and livestock, to raise money and in other cases families are so deprived that there is nothing to come back to. Most of the migrating families belong to landless labourers and marginal farmers. Among the social groups, SC and ST communities tend to migrate the most[20]. The people who are left behind – the aged, the women and the children face distressing living conditions.

Why people migrate

The main causes of migration are poverty, marginal or no land holding, low and non-assured irrigation facilities, uneconomic returns from agriculture due to small land holdings, below average returns from farming (Rs 15,000 to Rs 20,000 per year), reduced demand for agriculture labour during drought, very few alternate employment opportunities, and attraction of higher earnings elsewhere. Another reason articulated by many is that debt-ridden families do not want their children to continue to suffer in villages with poor assets, especially land. In these families, the elderly even encourage the young ones to opt for better livelihood choices at distant places. Lack of interest of younger family members in continuing agriculture is another reason for migration. For the agriculture labour classes, migration is an alternate occupation adding to family income. It is mainly due to the low wage opportunities that exist after the harvesting of the *kharif* and *rabi* crops. Further, the role of MGNREGA in providing an effective alternative to migration was not encouraging in Bundelkhand. Non-availability of work when required, inadequate work opportunities, low and untimely payments compared to market rates were some of the major problems in the implementation of MGNREGA in Bundelkhand.

Migration by upper caste families also takes place but the reasons are entirely different. It is a conscious choice, often for higher education

[20] Arya, Y.B. (2010). Overcoming Poverty and Hunger in Bundelkhand. Available at http://www.scribd.com/doc/73664372/Overcoming-Poverty-and-Hunger-in-Bundelkhand#scribd
Narain, S. & Singh, S. (2012). Rural migration from Bundelkhand zone of Uttar Pradesh. Available at http://agropedia.iitk.ac.in/content/rural-migration-bundelkhand-zone-uttar-pradesh-dr-sarju-narain

or better employment opportunities and a better life.

Where do they migrate to

People usually migrate to places like Delhi, Punjab, Haryana, Gujarat (Surat and Ahmedabad). Within MP, popular destinations are Gwalior, Bhopal, Jabalpur, Bina and Indore and in UP, it is Jhansi, Agra, Kanpur and Lucknow. Migration is mostly seasonal varying from four to six months (March to June) or eight to ten months (August to May) in years of drought.

Migrants usually undertake non- agriculture labour work, construction work, work in factories, usually unskilled and semi-skilled work. Wage-earnings largely depend on the nature of work. The skilled workers like raj *mistry* and *mistry* earn about Rs. 500-600 per day, semi-skilled workers get Rs. 200-300 per day,

People Speak :

Why they go; where they go

Lajjawati, a resident of Gohana Village, Tikamgarh district migrates to Agra, along with her husband and children in search of livelihood. In Agra, a female labourer earns Rs.150 while a male labourer earns Rs. 250. The money she and her husband earn is used to pay for the children's education, paying off loans, clothes, running the household, etc. In Agra, they live in a hut provided by the company. Lajjawati has been able to pay off most of the loan taken from a local money-lender, and she says she has escaped not only an unproductive life but the indignity and the pressure and power of the local landlords.

Raj Choudhary, a skilled labourer migrates to Haryana from Padheri village, Panna district, with his wife in search of work. He leaves his children behind under the care of his elderly parents, because they live in a rented accommodation in Haryana and rent money is uncertain. Raj earns about Rs. 350 per day, while his wife works as a labourer and earns between Rs. 200-250 per day, compared to the Rs.100-125 remuneration she would get in the village, if she found work. They own about half an acre of land in the village but it is barren and uncultivable and hence the need to migrate to earn a living. They own a buffalo, a bull and a calf in the village. A dam is being constructed, about 2 kms from their village under the Bundelkhand Package but the village is yet to receive any benefit from its construction. Raj has been able to take care of basic needs of his family, and says that had he not migrated, he would not have been able to survive on his half acre of land, especially through the drought years.

In Chhattarpur district, seasonal migration is common. Eighty percent of the people migrating for work are Dalits. Seventy percent of the people migrate to Delhi, Haryana and Punjab for work, 10-15 percent migrate to Gujarat and Mumbai, and the remaining to Kanpur and Jhansi. There is a village in Chhattarpur district that has not witnessed any death or birth in the past many years, as the majority of the village has migrated to other places for work and they only visit during festivals. Some farmers sow a crop on their land and migrate for work and return for the harvesting. A skilled worker can earn as much as Rs. 600-800 a day in Delhi as compared to Rs.250 in the village.

In Banda (Chilheta), one family that has migrated to Agra migrated solely because they were bonded labour of the local land lord for the last 60 years. Migration has helped them by providing better earnings and a life of dignity and they can live without fear. They had recently returned to meet their relatives, far away from their parent village.

Another family from Chitrakoot used to migrate to Allahabad, earning between Rs 35-50 per day in tasks like construction and labour in factories. However, due to a minor irrigation project, which has brought water to their lands, they have stopped migrating for the last three to four years.

Source: Field work by HDR team

while unskilled workers earns Rs. 100-150 per day. Women migrant workers are usually paid a lower per day wage, than men, since they are considered to be supporting male members and sharing their work.

Impact of migration

The Impact of migration is different for the two sets of people - those who are left behind and for those who are migrating.

Impact on those left behind:

- Insecure living options for those who are left behind, particularly the aged, women and children. Most of them are incapable of undertaking gainful employment and have to depend largely on the remittances sent by those who have migrated.
- Education of children suffers the most, due to the absence of guidance and lack of attention. Most of the children end up working part-time or full time to make ends meet and help the meagre family finances.
- Health care of aged and children is largely unattended owing to poor economic conditions.
- The families are highly vulnerable to caste and gender-related discrimination that is common in rural India.

Box 3.17: Migration by Scheduled Castes and Scheduled Tribes in Bundelkhand

A study on the migration patterns of SC and ST households establishes that seasonal migration is a significant though not the primary source of income for SC/ST households. The income helps them cushion a range of routine expenses, and, to some extent, it enables them to improve their living standards or accumulate capital.

However, the migrants do not possess marketable education or skills, and face harsh terms and conditions of employment. The overwhelming majority of migrating households report significant non-monetary costs that they have to incur. The migrants are not in a position to exercise any choice over the place or kind of employment.

The significant net income that they earn is linked to the rapid construction activity, particularly in the Delhi-Agra-Mathura circuit. If there is a slump in this activity, the rate of migration is likely to drop, in terms of migrating households and/or number of migrating members per household.

Hence, at least in case of SC/ST households, seasonal migration is no substitute for overall improvement in the rural economy, to ensure higher returns from agriculture, and more wage-labour and business opportunities in and around the village.

Another long-term requirement is ensuring that children get good-quality and complete school education, so that even if they are forced to migrate (or they choose to do so), they will be in a better bargaining position than their parents in the urban employment market.

Source: Excerpts from "Study of SC/ST households doing regular/ seasonal migration", in Block Tikamgarh, District-Tikamgarh (MP), Akhil Bhartiya Samaj Sewa Sansthan (ABSSS), Chitrakoot, March 2013

Migrating families- the long road

Those left behind - the old and the young

An elderly person who has been left behind

Locked houses of those who have migrated

Table 3.6: Migration patterns and wage differentials in some districts of Bundelkhand 2012-13

District	Gram	Season for migration	Reason for migration	Earnings in the village and place of migration
Sagar	Dhanora	July-August to December-January	- Lack of work under MGNREGA - Insufficient agricultural income - Availability of work in the cities	Village – Rs. 100-125 Other place – Rs. 250-300
Damoh	Sanga	From March-May for 3 to 4 months	- Lack of work under MGNREGA - Remuneration under MGNREGA is not paid on time	Village – Rs. 70-80 Other place – Rs. 150-200
Damoh	Pateliya Maal	During summer for 4 to 5 months	- Lack of work in the village - Farm land is not available for farming	Village – Rs. 70-80 Other place – Rs. 150-200
Panna	Padheri	From March-May for 6 to 8 months	- Lack of livelihood options in the village - Lack of irrigation facilities for farming	Village – Rs. 100-125 Other place – Rs. 200-250
Chattarpur	Gathora	From summer to monsoon (3 to 4 months)	- Lack of irrigation facilities for marginal farmers - Sufficient work is not available under MGNREGA - Work under MGNREGA is not remunerated correctly	Village – Rs. 100-150 Other place – Rs. 200-250

Source: Field work by HDR Team

Impact on those who have migrated -

- Lives are insecure owing to uncertainties pertaining to gainful employment options, availability, work period, timely payment, and the tension of sending money to family members back home regularly, in order to meet their expenses or repay the money-lenders loan.
- In the absence of availability of basic amenities like housing, drinking water and sanitation, migrants live in unhygienic conditions.
- Migrants find it difficult to manage inflation and high living costs in urban centres. They are forced to cut down all possible expenses, sometimes even proper nutrition to save money.
- High risk of health-hazards due to living in unhygienic conditions and non-scheduled working hours.
- Not able to avail of benefits of government programmes in the absence of proper documentation at the place of migration.

Livelihood Concerns

The economy of Bundelkhand is stagnating, fuelled by environmental stress and lack of adequate pull factors in the economy, and livelihood options are limited.

The key livelihood sources in the Bundelkhand region are –

Source of Income	Details
Main	Agriculture and agriculture labour
Secondary	Seasonal Migration Traditional occupations- *bidi* making, bamboo craft, etc, Non-agriculture labour- labour work in mines and construction work Some local industries, including heavy industries, State sponsored Mining related labour and support services
Supplementary	Horticulture, livestock rearing, fisheries and NTFP collection from forest, petty trading, small repairs and manufacturing, local tourism related services

Economic Stagnation:

Causes	Implications
Lack of sustainable livelihood	Limited and low levels of income
Limited employment opportunities	High poverty levels
Non-remunerative agriculture	Seasonal and temporary migration
Lack of alternate non-farm employment	Rising indebtedness and cases of farmers' suicides
Lack of industrial spread and slow urbanization	Child labour and bonded labour, exploitation of women and girls

The key livelihood concerns for Bundelkhand are -

- Low returns and therefore the shutting down of traditional occupations

Decline in traditional occupations has been primarily a result of cheaper and sometimes more durable machine-manufactured competing products. However, the scope of their transformation and growth, inspite of such competition could have come from diversification in their products, using new and cost-effective techniques and raw materials and application of skills to new utilities, but this has not happened due to lack of institutional support and poor promotion. The needed interventions to enable access to technology, tools, training, access to raw materials and market needs have not been successful. Today, a few people with traditional skills remain and there is an opportunity (drawing from such successes within India and elsewhere) to create niche market products, with market -oriented specialist firms to infuse new life into this sector.

Environmentally sustainable products, use of organic inputs, creative designs and looks, and high level of skill in decoration and design are helping to revitalize similar occupations elsewhere in the country and in other parts of the world.

- Lack of alternate livelihoods in the non-farm sector is a key challenge

The rural belt of Bundelkhand does not provide many alternate employment opportunities. It is surprising that with such a large number of national highways and tourism potential, the kind and scale of supporting services that could have emerged in the region, have not. The answer could be in the combination of lack of entrepreneurial talent, due to a suppressed economic atmosphere and reluctant promotional bodies/ institutions, including banks. Agriculture prosperity is one of the main promoters of the rural non-farm sector. Since agriculture has progressed only in some zones, even that pull factor has not encouraged this set of economic activities.

- Poor industrial spread, thus poor opportunities, both in industry and in the associated jobs that industrialization and enhanced economic activity bring with it.

- Services sector has not been able to absorb the educated unemployed. There were about 3.7 lakh people registered on the Employment Exchange Live Registers for Bundelkhand in 2010-11 (2.2 lakhs for MP-Bundelkhand and 1.5 lakhs for UP-Bundelkhand[21])

This is the most urgent need of the region. Only such alternate employment can infuse funds to bring people out of poverty, generate adequate surplus, so as to enable people to get out of survival-level agriculture, and motivate people with initiative to invest in their land. There is no alternative but to promote manufacturing and this can happen in the already rudimentary clusters around Jhansi, Sagar, Damoh and along the national highways.

The industrial spread is very poor and apart from the establishment of BHEL in Jhansi and the unit by Birla in Damoh, no other significant industrial development has come up. Setting up industrial areas, preferential tax zones, etc. by themselves have not spurned industrial investment. This can be best served by a combination of infrastructure like roads, rail connectivity, power availability, adequate water and so on, but while much of these are available, State Governments on either side have not been able to promoted Bundelkhand as a preferred destination for investors. The recent conclaves by both MP and UP Governments singled out many areas for promotion, but the Bundelkhand districts were always 'add on' zones[22].

The issues that will need to be addressed are – expanding inner region connectivity, strengthening the law and order situation, and the diminishing the control of local feudatories over land, labour and administration.

The other issue would be training of skilled labour for modern urban needs, through scaled-up training institutes, which cater to modern equipment and their needs of repair, upgradation, and even to local manufacturing.

- Poor connectivity has further limited access to opportunities

While there is a national highway and railway connectivity, limited local road connectivity has hampered growth. This is the responsibility of the State Governments, and the inter region connectivity, especially linking of the tourism zones, is a must.

[21] *Source:* Employment Exchange of MP and Employment Exchange of UP.
[22] A UP Investor Conclave was held in New Delhi in June 2014. MP Global Investors Summit was held in Indore in October 2014.

4

Human capabilities – Education, Health and Nutrition

Chapter 4

The ability to read, write and comprehend, to have access to knowledge and information makes people more empowered and independent in society. Education gives people the ability to negotiate their environment and to attain skills and knowledge that enables them to seek jobs, work in the system, become productive and meaningful to others. It enables people to demand their rights and entitlements and to be heard. Similarly, people need, an able, healthy body and a long life. They need to be free from disease to be able to work and discharge their responsibilities. Health and long life is determined by how healthy their mothers were while bearing them, how safe the deliveries were, how well-nourished and strengthened they were as infants, how protected from disease and ailments, how nourished and healthy in their growing years, how free from hunger, discrimination, abuse, and how secure life was (and is) in their adolescence, their adulthood and their old age, and how timely, effective, accessible and affordable has the preventive and curative health service been.

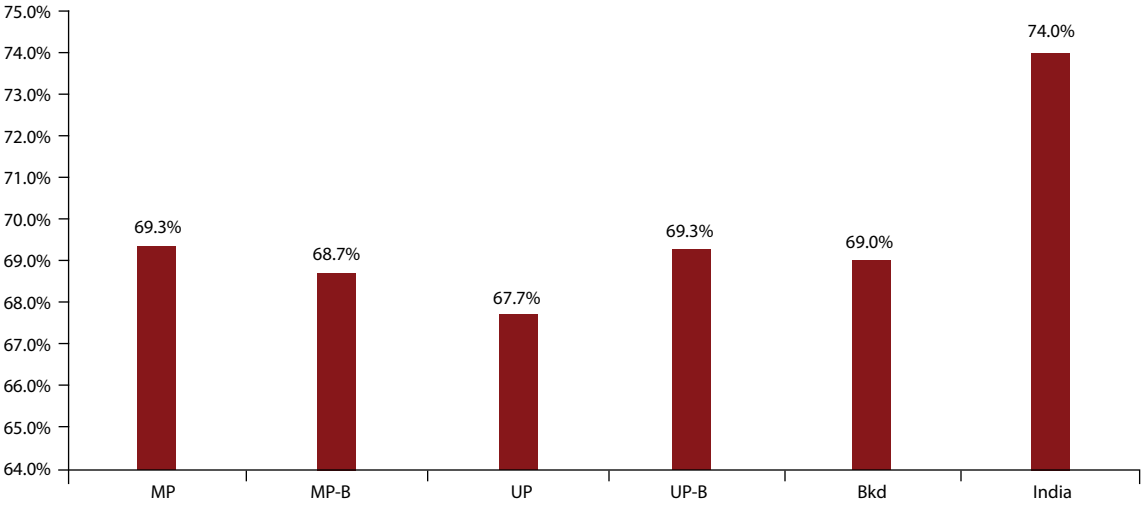
It is equally important that people get a good education, good health, nourishment, a free and safe environment to be born in, to grow and to age in, whether they have economic resources or not, whether they are girls or boys, whether they belong to the elite and rich strata or to the most disadvantaged and poor households, whether they belong to the majority community or to the minority community or to marginalized groups.

These essential elements for human development are discussed in this chapter, broken down into measurable and tangible components; educational attainments and some other parameters for measuring human development, such as availability of health facilities and health indicators, levels of nourishment, etc. in an attempt to see how the people of Bundelkhand fare.

i) Education and skills

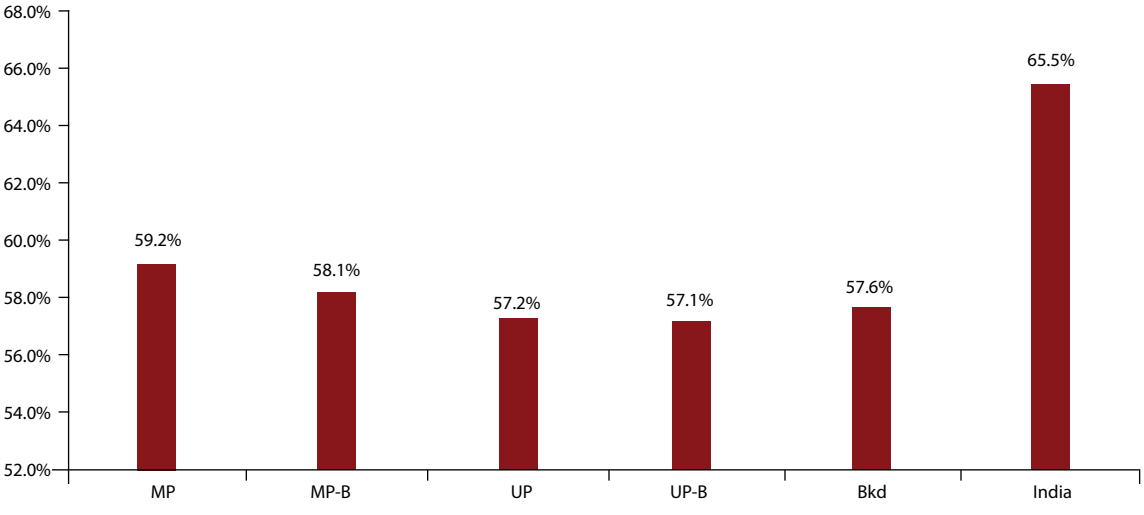
Literacy levels in Bundelkhand are very low, and the Census 2011[1] stated the overall literacy rate as 69 percent, and the literacy rate for women as only 57.6 percent.

Figure 4.1: Literacy rate, 2011



Source: Census 2011

Figure 4.2: Female literacy rate, 2011



Source: Census 2011

[1] Estimates of literacy in India are usually drawn from the Census counts, where any person with the ability to write their own name and read it, is counted as 'literate'. The Census literacy rate is thus a crude measure of literacy, and refers to the population, aged seven years and above, that is able to do basic reading and writing, as a percentage of total population aged seven years and above.

Table 4.1: Literacy rate in districts of Bundelkhand, 2011

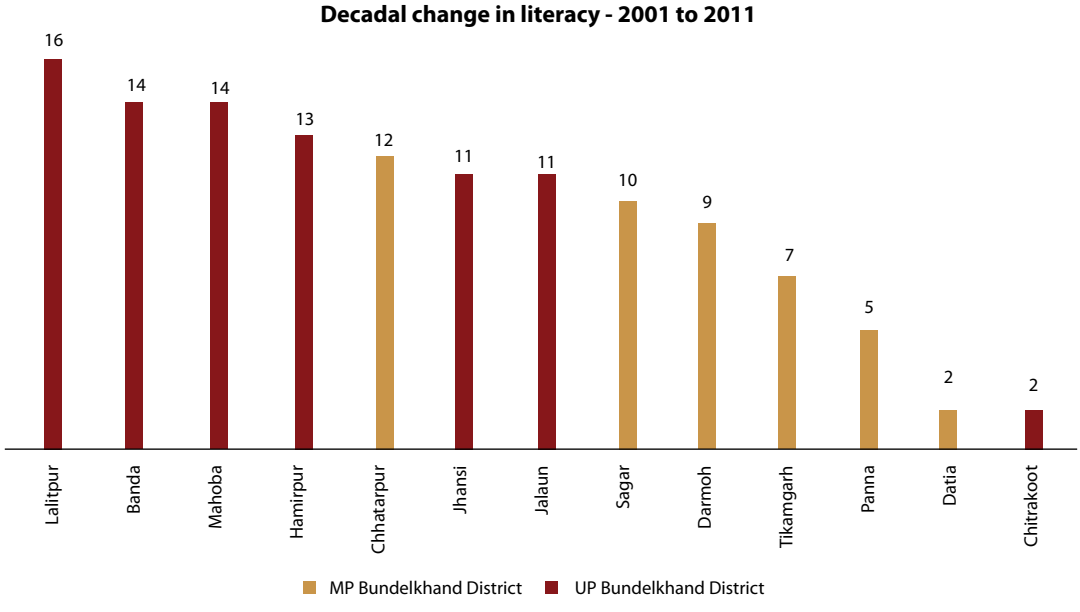
Districts	Literacy rate	Female literacy rate	Male literacy rate
Madhya Pradesh	**70.6%**	**60.0%**	**80.5%**
Sagar	76.5%	67.0%	84.8%
Datia	72.6%	59.4%	84.2%
Damoh	69.7%	59.2%	79.3%
Panna	64.8%	54.4%	74.1%
Chhatarpur	63.7%	53.6%	72.7%
Tikamgarh	61.4%	50.0%	71.8%
Uttar Pradesh	**67.7%**	**57.2%**	**77.3%**
Jhansi	75.1%	63.5%	85.4%
Jalaun	73.7%	62.5%	83.5%
Hamirpur	68.8%	55.9%	79.8%
Banda	66.7%	53.7%	77.8%
Mahoba	65.3%	53.1%	76.0%
Chitrakoot	65.0%	52.7%	75.8%
Lalitpur	63.5%	50.8%	75.0%

Source: Primary Census Abstract, MP and UP, 2011

Only four of the 13 districts had a literacy rate higher than 70 percent. Female literacy rate did not reach the 70 percent mark in any district, and only in three districts, was the female literacy rate over 60 percent. This shows that vast regions in Bundelkhand have a very poor educational status rendering them weak for human progress drawn on education and knowledge.

Lack of even basic literacy, further exacerbates social concerns such as a strong feudal culture,

Figure 4.3: Decadal change in literacy, Bundelkhand districts



Source: Census 2001 and 2011

characterized by skewed ownership of land and capital, upper caste dominance, gender discrimination and active social and economic discrimination against many marginalized social groups. Lack of literacy and education prevents organization against exploitation and discrimination, and reduces the ability of people and groups to break out of their condition.

Enrolment in schools appears to have been universalized, both by increasing availability of schools at the primary level, and by Government campaigns, that make it virtually impossible for children to remain out of school. Government campaigns have succeeded in giving a better sense of value to school education. However, actual attendance, quality of teaching, retention up to class VIII, or Class X or Class XII, and the quality of learning and comprehension leaves much to be desired. While much of this data is not available at the district level, the findings of the surveys done by the Annual Status of Education Report (henceforth ASER) on achievements for the rural regions of the two states gives us a picture for rural Bundelkhand as well, as it is unlikely to be performing any better than the state average.

Regarding enrolment, Government data, puts it at full enrolment, even more than 100 percent for classes till the upper primary level. The above 100 percent enrolment can be for a number of reasons of double counting and enumeration, but it indicates a near full enrolment. In recent years, the state of MP has undertaken an aggressive education-focussed public initiative with the Education Guarantee Scheme that has led to quick access to schools and growth in literacy. The Sarva Shiksha Abhiyan (SSA) or Education for All (EFA) campaign and the Right to Education Act (RTE) have all helped in this regard. Corresponding state action has ensured the availability of a school for every child. Initiatives in both UP and MP, like giving bicycles to girl students have also worked.

Table 4.2: Enrolment in School, 2010-11

State/District	NER (Primary)	NER (Upper Primary)
Madhya Pradesh	**99.25**	**71.5**
Chhatarpur	100.0	73.3
Damoh	100.0	74.5
Datia	100.0	82.1
Panna	100.0	70.1
Sagar	99.3	74.9
Tikamgarh	100.0	77.1
Uttar Pradesh	**94.2**	**47.1**
Banda	100.0	64.1
Chitrakoot	100.0	81.0
Hamirpur	94.2	64.6
Jalaun	98.3	66.8
Jhansi	95.8	71.3
Lalitpur	100.0	77.2
Mahoba	100.0	72.3

Source: DISE 2011-12

Table 4.3: Drop-out rates after Class V (2011-12)

Region/ Area	Drop Out rate
Madhya Pradesh	**8.3**
Chhatarpur	5.5
Damoh	6.0
Datia	3.5
Panna	7.4
Sagar	3.6
Tikamgarh	11.5
Uttar Pradesh	**11.9**
Banda	4.8
Chitrakoot	10.6
Hamirpur	4.8
Jalaun	6.9
Jhansi	10.3
Lalitpur	2.8
Mahoba	8.1

Source: DISE 2011-12

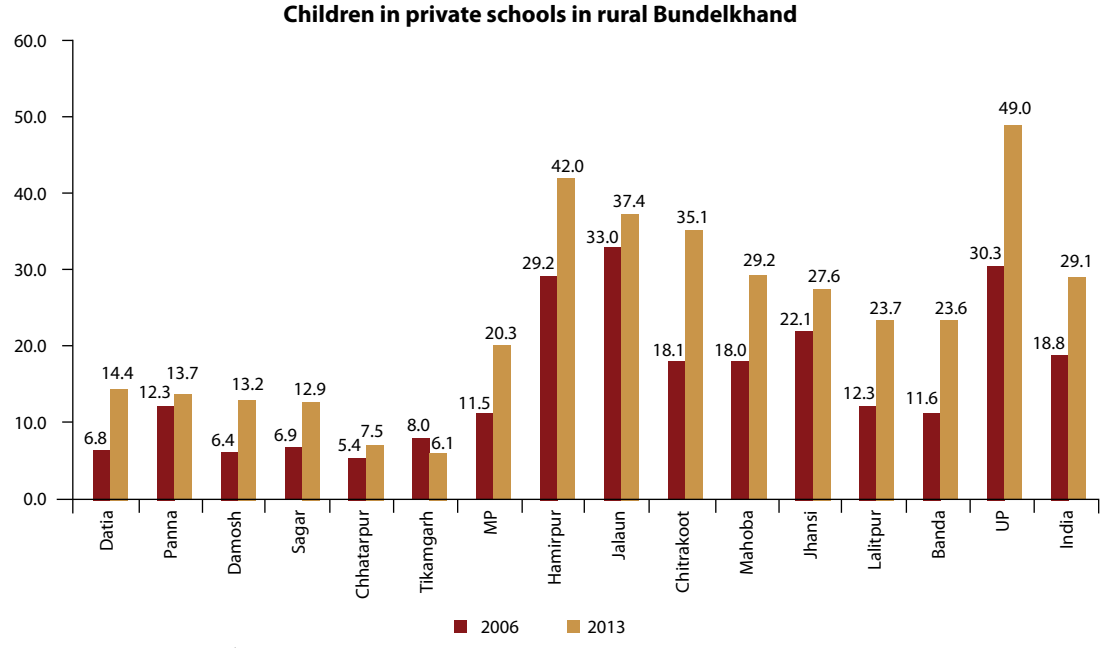
Full enrolment in schools up to upper primary level is now achieved, but the problem starts in the higher classes. Drop-out rates become significant by Class V. Drop-outs range between 4 to 12 percent in MP-Bundelkhand, and between 3 to 11 percent in UP-Bundelkhand, with the lowest drop-out rate in Lalitpur. Since enrolment and retention figures are administrative figures rather than 'output' oriented, the actual drop-outs rates may be somewhat worse than these, and school administrations in the States must remain vigilant about this possibility.

Choice of school – private or public

Which are the schools that the children are actually going to – public schools or private schools? This is a reflection on the quality, perceived or real, of public schools. The nationally conducted ASER survey gives us a very good picture of the type of schools

children in rural Bundelkhand are going to. As Figure 4.4 shows a very large percentage of children (varying between 23 to 42 percent in different districts) in the rural regions of UP-Bundelkhand go to private schools. In MP-Bundelkhand the figure is much lower (ranging between 8 to 14 percent in different districts). In both states, the number of children going to private schools has been increasing, except in Tikamgarh district, where it has declined in 2013. In Bundelkhand, however, the tendency to seek private schooling is less than the average for UP or MP.

Figure 4.4: Proportion of children in private schools, 2006 and 2013



Source : ASER Surveys, 2006 and 2013

Box 4.1: Of schools and schooling

In primary/elementary classes, due to the easy access to schools, people send children to schools willingly, including girl children.

In the school in Karari Khurd village, in Datia, there is no water supply and no electricity. There are no toilets for boys or girls, and only two teachers were present, although three teachers were sanctioned for the school. There is no security for girls, which leads to girls dropping-out of school as they grow older.

The school in Dhanwaha village, in Tikamgarh district, can only be reached by swimming across the local river in the rainy season, hence attendance in the monsoon is almost zero. The toilet in the school is permanently locked. Since the high school is far away, most children, especially girls leave school after middle level (usually when they are between 14 and 16 years of age). Girls are usually married off, two to three years after they leave school.

The mid day meal is given regularly, but the prescribed menu is never followed. (Mid day meals cooked by self-help groups of women are usually appreciated.)

Source: Field Survey by HDR Team

What are the reasons for a 10 to 15 percent increase in children going to private schools, in many districts in the entire region (especially in rural UP), in the last seven years? One reason for accessing private schools could be the general assessment of parents that private schools are better for their wards than public schools, the other reason could be the non-availability of adequate public schools. The point on non-availability of public schools must be qualified – it is non-availability of perceived quality public schools and this perception arises from delivery of educational services, infrastructure, attitude of school management and biases related with socially integrated schools.

The encouraging sign is that even though private schools are more expensive, parents do not mind spending the extra money for better education for their children.

School Infrastructure

Under the SSA programmes and RTE Act provisioning, considerable investments have taken place in infrastructure for schools. Despite this investment, facilities like electricity in schools and toilets for girls are lacking, as evident in Table 4.4. The condition of school buildings, as observed during the field visits by the HDR Team left much to be desired. Many schools did not even have an approach road from the very villages they serve, or connectivity to any of the local district roads or to major rural roads.

In 2011-12, 11 percent of schools in Bundelkhand were single-teacher schools, and 70 percent of schools did not have access to electricity. The MP Government, has claimed large-scale electrification of the state itself, but has not been able to provide electricity to 81.5 percent of the schools in the Bundelkhand region of the state.

Table 4.4: Infrastructure in Schools, 2011-12

As (%) of total

State/District	Single teacher schools	Schools with toilet for girls	Schools with Safe Drinking Water (SDW)	Schools with electricity	Schools with computers
Madhya Pradesh	**14.9**	**76.3**	**98.0**	**22.5**	**11.0**
Chhatarpur	11.6	86.5	99.5	23.6	11.6
Damoh	11.9	82.1	100.0	16.5	10.1
Datia	10.9	97.8	99.7	22.6	13.2
Panna	16.6	83.1	99.9	15.4	8.4
Sagar	14.0	97.0	100.0	20.0	9.9
Tikamgarh	9.0	95.2	100.0	13.9	6.4
MP-Bundelkhand	**12.3**	**89.1**	**99.8**	**18.5**	**9.7**
Uttar Pradesh	**9.0**	**81.3**	**98.5**	**34.8**	**7.5**
Banda	9.4	94.9	98.9	23.9	4.0
Chitrakoot	11.2	79.2	98.6	32.8	6.9
Hamirpur	3.8	94.5	97.7	35.1	11.9
Jalaun	20.7	73.7	95.1	38.3	3.8
Jhansi	4.8	99.7	98.4	65.2	12.6
Lalitpur	8.1	98.4	96.8	35.1	9.3
Mahoba	6.2	99.6	98.3	57.6	8.0
UP-Bundelkhand	**9.8**	**90.7**	**97.6**	**41.0**	**7.9**
Bundelkhand	**11.0**	**89.9**	**98.7**	**29.8**	**8.8**
India	**8.3**	**72.2**	**94.4**	**47.1**	**20.5**

Source: DISE 2011-12

Levels of Learning

Only about 60 percent of the children in Standard I and II can recognize letters/ words or basic numerals (1-9). Standard III to V seem to be built upon very poor foundations, and only two in every five children could read a Standard I text-book and only one out of every four children could do subtraction. The children in the districts in UP seemed to have better learning standards than those in MP, especially in Standard III to V.

There is no doubt that sustained campaigns by both the State and the Central Government and innovative measures including need-based and construction from local material and traditions, made after consultations with stake-holders, has led to better enrolment and greater retention. Better infrastructure, which includes not just buildings but crucial supporting assets

People Speak :

- Parents worry about the safety of girls in schools without boundary walls or fencing, classrooms without doors and schools with very few teachers.
- The lack of female teachers worries many parents.
- Parents said that if girls have to travel over three to four kilometres to reach school, then they would prefer not to risk sending their girls to school.

Table 4.5: Learning levels in Classes I-II and III to V in Bundelkhand, 2012

State/District	% of children (Std I and II) who can read letters, words or more	% of children (Std I and II) who can recognize numbers (1- 9) or more	% of children (Std III to V) who can read a Std I level text or more	% of children (Std III to V) who can do subtraction or more
MP	**65.0**	**63.5**	**39.3**	**23.1**
Chhattarpur	54.0	52.3	37.5	26.6
Damoh	64.6	65.6	30.9	13.9
Datia	47.3	47.9	20.6	13.9
Panna	56.6	48.1	38.2	29.0
Sagar	70.7	70.4	29.4	8.6
Tikamgarh	59.7	61.4	38.7	24.7
MP-Bundelkhand	**60.3**	**59.2**	**33.4**	**19.1**
UP	**57.5**	**62.9**	**44.8**	**29.2**
Banda	49.8	50.2	31.5	20.7
Chitrakoot	67.4	63.6	40.0	23.5
Hamirpur	61.4	68.6	44.7	30.3
Jalaun	75.4	76.1	52.3	39.5
Jhansi	68.2	76.5	39.4	31.0
Lalitpur	59.1	51.1	28.0	13.4
Mahoba	55.5	61.8	38.2	33.8
UP-Bundelkhand	**62.6**	**64.1**	**38.9**	**27.3**
Bundelkhand	**61.4**	**61.7**	**36.1**	**23.2**

Source: ASER 2012; district performance and analysis by HDR Team

like toilets, administrative rooms, water, power supply, etc. and better teacher recruitment have made a difference. Both UP and MP have done equally well in this regard. Field reports suggest that the midday meal programme (MDMP) is well appreciated and is very effective in many places. A number of schools had operational and active information boards displaying important and relevant information for students and parents and such information also pertained to social programmes, government initiatives and health and sanitation programmes and socially relevant messages, etc. Field visits, and discussions with parents and teachers still point towards gaps existing in schooling and in infrastructure, inspite of all these achievements. In addition, there is the question of teaching quality, the impact of which is obvious from the dismal learner achievements that the ASER report has highlighted.

While infrastructure is improving, the gaps observed and pointed out by stakeholders include services like toilets and drinking water, electricity, seating arrangements, quality of blackboards, boundary walls for security and adequate playgrounds, which in many schools are still not up to the mark. The quality ranges from being just adequate to not being there.. These services impact the environmental conditions for teaching and learning. Within the overall data adequacy like pupil-teacher

People Speak :

Basod families in village Hingti in Sagar said: 'Our children are not allowed to attend the school along with other children. Our children face discrimination in mid-day meals; which are served to them last and separately. In the local aanganwadi, the person-in-charge makes our children sit separately, in a corner.'

In village Natpurva, in Jhansi, children of Dalit families are given food separately in schools. In aanganwadis, they are not given medicines. When they ask for medicines, the medicines are not administered by the person in-charge, but are given to the parents who are told to administer them to the children.

Dalit children in Gudahkala village, in Banda, have stopped going to school due to the discrimination that they face.

Teacher Speak :

- Attendance is very poor, and children work on farms and at home.
- Parents are not very interested beyond enrolment, especially with girl children, thus parental support is lacking.
- Poverty and frequent migration affect children's studies.
- Poor sanitation is common around most schools.
- There are too many non-teaching responsibilities, and too much paper work to complete for the teachers.
- Teachers are often given subjects to teach that is not their expertise.
- Small classrooms make teaching difficult.
- Inadequate availability of support infrastructure and teaching aids/ tools.

ratio, adequate sanctioned posts, and number of female teachers, many schools do not meet the standards (see Box 4.1 and 4.2).

As evident from the examples in Box 4.2, at the school level, every school suffers from some gap that affects the imparting of quality education and its absorption by children. The large-scale effort over the years in building a value to education, in creating an enthusiasm in parents and in society towards educating their children, needs to be matched by school-wise adherence to basic norms. The battle for ensuring that each child 'learns' can be comprehensively won only after that.

The social divide

Discrimination is observed in some schools in Bundelkhand, and local and district level education administrators are aware of it. While teachers sometimes collaborate in this or remain mute spectators, there does not appear to be any serious effort to change this attitude and practice. This discrimination is of course primarily in dealing with children from Scheduled Castes, and to a lesser extent with children from Scheduled Tribes. But even within the SCs, castes that are in smaller numbers are dispersed geographically, and those that have not seen political empowerment are the worst hit.

The forms of discrimination most prominently witnessed are[2]:

- Separate seating arrangements for children of the upper castes and backward castes from the Scheduled Castes
- Less attention paid to teaching SC children, compared to other children
- Mid day meals are given separately to SC children
- When Government sponsored teaching aids are issued, SC children are given the least priority, and whenever there is a shortage, they are the first to be denied the aids.

[2] These have emerged from observations in village schools during field visits by the HDR Team. Direct observations of physical layouts, seating, teaching process, and discussions with teachers, school administrators, students, and parents were documented by the Sanket HDR team during field visits in the region..

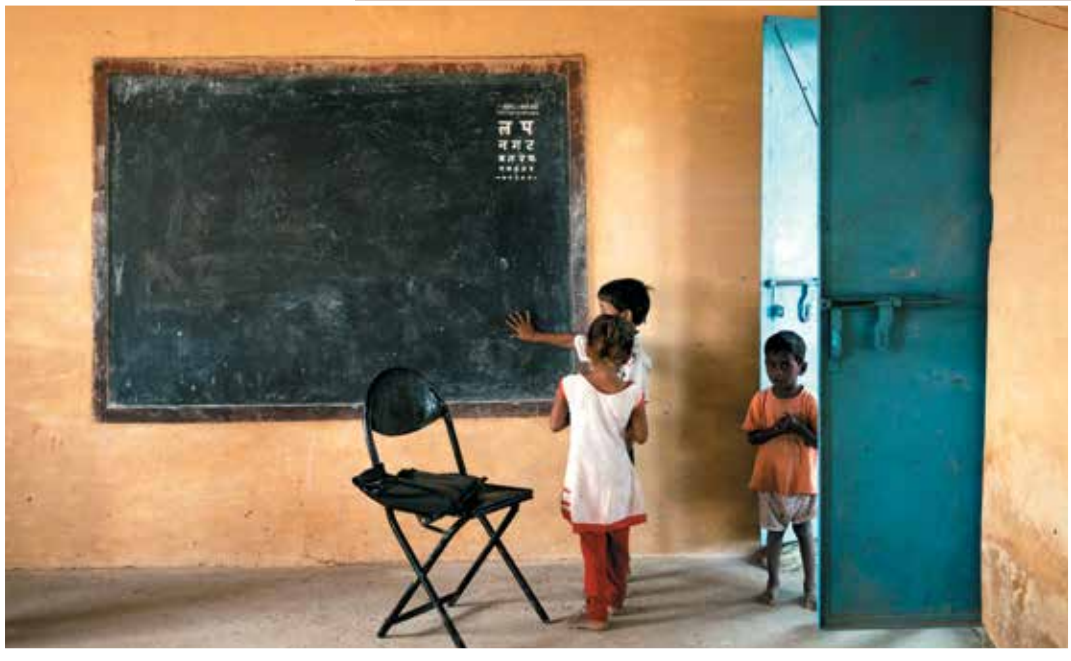
Box 4.2: School stories – the ground reality

In one school, in Datia, there were 35 children to a class room, in another school, in Jhansi, there were 75 children to a class room. In Dalpatpur (Middle School), in Datia, toilets were available and functional, and the toilets in the middle school in Ghurat, Jhansi, had a Sintex tank to ensure that the toilets worked. On the other hand, in two other schools in Deri (Primary School), Chhatarpur, and in Kabrai (Primary School), Mahoba, while there were toilets, the lack of water made them non-functional. On paper, all four schools have been recorded as having toilet facilities.

As for the pupil-teacher ratio, in a school in Chilheta village in Banda, there were 53 students and one sanctioned teacher, and in Chandelitar village, in Hamirpur, there were 72 students to one teacher. Similarly, while the school in Deri, Chhatarpur, had 17 students to one teacher, Ghurat in Jhansi, had 32 students to one teacher, and the ratio was 45 students to one teacher in Dalpatpur, in Datia, and there were 77 students to one teacher, in Bara, in Mahoba.

Source: Field Survey by HDR team

There are many instances where SC children have remained on enrolment registers, but have gradually withdrawn from schools. Due to such discrimination in school, challenges of poverty at home, the need to engage children in labour at home or in supporting family livelihoods, and occasional migration, the immediate value of schooling for children has been reduced. Since this discrimination is almost institutionalized, is known to exist and yet is not altered, there seems to be no way out, except concerted and focussed action by the State Governments to intervene forcefully and systematically.



The key issues in education are:

- Educationally, Bundelkhand is a backward region. Institutionally, while facilities have come up, basic literacy is low, and achievement levels in schools do not match the standard in the two parent states.

- Culturally, education does not get high priority in households, primarily because there is a feeling that education does not impact livelihoods, and people seem to prefer skill-based education rather than just basic education.

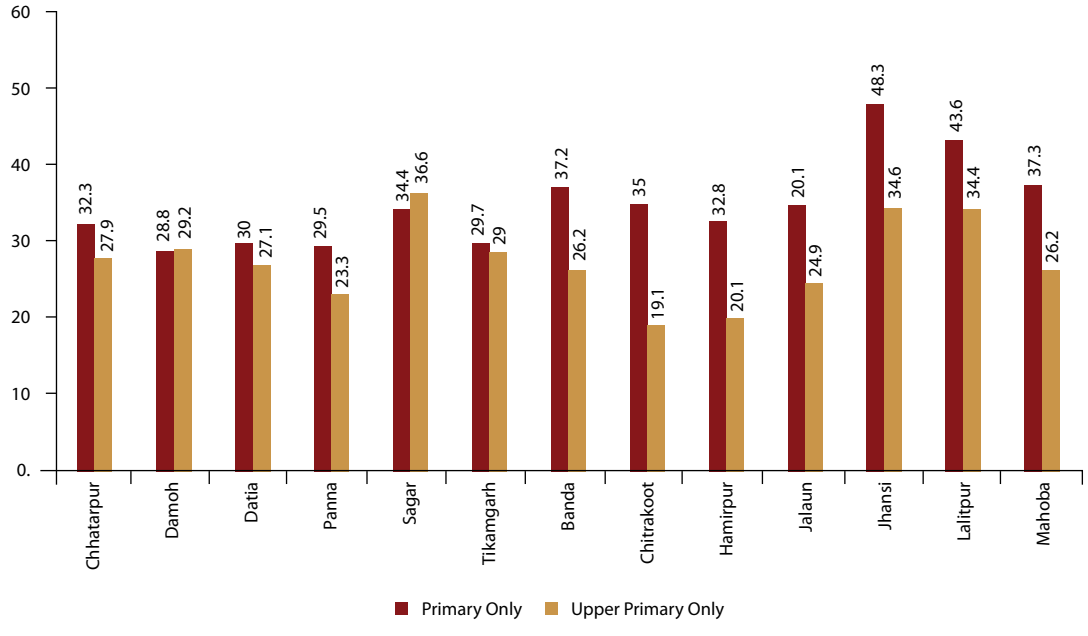
- There is a large gender gap in literacy levels and in access to school for school-going children. Girls are not encouraged to attend school, but the enrolment numbers do not reflect these biases due to RTE provisions, which make it impossible for any teacher/ education authority to report out-of -school children. Girls do enrol but miss out on regular school attendance and participation.

- There is social discrimination, though school authorities may deny this. Field evidence throughout Bundelkhand shows that children of SC and ST communities, especially the former, are discriminated against.

- More female teachers are required, especially to encourage girl students to attend school. Data on female teachers (Figure 4.5) shows that female teachers are less than 50 percent of all teachers, in all the districts. Besides, most female teachers tend to be posted in and around urban centres, and therefore the situation in the rural schools is likely to be much worse. In a predominantly feudal rural society, schools with primarily male teachers are not likely to be seen as being 'safe' and would in fact discourage attendance by girls.

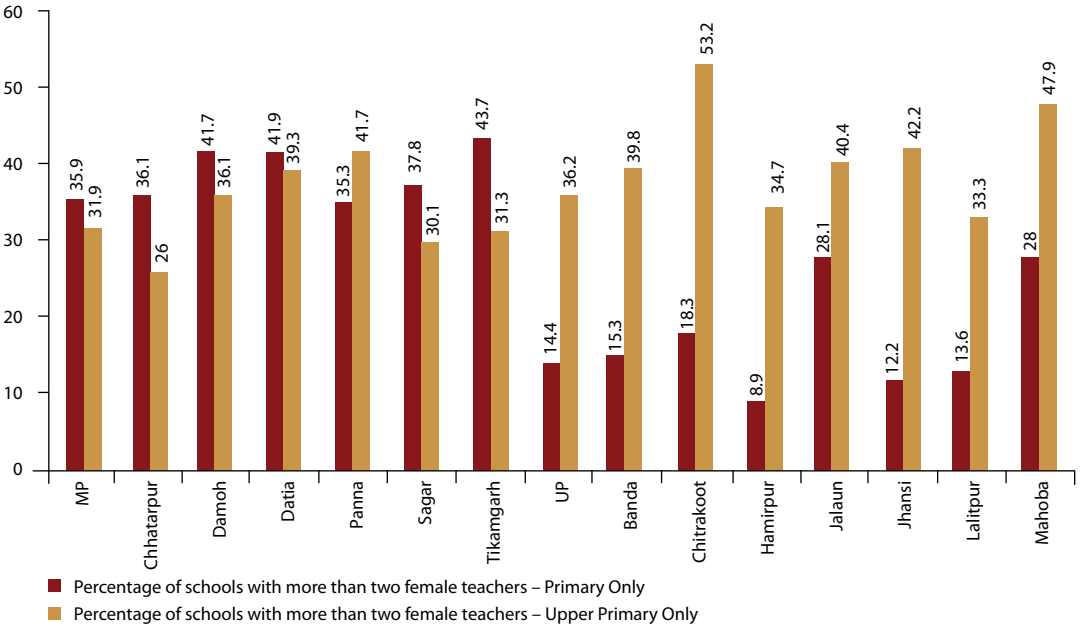
- While primary and other lower schools are adequate in number, secondary schools are not available in or near every habitation, and

Figure 4.5: Percentage of female teachers in schools, in Bundelkhand



Source: DISE 2011-12

Figure 4.6: Percentage of schools in Bundelkhand with more than two female teachers



Source: DISE 2011-12

girls find it difficult to continue secondary school education in Bundelkhand. Very few parents like to send their girl children to schools that are far away.

- The poor quality of school education leads to lack of attendance and a casual attitude to school. This is further accentuated by poverty and discrimination.

A leaky roof, in a newly constructed school, lowers the attendance in Middle School especially during the rainy season

Picture - Village: Karari Khurd of district/block: Datia

- School education does not provide any training for jobs/ skills, which the labour market requires.
- The MDM programme is very popular, and has had a positive impact on promoting attendance and retention in schools.

In the absence of a proper approach road, a teacher wades through water to reach school
Picture – Village: Gudhakala, block: Narayani, district - Banda

Low attendance - Total student strength - 83, Students in school- 30
Picture – Village: Karari Khurd, district and block- Datia

Students leave school at mid day and play around
Picture – Village: Mahuabandh, block: Jaitpur district: Mahoba

Higher Education

There are two universities in Bundelkhand, the Bundelkhand University in Jhansi and the Harisingh Gaur University in Sagar. Both these Universities have developed well, and the Sagar University has a tradition of academic rigour and institutional strength. Both Universities offer a variety of courses, although there have been some questions raised about the general quality of higher education in UP and MP, today. In addition, there is a medical college, in Jhansi.

In addition to the two Universities, the region has 175 degree colleges, of which 75 percent are in UP. In MP-Bundelkhand, there is a college for a population of 211,061 people, whereas in UP-Bundelkhand each degree college caters to a population of 72,250 people (see Table 4.6). There is a shortage of institutions that provide post-school education such as degree colleges. In India, on the whole, there is a degree college for every 46,672 people, while in Bundelkhand the average number of people served by a college is 104,772, more than twice the all-India figure. College and university-level education provide a launching platform to students to achieve their aspirations, of further studies, of better-paying jobs, of migrating to seek better earning opportunities, and help to develop a core of educated people in a region, which in itself builds both social and economic capital.

Private higher education facilities have been coming up in recent years, following the opening up of this sector for private investment. Jhansi is emerging as a regional centre for private education, and some of the other

Table 4.6: Institutions of Higher Education in Bundelkhand, 2011

State/District	Degree College	University	Population served per College
Madhya Pradesh	**328**	**20**	**221,423**
Chhatarpur	7	0	251,768
Damoh	5	0	252,844
Datia	4	0	196,689
Panna	8	0	127,065
Sagar	11	1	216,223
Tikamgarh	6	0	240,861
MP- Bundelkhand	**41**	**1**	**211,061**
Uttar Pradesh	**3,553**	**30**	**56,238**
Banda	20	0	89,971
Chitrakoot	12	0	82,644
Hamirpur	14	0	78,877
Jalaun	44	0	38,409
Jhansi	27	1	74,022
Lalitpur	7	0	174,513
Mahoba	10	0	87,596
UP- Bundelkhand	**134**	**1**	**72,250**
Bundelkhand	**175**	**2**	**104,772**
India (2010-11)	**25,938**	**436**	**46,672**

Source: Statistical Abstract, Uttar Pradesh, 2012, MP Statistics in Brief, 2012, Economic Survey of India, 2012-13

Table 4.7: Skill Training Institutions, 2011-12

	ITIs	Polytechnics	Population (in lakhs) covered by ITI/ Polytechnics
MP	331	65	11.2
MP-Bundelkhand	32	9	9.6
UP	260	100	20.0
UP-Bundelkhand	25	11	8.8
Bundelkhand	57	20	9.2

Source: Annual Administrative Report – Department of Technical Education, Govt. of MP, Statistical Abstract, Govt. of UP

cities too have seen some growth in this area. These private institutions have, to some extent, absorbed the demand for higher education, especially in the technical courses.

Skill-building

Across Bundelkhand, young people are looking for educational opportunities and modern skills, that will enable them to get better remuneration within Bundelkhand and to join the economic growth centres of Delhi, Indore, Mumbai, Kanpur, Allahabad, and so on. There was one ITI/ polytechnic for every 9,20,000 people in Bundelkhand (see Table 4.7). Usually, a district has between three to five ITIs and one to two polytechnics. This number is very small compared to the huge demand for skilled people in the industry and services sector and in comparison with the large number of young people, eager for skill-based training. The demand in the region would be met only if these institutes are increased. The Skill Development Mission of Government of India must be sourced to fill the skill training gaps of Bundelkhand on a priority basis.

However, providing the infrastructure for higher education and the acquisition of education and skills is not enough. The main aspiration of young people is for a Government job, or a job in the city, and while most prefer local work, mobility does not seem to be a major constraint. There is a realization; in both girls and boys, that good quality education is the key to their dreams, hence higher education or skill based education should cater to the aspirations of young people and bring them on part with the job needs of larger cities and economic sectors.

The region has a huge pent-up demand for education, especially for job-oriented education. Although this cannot become the sole objective of any higher education strategy, yet skill enhancement and employability should be part of the higher education that is being imparted.

There are many opportunities in agriculture, in food processing, in the development of rural technology, in repair and transport maintenance, in transport services, in tourism services, in construction and building maintenance (both modern and archaeological buildings), in water structure maintenance, in language skills for tourism, etc. all of which require an adequately trained work- force.

Box 4.3: Efforts in Higher/ Technical Education in UP

The Department of Technical Education has established several technical and higher education institutions in all the districts of Bundelkhand, with a view to ensure homogenous development of technical education in the region. Some of these institutions in the diploma and degree sectors are as follows:

1. **Bundelkhand Institute of Engineering and Technology, Jhansi:** One of the most prestigious degree-level institutions of the region, it provides teaching and training in various branches of technology. It is affiliated to the Dr APJ Abdul Kalam Technical University, Uttar Pradesh. The institute boasts of high-quality labs and adequate teaching and non-teaching staff. The institute has contributed significantly to the technical education of the students in the region.
2. **State Engineering College, Banda:** The institution was established under the special component sub-plan. Modern labs with the latest machines and equipment have been established for the purpose of teaching-learning. In addition, financial support from the State Government is being continuously used to fulfill the requirements of equipment, and furniture. A permanent director has already been appointed. While adhoc teaching and non-teaching staff has been appointed, the recruitment process for permanent staff is underway. This college is also affiliated to Dr APJ Abdul Kalam Technical University, Uttar Pradesh. With the establishment of this college, adequate seats are now available for graduate level education for students in UP Bundelkhand region.
3. **Institutes established in the Diploma Sector:** At present, UP Bundelkhand region has a total of 14 state polytechnics/women polytechnics, with two in each district. These are sufficient to meet the existing demand. Besides this, with the announcement by the Uttar Pradesh Government, the process for the establishment of a State Polytechnic in Mahoba has already started. Land has been made available for the same and the task has already been designated to an implementing agency. A budget of Rs 585.40 lakh has also been allocated for the polytechnic. The construction work is expected to begin soon.

Source: Note from Department of Technical Education, GoUP

ii) Longevity, Healthy Living and Nutrition

Human development focusses on longevity, as a measure of a healthy, long life. It advocates a life with the absence of disease, no debility, no physical and mental disorders and any other factor that can reduce a person's well-being, happiness and quality of life. Good health, nourished and able bodies, able and productive people, and the absence of disease (both episodic and chronic) give people a quality of life and a sense of well-being and helps them to remain economically productive.

Bundelkhand confronts a number of issues in health, nourishment, sanitation, provision of health services (preventive and curative) as well as in awareness and practices affecting health. The region has low health outcomes, and within Bundelkhand, there is a disparity in the status of health between the region in UP and the region in MP. The Infant and Child Mortality rates show a worrying picture, indicating not just weak reproductive and child health care, but as the IMR indicates, a poor health system as well. Malnourishment is so high that one in every two children is malnourished.

A poor health status is further worsened due to poor service quality of health delivery, especially in rural Bundelkhand. Village after village shows evidence of a non-functional rural health system, hard working but inadequate *aanganwadi* services, gradual expansion and impact of immunization and institutional delivery hampered by a lack of connectivity

and quality institutional care in Primary Health Centres (PHC) and city hospitals. Government nutrition programmes leave much to be desired. Availability of safe drinking water and basic sanitation, early child care and health care awareness remain inadequate. The population is left with the risk of diseases that thrive on malnourished bodies, insanitary conditions, poor practices and poor infrastructure, and medical care that is often inadequate and usually too late in coming.

Private medical care fills the gap of unavailable and untimely public health services, covering the range from private clinics and hospitals to *jhola*[3] doctors and even faith healers. Though it is very clear that people prefer allopathic care to other forms of healing, and they prefer Government health centres to other clinics and hospitals, the inadequate quality of services leaves people no choice but to opt for the available decentralized private health providers and other systems of healing, including faith healers.

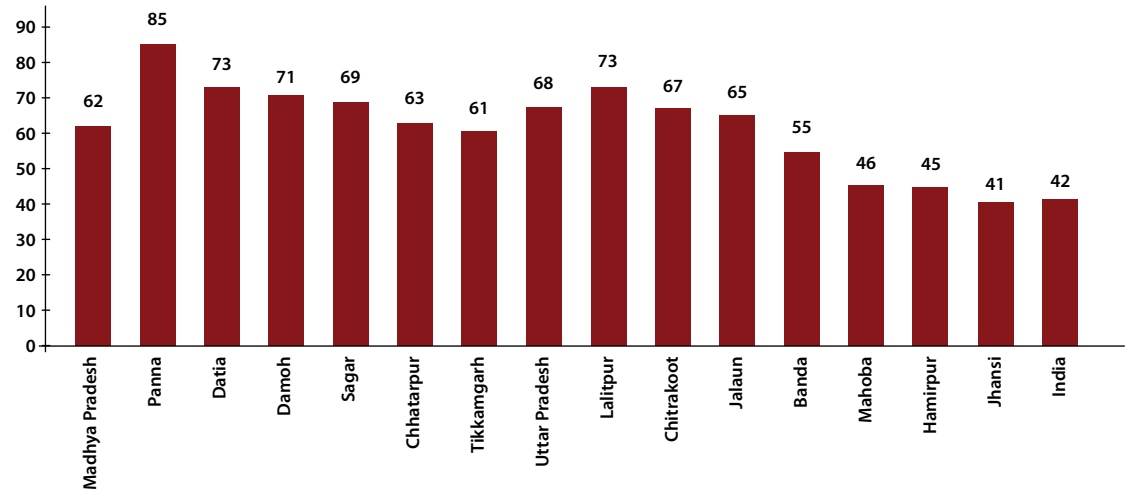
Mortality in children and their mothers

The IMR in Bundelkhand places this region amongst the poorest performing regions in India, in particular the districts of MP. While the State of MP itself has amongst the poorest health indicators, the indicators in the Bundelkhand districts are even lower than the average for the State, with the IMR ranging from 61 to as high as 85, per 100,000 live births (2012-13). In contrast, districts in UP, have lower IMRs, except Chitrakoot, Lalitpur and Jalaun whose IMRs are equally high, matching those of the MP region. The corresponding child mortality indicators are equally poor.

The trends in Child Mortality Rate (CMR) are similar, although the gap between the worst performing districts in the two states, narrows down considerably (IMR was 85 in Panna compared to 73 in Lalitpur, CMR was 127 in Panna and CMR in Chitrakoot was 119). However, the gap between the best performing districts in the two states (79 in Chhattarpur (MP) and 59 in Jhansi (UP)) continued to be high.

This dismal picture of very high IMR and CMR can only be the result of certain flaws in basic health care – pre and post natal care of mothers, infant care, immunization, nourishment, condition of programmes like Integrated Child Development Services (ICDS), supplementary food and Vitamin A programmes, and poor sanitation facilities.

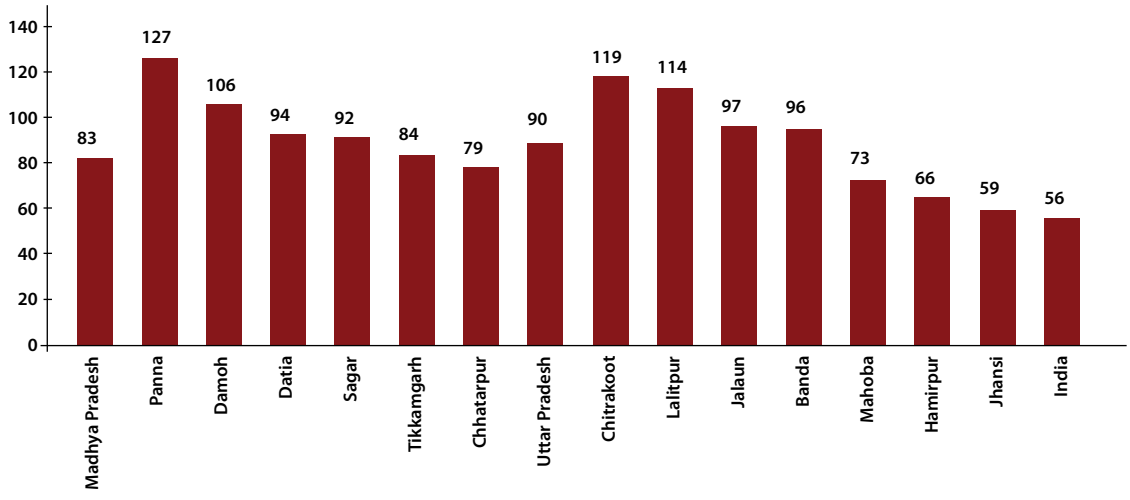
Figure 4.7: Infant Mortality Rate 2012-13



Source: Annual Health Survey 2012-13

[3] The 'jhola chaap' doctors are usually unqualified and unlicensed doctors, who operate in the villages where medical facilities are often inadequate or unavailable.

Figure 4.8: Child Mortality Rate 2012-13



Source: Annual Health Survey 2012-13

Jhansi, with the largest city area in the region has the best health indicators, which is likely to be the result of better education and economic levels, and better access to health facilities, both government and private. The other two districts that perform better than the rest of Bundelkhand are Hamirpur and Mahoba, both in proximity to Jhansi district, and seem to have the advantage of access to health facilities of Jhansi and a better economic and educational profile.

The Maternal Mortality Rate (MMR) of the region is very high. Even after concerted efforts to reduce maternal mortality, the MMR in Bundelkhand remains high, and four districts in Sagar division and four districts in Chitrakoot Dham division (under which MMRs have been assessed) have extremely high rates, between 50 to 70 percent higher than the national average (see Table 4.8).

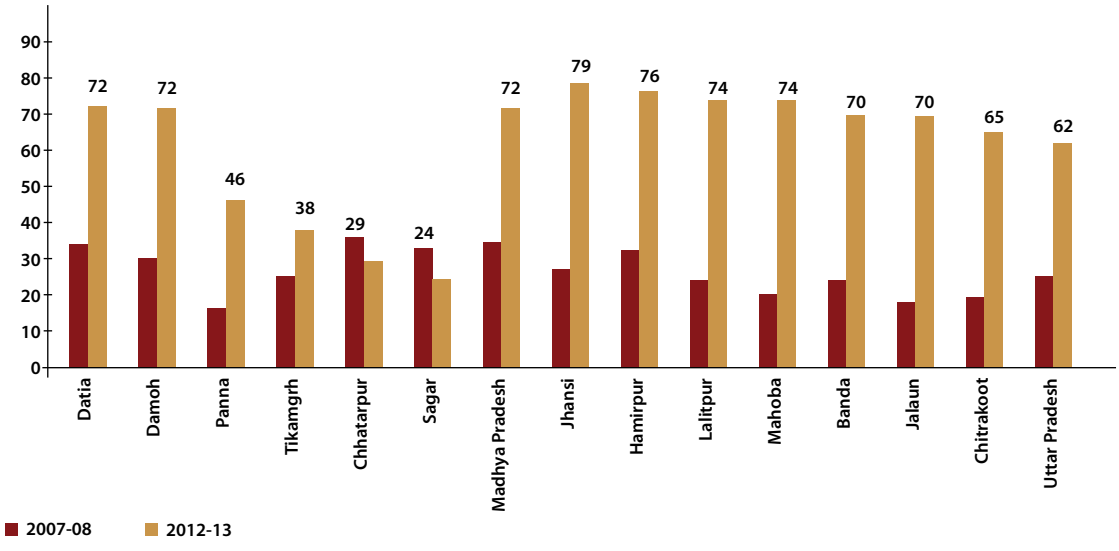
Table 4.8: Maternal Mortality Ratio (MMR) - declining but still high

State / District	2010-11	2011-12	2012-13
Madhya Pradesh	**310**	**277**	**227**
Sagar Division (Tikamgarh, Chhatarpur, Panna, Sagar, Damoh)	397	386	322
Gwalior Division (Gwalior, Datia, Shivpuri, Guna)	262	202	181
Uttar Pradesh	**345**	**300**	**258**
Jhansi Mandal (Jalaun, Jhansi, Lalitpur)	241	207	233
Chitrakoot dham Mandal (Hamirpur, Mahoba, Banda, Chitrakoot)	306	287	283
India	**178 (2010-12)**	**167 (2011-13)**	**NA**

Source: Annual Health Surveys, 2010-11, 2011-12, 2012-13 and Vital Statistics, Registrar General of India, 2010-12, 2011-13

Even in 2012-13, the percentage of pregnant women (aged 15-49 years) who were registered for ante-natal check-ups (ANC) was not above 80 percent, in any district and in many districts the figure was even below 50 percent. MP performs particularly poorly on this front. Among the mothers registered for ANC, only 80 to 90 percent utilize the check-ups properly, 15 to 20 percent did not receive the Tetanus Toxide (TT) injections and the percentage of pregnant women taking Iron and Folic Acid (IFA) tablets is dismal, ranging from 10 to 15 percent, almost everywhere.

Figure 4.9: Percentage of pregnant women registered for ANC



Source: DLHS 2007-08 and Annual Health Survey 2012-13

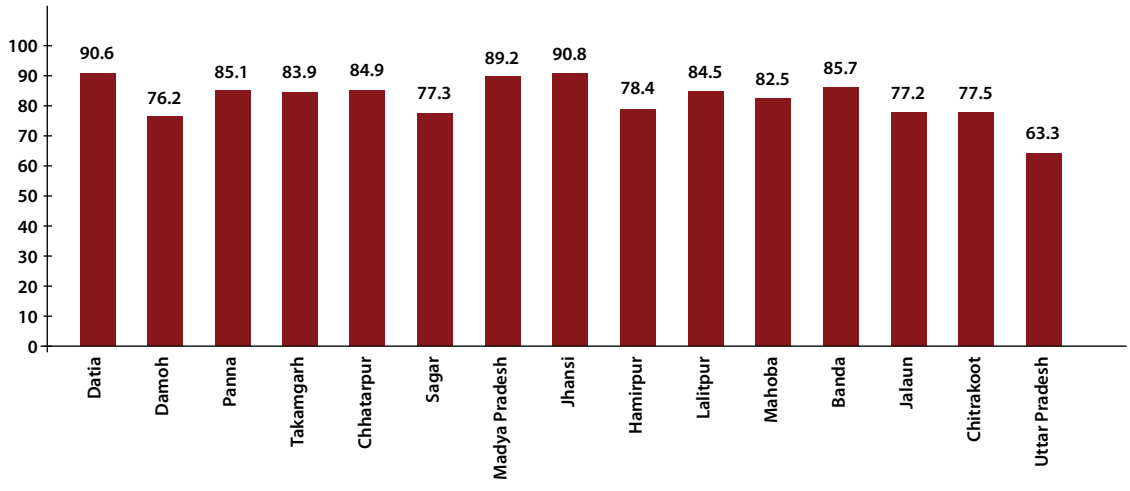
Reproductive and Child Health

Safety and health of mothers and new-borns depends largely on where and under what type of care the delivery takes place. Attempts are being made to increase institutional deliveries and safe deliveries (which are deliveries done at health institutions, or if at home, in the presence and management of skilled health personnel). In both cases, heath personnel try to ensure that both mother and child survive the delivery well, and adequate care is taken to reduce the risk of infection or other complications to the mother and/or child, post delivery. Safe deliveries varied between 87 percent (Datia and Banda) to below 75 percent in some districts (Jalaun and Damoh). Only Jhansi had over 90 percent safe deliveries. In most districts, over 20 percent of mothers and children were exposed to risks during child-birth and continue to face risks thereafter. There are ICDS centres, Auxiliary Nurses Midwives (ANMs), ASHA (Accredited Social Health Activists) workers, Sub Health Centres, and various campaigns for institutional or supervised deliveries. Under these programmes, every pregnant woman is supposed to be identified, tagged in the records and her growth monitored and assisted through nutritional supplements, iron folic tablets, check ups, etc., but even though all this is being done, yet high rates of infant mortality and maternal mortality continue to be prevalent.

The Annual Health Survey shows that institutional deliveries are higher in the MP-Bundelkhand districts than in the districts of UP-Bundelkhand, though in terms of safe deliveries both states seem to have roughly similar levels of achievement. However, within institutional deliveries, except for urbanized Jhansi, people prefer government institutions to private institutions. This reflects the more accessible government institutional care that is available. Between 20 to 30 percent of all deliveries continue to be unsafe and this is a disturbing figure. Link this with malnourishment, lack of proper road access to towns, (where medical facilities are located) and a dysfunctional emergency medical service, and it is no surprise then that the MMR is so high.

A very positive initiative is that both Governments are making efforts to expand the reach of the Janani Suraksha Yojana (JSY) that is both popular and highly successful, as evident from the field reports throughout the region. This programme directly impacts both maternal and infant health.

Figure 4.10: Percentage of safe deliveries, districts of Bundelkhand 2012-13



Source: Annual Health Survey 2012-13

Table 4.9: Deliveries at institutions and at home 2012-13

State/ District	Institutional delivery (%)			Delivery at home (%)			Delivery at Private Institutions (%)		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**82.6**	**79.9**	**89.9**	**17.1**	**19.9**	**9.5**	**11.2**	**7.0**	**22.1**
Chhatarpur	80.3	80.9	78	19.6	18.9	22	9.5	8.3	14.2
Damoh	57.6	53.1	76.3	42.3	46.9	23.7	9.2	9.3	8.9
Datia	83.9	83.7	84.3	16.1	16.3	15.7	8.3	6.1	14.2
Panna	78.4	76.8	88.8	21.2	22.8	11.2	7.1	7	7.2
Sagar	72.1	65.2	90.5	27.7	34.5	9.5	12.6	10.1	19.3
Tikamgarh	81.5	79.8	89.3	18.4	20	10.7	9.7	9.6	10.1
Uttar Pradesh	**56.7**	**54.8**	**64.9**	**42.1**	**43.9**	**34.4**	**17.6**	**14**	**33.4**
Banda	73.2	72.7	75.9	26.7	27.2	23.7	7.2	5.7	15.8
Chitrakoot	65.1	64.4	74.3	34.1	34.8	24.9	6.7	6.1	14.8
Hamirpur	66.2	65.3	70.2	29.7	30.3	26.9	7	6.1	11.7
Jalaun	62.4	62.2	63.1	34.2	34.7	32.5	7.7	5.7	14.2
Jhansi	76.8	73	81.7	23.1	26.7	18.3	18	10.8	27.5
Lalitpur	75.5	74.7	83.7	23.5	24.4	14.6	8.2	7.1	19.7
Mahoba	69.2	71	65.5	26.1	26	26.3	7.3	4.8	12.7

Source: Annual Health Survey 2012-13

Table 4.10: Janani Suraksha Yojana (JSY) – Achievements 2012-13

State/ District	Mothers who availed financial assistance for delivery under JSY (%)			Mothers who availed financial assistance for institutional delivery under JSY (%)			Mothers who availed financial assistance for Government institutional delivery under JSY (%)		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**72.9**	**74.3**	**69.1**	**86.6**	**91.2**	**75.7**	**93.8**	**94.5**	**91.8**
Chhatarpur	80.2	81	77.2	96.3	98	89.5	98.1	98.9	94.2
Damoh	56.8	53.7	69.1	94.3	96.4	88.2	98.1	99	95.7
Datia	74.4	76.1	69.9	88	90	82.6	95.6	95.7	95.2
Panna	70.7	70.8	70.4	89	90.7	79.6	89.2	90.5	81.8
Sagar	68.3	63.8	80.2	94	96.8	88.5	98.1	97.9	98.6
Tikamgarh	76.4	75.2	82.2	92.5	92.8	91.1	93.3	93.1	94.5
Uttar Pradesh	**36.4**	**38.5**	**27**	**62.8**	**68.4**	**41.1**	**88.7**	**89.8**	**82.5**
Banda	70.4	71.1	66.8	94.3	95.6	87.4	97.5	97.2	99.3
Chitrakoot	63.2	62.6	70.8	95.4	96.1	86.9	98.2	98.6	93.1
Hamirpur	59.4	60	56.4	88.9	90.9	79.9	96	96.6	93.2
Jalaun	51.8	52.8	48.5	81.5	83.4	75.2	92.2	91.2	96.3
Jhansi	57.1	63.2	49.1	72.3	83	59.7	91.6	93.8	88.2
Lalitpur	66.4	67	60.1	87.4	89.2	71.8	96.4	96.9	91.2
Mahoba	63.7	67.1	56.3	87.1	90.9	78.2	96	96.5	94.8

Source: Annual Health Survey 2012-13

The number of mothers who have availed of financial assistance under this programme is already very high (over 90 percent) in many districts. During field discussions, many mothers spoke well of this scheme; the facility of getting transport to the nearest health centres for delivery, and financial assistance under JSY were benefits of this scheme appreciated by people[4].

A critical factor concerning maternal health and new born health is the age at which the first child is born. There is insufficient information available to clearly assess the number of women who bear a child before they attain 18 years of age, but indirect indicators of age of marriage give a reasonably good picture. The Annual Health Survey shows that the number of women who were married before the legal permitted age of marriage (18 years) in Bundelkhand, in 2012-13 was over 10 percent.

The situation of early marriage is much worse in MP-Bundelkhand, and this may explain, to some extent, the difference in infant and maternal mortality between MP-Bundelkhand and UP-Bundelkhand. In UP-Bundelkhand, Lalitpur stands out, with a quarter of the women marrying before they attain the age of 18. In MP-Bundelkhand, Chhattarpur, Tikamgarh and Panna districts have a high number of such marriages, but what can explain Lalitpur's performance? Chhattarpur, Tikamgarh and Panna are known to be feudal and male dominated societies and early marriage for girls follows from this. Lalitpur, has similar social norms, located as it is, adjacent to Tikamgarh and Chhatarpur and the changes in UP-Bundelkhand area have not yet reached Lalitpur.

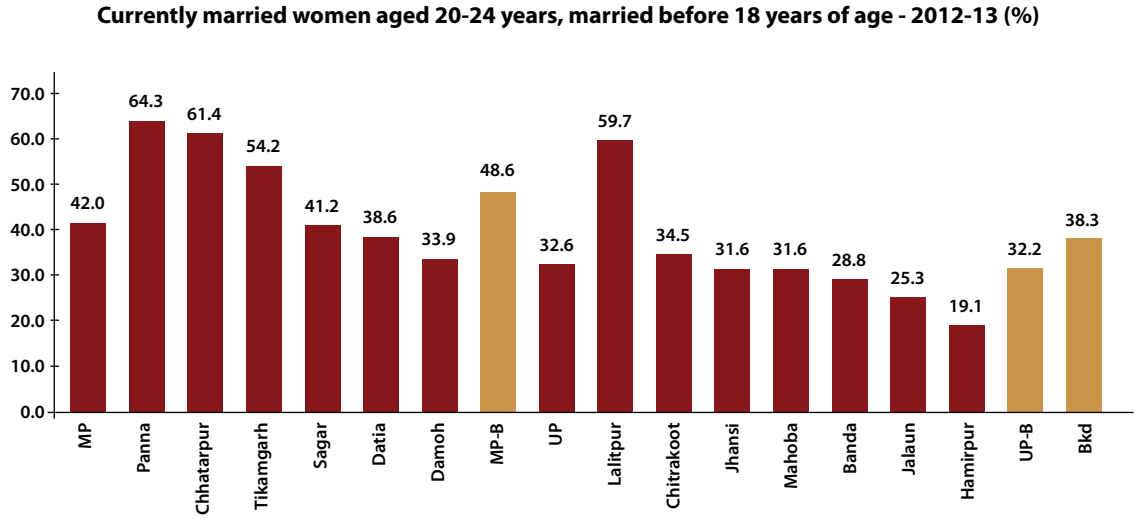
[4] Sometimes, local staff in JSY does ask for monetary favours to provide transportation, etc., but the monetary benefits from JSY have been coming and few people reported any difficulty in availing these benefits.

Table 4.11: Women who were married before the age of 18 (2012-13)

Region	Percentage of women married before the legal age (18 years)		
	Total	Rural	Urban
Madhya Pradesh	**10.6**	**14.1**	**3.7**
Chhatarpur	25.4	31.2	8.6
Damoh	10.8	12	6.4
Datia	6.6	9.0	1.5
Panna	14.3	14.6	12.9
Sagar	8.2	11.2	3.2
Tikamgarh	27.1	30.6	14.3
MP-Bundelkhand	**16.2**	**19.7**	**6.8**
Uttar Pradesh	**5.4**	**6.7**	**1.6**
Banda	6.2	6.6	5.1
Chitrakoot	7.0	7.7	0.9
Hamirpur	2.6	3.1	0.8
Jalaun	4.7	4.5	5.2
Jhansi	3.8	5.6	2
Lalitpur	25.6	28.7	4.5
Mahoba	5.2	6.7	2.3
UP-Bundelkhand	**7.0**	**8.4**	**2.5**
Bundelkhand	**10.4**	**12.4**	**4.4**

Source: Annual Health Survey 2012-13

Figure 4.11: Currently married women (20-24 years of age), who were married before 18 years of age



Source: Annual Health Survey 2012-13

This graph shows that close to 40 percent of women aged 20-24 years, in Bundelkhand actually got married before they attained the age of 18 years. Within Bundelkhand, Panna, Chhatarpur, Tikamgarh and Lalitpur have the highest proportion of girls who were married at an early age. If, between 50 to 60 percent of the women aged 20-24 years were married below 18 years of age, there is a fair chance that many of them would have become pregnant before they turned 18, and many would have been mothers before they were 18. Thus, many women are being subjected to the rigours of child-bearing before they are sufficiently developed and ready for this. Early child bearing has an adverse effect on both the mother's health as well as on that of the infant.

Infant Health

The support that follows child birth includes supplementary nutrition, both food and nutrition fortifying drugs like vitamins, life saving immunization, and growth monitoring through weight measurement and special support for under nourished children.

Immunization is the most crucial weapon against infant and child mortality and debilitating diseases. Child immunization is considered complete, and children are fully immunized against a set of diseases when he/ she has taken the entire prescribed dose fully and on time. The achievement figures for fully immunized children are low, and in most districts, the figures are very low. Except for Jhansi, Mahoba Datia and Jalaun, in the other nine districts less than 50 percent of infants benefitted from full immunization. Between 4 to 8 percent of children, on an average, did not get any dose of vaccination, hence nearly 1 child in 20[5] in Bundelkhand lives beyond the reach of the medical system and the protection it gives to the life of a child.

[5] In most of the districts barring Mahoba and Hamirpur and to some extent in Sagar, between 4 to 8 percent of children did not get any dose of vaccination. From age-wise data from Census of 2011, we have taken the weighted averages from each district and this shows that 1 child in every 20, born in Bundelkhand lives beyond the reach of the medical system and the protection it gives to the life of a child.

Table 4.12: Immunization of children, 2011-12

State/ District	Children aged 12-23 months (%)		Polio dose at birth	Children aged 12 -23 months, fully immunized (%)			Children who did not receive any vaccination (%)		
	3 doses of DPT	Measles vaccine		Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**71.5**	**82.6**	**84.4**	**59.7**	**56.2**	**69.2**	**4.3**	**4.9**	**2.5**
MP-Bundelkhand	n.a.	n.a.	77.0	38.5	n.a.	n.a.	5.5	n.a.	n.a.
Chhatarpur	60.1	62.2	80.0	38.5	30.8	68.5	7.7	8.2	5.5
Damoh	55.1	68.5	62.6	35.5	30.9	53.6	6.9	6.6	7.8
Datia	71.8	74.0	86.4	58.1	57.2	60.8	6.4	6.0	7.6
Panna	53.4	64.4	81.7	29.9	28.2	41.1	6.5	7.1	2.5
Sagar	70.2	72.1	72.6	43.7	36.2	63.1	2.4	3.0	0.9
Tikamgarh	46.5	49.0	84.9	29.1	26.3	42.5	5.6	5.4	6.3
Uttar Pradesh	**59.8**	**63.1**	**69.1**	**48.1**	**47.1**	**52.7**	**9.5**	**9.9**	**7.3**
UP-Bundelkhand	n.a	n.a	83.8	50.4	n.a	n.a	5.5	n.a.	n.a.
Banda	49.0	75.9	87.8	34.1	32.6	43.3	4.0	4.6	0.7
Chitrakoot	59.7	58.6	72.8	44.6	43.4	60.9	5.9	6.2	0.7
Hamirpur	58.0	72.1	78.2	43.1	42.1	47.9	1.4	0.8	3.8
Jalaun	69.5	62.4	74.1	50.0	52.6	41.2	9.5	7.2	17.7
Jhansi	84.2	80.1	89.6	71.8	67.2	78.5	4.2	5.4	2.5
Lalitpur	55.4	66.7	93.5	48.9	45.0	82.1	4.1	4.4	0.9
Mahoba	74.3	73.8	83.7	62.3	62.9	60.9	1.4	1.4	1.3
Bundelkhand	**n.a.**	**n.a.**	**80.3**	**44.5**	**n.a.**	**n.a.**	**5.1**	**n.a,.**	**n.a.**

Source: Annual Health Survey 2011-12 (Figures for UP-Bundelkhand, MP-Bundelkhand and Bundelkhand have been arrived at using single year age data from Census 2011 and have been calculated by the HDR Team)

Note: Data for 2011-12 AHS data has been used because even though there is single age data for 2011 it is difficult to extrapolate single age data for 2012.

The other support given to new born and infants is Vitamin A dosage and Iron and Folic Acid (IFA) tablets to shore up nutritional status of their bodies. While the record of children receiving Vitamin A dose hovers between 30 to 50 percent, the performance of IFA tablet is dismal. Panna is the only district that was able to cross the 30 percent mark in children receiving IFA tablets/syrup; all other areas of Bundelkhand lagged far behind.

The reports about the condition of services and nutritional food provided by the *aanganwadis* are somewhat mixed in Bundelkhand. In many cases *aanganwadis* were functional, but nearly 50 percent were found to be either not functioning at all or inadequate, providing nutrition to children, only occasionally. Even advice on child-care, nutrition for new-born and younger children and pregnant and lactating mothers is erratic. Most mothers said that *aanganwadi* centres do not give regular and timely service, and while *aanganwadi* workers/ ANMs and ASHA workers do build awareness, the follow up is weak. In general, awareness on vitamin tablets or IFA is low. Even when doses are received, very few people appear to be taking the full dose. Pregnant mothers often complain of nausea or giddiness or weakness after consuming IFA tablets, and thus leave the medication mid-way. Except for institutional deliveries, proper medical and supportive care

Table 4.13: Children receiving Vitamin A dosage and IFA Tablets in MP, UP and districts of Bundelkhand

State/ District	Children (aged 6-35 months) who received at least one Vitamin A dose during last six months (%)			Children (aged 6-35 months) who received IFA tablets/syrup during last three months (%)		
	Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**58.1**	**56.3**	**62.7**	**29.1**	**29.1**	**29.3**
Chhatarpur	41.4	41.8	39.9	23.5	27.2	8.6
Damoh	45.7	44.2	51.8	20.0	20.5	17.8
Datia	45.1	44.1	47.5	19.9	21.0	17.4
Panna	35.4	33.8	46.8	34.8	34.3	38.3
Sagar	45.5	45.8	44.8	18.5	19.5	15.5
Tikamgarh	31.7	29.7	41.6	19.9	22.2	8.7
Uttar Pradesh	**40.8**	**39.7**	**45.6**	**13.5**	**13.2**	**15.0**
Banda	39.8	38.0	50.0	28.0	25.9	40.2
Chitrakoot	46.0	45.6	52.7	13.0	13.2	9.6
Hamirpur	51.9	55.7	33.0	15.6	15.4	16.5
Jalaun	40.7	41.4	38.6	24.0	24.7	21.6
Jhansi	58.6	56.9	61.1	18.9	18.6	19.3
Lalitpur	49.0	48.8	51.4	17.7	16.6	28.3
Mahoba	42.5	46.3	32.9	11.1	10.6	12.3

Source: Annual Health Survey 2012-13

and interaction with Government schemes has been largely unsatisfactory.

Under the *aanganwadi* and other child care programmes, weighing the child and following up on under-weight children is a critical component of the programme.

What is the record of the weighing process? The number of children being weighed itself is very low – ranging from less than 50 percent in districts like Damoh, Lalitpur, Mahoba, Banda, Hamirpur, Chitrakoot and Jalaun to the highest figure of 72 percent in Datia.

Of the children that are weighed, the proportion of under-weight children is very high, varying between 25 to 40 percent in the MP-Bundelkhand districts (32.4 percent for MP-Bundelkhand), and between 10 to 20 percent in the UP-Bundelkhand districts (17.2 percent for UP-Bundelkhand), except in Banda, where this figure is 30 percent. These are very high figures for under-weight children. Further, there is a tendency for *aanganwadi* workers to put their weight down as above 2.5 kilogrammes (as many instances from the field tell us[6]), therefore the actual situation is likely to be worse. The follow-up on under-weight children is sketchy. Consider the condition of the 40 to 50 percent of children who are perhaps not even covered under the ICDS programme and other related interventions.

The *aanganwadi* is the centre for almost all the care and interventions related to infants, pregnant and lactating mothers and the nodal point from where all

[6] This feedback came to the HDR Team by at least four officials in four separate districts covering both the states. They wished to remain anonymous.

Table 4.14: Percentage of children weighed and under-weight children, 2011-12

State/ District	Children whose birth weight was taken (%)			Children with birth weight less than 2.5 Kgs. (%)		
	Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**70.9**	**66.9**	**82.1**	**28.6**	**29.7**	**25.9**
Chhatarpur	57.7	56.4	63.5	39.0	42.6	23.9
Damoh	47.2	42.4	67.5	25.4	28.0	18.1
Datia	71.9	67.3	83.2	24.9	25.3	24.2
Panna	59.6	57.2	75.2	33.9	34.0	33.3
Sagar	56.9	49.7	76.0	30.9	33.8	25.9
Tikkamgarh	53.8	51.2	65.7	35.0	34.6	36.2
MP-Bundelkhand	**56.8**	**n.a.**	**n.a.**	**32.4**	**n.a.**	**n.a.**
Uttar Pradesh	**26.1**	**22.5**	**42.9**	**28.2**	**28.4**	**27.6**
Banda	46.4	43.9	63.9	30.1	29.7	32.1
Chitrakoot	38.2	36.9	58.7	16.1	16.0	16.7
Hamirpur	39.1	37.0	52.1	16.6	16.2	18.0
Jalaun	27.9	26.1	34.1	11.8	10.8	14.5
Jhansi	55.7	48.4	65.6	12.5	10.7	14.3
Lalitpur	48.7	46.2	71.6	12.4	12.4	12.0
Mahoba	45.6	46.0	44.9	15.8	15.6	16.4
UP-Bundelkhand	**43.9**	**n.a.**	**n.a.**	**17.2**	**n.a.**	**n.a.**
Bkd	50.5	**n.a.**	**n.a.**	26.0	**n.a.**	**n.a.**

Source: Annual Health Survey, 2011-12 (Figures for UP-Bundelkhand, MP-Bundelkhand and Bundelkhand have been arrived using single year age data from Census 2011 and have been calculated by the HDR Team)
Note: We are using 2011-12 AHS data because we have single age data for 2011 and it would be difficult to extrapolate single age data for 2012.

concerns regarding malnourishment, under development, infant morbidity, health of mothers, etc., are monitored and managed. The *aanganwadis* have been given infrastructure and programme support, and training, personnel and a lot of policy attention. While there are many workers that take their responsibilities seriously and nurture the children in their care with pride and hard work, there are as many centres where the functionaries are lacklustre or adequate only in parts. Even among the best, there are very few that do every task well. The centres cannot complain of lack of facilities or tools or arrangements to assist in preparing meals, or in provisioning vaccines or tablets/ medicines, but it seems that individual issues, motivation and supervision quality, and adequacy and quality of inputs, both material and training inputs, have to be further scaled-up to energize all these centres.

The inability to ensure full immunization and the inability to ensure that children take nutrition-enhancing inputs indicates the long distance Bundelkhand needs to traverse before its children can get the medical and nutritional support they are entitled to.

Health Provisioning

The Government/ public health system is designed around Sub-Health Centres (SHCS)

Box 4.4: Field visit to Health Centres

Observations from field visits to SHCs:

- Only buildings exist and other machines, tables/ chairs and even doors and windows were missing
- Doctors and para staff is insufficient – in not a single SHC visited did the HDR team meet any para-staff or doctor
- Medical care provisioning is very weak – in the three villages studied, less than 10 percent people had ever been to the SHC
- Overall hygiene and sanitation conditions were miserable
- Non-functional SHC buildings were seen in many places
- Accessibility to PHC, CHC and district hospitals is poor due to long distances, connectivity and transportation issues.

Source: Field Survey by HDR team

in the rural areas; Primary Health Centres (PHCs) at the Block headquarters, sub-district hospitals and the District Hospital. While infrastructure itself is not available as per the norms or requirements, the quality of these centres is also very poor. In village after village (source fieldwork), it was found that at SHCs, the first source of health services, both preventive and curative, conditions are unsatisfactory. Sub-Health centres, observed during field visits were not operating as per norms, lacked facilities and in most cases the condition of the building was very poor. SHCs were not approachable by all-weather roads or even basic roads or paths. In some SHCs, basic immunization was done once a month, or the pulse polio programme was administered, and some para-medical staff visited periodically. What was a matter of concern was that SHCs did not figure as the place of first recall or of utility in the minds of people when health services were discussed. Government dispensaries, however, had a better record in urban centres, though even there, people prefer local, easily available private doctors as the first port of call.

The provisioning of SHCs, PHCs and CHCs is far less than required. The national norms say that there should be one SHC for every 5,000 rural people, one PHC for every 30,000 people, and one CHC for every 1.2 lakh rural people. The actual numbers are presented in the table 4.16. The shortfall in SHCs was 30 percent, 20 percent in PHCs and 52 percent in CHCs. Further, the doctors in these centres are less than the required number, and even when they are posted in a particular place, their regular attendance and quality of service is not guaranteed. The norms of machines/ medicines and primary care at these centres are also not met in full (see Box 4.5).

Apart from facilities available in health centres, basic connectivity and approachability is another problem that people battle with in the rural belt of Bundelkhand. People voiced their preference for Government hospitals, and health centres (including PHCs and CHCs) for medical care in serious ailments and institutional deliveries, but they had to travel long distances to access functional public health centres/ hospitals. Villagers claim that they have to travel between 7 to 20 kilometres to get medical treatment, and most areas do not have proper roads or connectivity. The transport facilities available under some government schemes are available, though people did complain of the

Table 4.15: Population served by Health Centres, 2012 (Figures in red denote where norms are not followed)

Districts	Total Health Centres	Population Served per Health centre	Rural Population Served per CHC	Rural Population Served per PHC	Rural Population Served per SHC
Madhya Pradesh	**10,464**	**6,941**	**157,830**	**45,465**	**5,926**
Chhatarpur	240	7,343	136,336	36,848	7,101
Damoh	185	6,834	168,945	72,405	6,219
Datia	111	7,088	20,1591	60,477	6,366
Panna	161	6314	148,531	59,412	6,411
Sagar	285	8,345	15,1787	61,839	6,815
Tikkamgarh	184	7,854	17,0756	59,765	7,662
MP - Bundelkhand	**1,166**	**7,422**	**156,696**	**54780**	**6,806**
Uttar Pradesh	**24,880**	**8,031**	**301,587**	**42,069**	**7,569**
Banda	343	5,246	304,731	29,876	5,346
Chitrakoot	174	5,700	298,466	29,847	6,396
Hamirpur	254	4,348	223,609	27,104	4,160
Jalaun	341	4,956	254,215	26,481	4,444
Jhansi	379	5,273	194,187	25,892	3,574
Lalitpur	226	5,405	261,554	36,076	5,478
Mahoba	166	5,277	230,192	32,885	4,933
UP - Bundelkhand	**1,883**	**5,142**	**249,549**	**29,130**	**4,729**
Bundelkhand	**3,049**	**6,013**	**194,855**	**37,433**	**5,528**
India	**178,957**	**6,765**	**172,453**	**34,657**	**5,618**

Source: Report Rural Health Statistics in India 2012, Statistics Division Ministry of Health and Family Welfare, Government of India

Table 4.16: Availability of Health Centres

		SHC	PHC	CHC
MP-Bundelkhand	Number Present	990	123	43
	Number Required	1,731	225	72
UP-Bundelkhand	Number Present	1,583	257	30
	Number Required	1,936	250	81
Bundelkhand	Number Present	2,573	380	73
	Number Required	3,667	474	153

Source: Report Rural Health Statistics in India 2012, Statistics Division, Ministry of Health and Family Welfare

need to pay drivers and attendants to avail of this 'free service'.

The problems of poor up-keep of buildings and centres, especially in SHC and PHC is serious, but some well-equipped CHCs, PHCs and hospitals were also seen in Bundelkhand, but then the lack of qualified personnel hampers the proper functioning of these institutions.

The situation in the medical centres in Bundelkhand is not very different from the

Box 4.5: Infrastructure in Hospitals/ Health Centres – a reality check

A 200- bed sanctioned hospital in Tikamgarh district, along with 7 CHCs, 20 PHCs and 156 SHCs have all been provided for under the three tier health facilities. In Jalaun (Orai) district, there were two separate hospitals functioning at the district level. A district hospital for men, equipped with 113 beds; and another district hospital for women with 30 beds was also functioning.

- All modern equipment such as X-ray, ECG Machine and Dental Unit, etc. were available in both the district health facilities.
- An anti-rabies centre, public health laboratory has been provided. A family welfare and child health centre was attached to these hospitals.

Two CHCs in Prathvipur, Tikamgarh and in Jalaun were visited. The CHC, the third tier of the network of rural health care institutions, was to act primarily as a referral centre (for the neighbouring PHCs) for patients requiring specialized health care services.

- The CHCs had services like antenatal check-ups and postnatal check-ups, a separate labour room for conducting deliveries and a separate female ward, near the labour room. 24x7 emergency facilities were available. The lack of female staff and ANMs made deliveries especially at night, extremely difficult.
- Both the CHCs had proper infrastructure, with compound walls, ramps for wheel chairs, separate toilets for males and females, though lack of cleanliness was apparent near the labour rooms and the toilets.
- The facilities for outpatient check-ups were limited. Only one room with restricted facilities was available for the block medical officer. In an emergency, a patient was treated on a stretcher, placed in the open gallery itself, with no saline stand.
- 24x7 emergency facilities were available in both the CHCs, in an emergency doctors are informed and services are provided as per the requirement. In case of conducting deliveries during the night, it is sometimes difficult to do so, due to the absence of female staff and ANMs.
- Examination equipment, resuscitation kits, standard surgical sets, normal and vacuum delivery kits were present at both the CHCs. Other necessary equipment like haemoglobin meters, weighing machines, stethoscopes, thermometers, etc. were available and in functional condition. The CHCs had facilities for conducting blood tests, sputum test for tuberculosis, blood smear test for malaria, urine test, etc.
- All the OPDs were conducted in an open verandah, with a single table and a chair, and there was no separate waiting room with seating arrangements for the patients.
- Lack of counselling processes was seen during the OPDs.
- Public utilities/toilets for males and females were available but in poor and unhygienic condition. The drainage system was not good and there was a foul smell near the female ward.

Source: Field Survey by HDR team

situation in many other places in UP, MP and indeed in other parts of India. There is infrastructure in some places, but not adequate staff, in others the infrastructure has been vandalised. Most often experts/ doctors/ para medical or supporting staff is missing (see Box 4.6). In a number of health centres, while a fully equipped laboratory exists, laboratory technicians are not posted (this was the case in both hospitals in Jalaun and Tikamgarh districts). Similarly, often machines and testing equipment are found to be non-operational, a result of neglect and possible collusion with private laboratories.

Thus, the picture of the state of health is somewhat mixed. On the one hand there is clear change for the better in many aspects of health delivery - slowly, but surely greater policy attention is being paid to equip and strengthen health centres and public hospitals, and substantial investments into rural health have come about due to the NRHM investing on buildings, machines, equipment, medicines, etc., increase in trained para-medical staff as well as primary health providers strengthening infrastructure in health centres. On the other hand, there is an equally strong reverse movement, related to the lack of adequate personnel due to both lack of qualified persons and the non-attendance of posted staff, and inefficiency and malpractices of medical, para-medical and maintenance staff, etc. These have weakened the impact that large scale financial and infrastructure investments would have otherwise brought about. There is also an impression amongst people that weakening health services in the public sector is being done in active collaboration with competing private sector in mofussil and small towns.

Box 4.6: Observations from the field - missing staff, missing basics

- In Sagar district, there is a severe shortage of doctors. 50 posts of Class-I Medical Officers and 135 posts of Class-II Medical Officers were sanctioned, but only 27 Class-I doctors and 78 Class -II doctors were in position, respectively.
- The Rahatgarh and Kesli CHCs in Sagar district did not have medical waste disposable systems.
- Sub Centres in Jaruakheda, Khakron and Paloh in Sagar district did not have any electricity.
- The district hospital in Sagar had double the patient flow, there were more patients than the number of beds in the gynaecology ward, and the patients were made to wait in the corridor.
- In Tikamgarh district, out of the 108 sanctioned posts for nursing staff, only 34 were in position while 74 posts were lying vacant.
- Tikamgarh District Hospital had only one fully equipped operation theatre for performing all types of surgeries.
- Medical supplies like auto disable (AD) syringes, gloves, disposable syringes, slides for blood tests and disposable delivery kits (DDKs) Oral Rehydration Sachets (ORS) packets, intrauterine devices (IUDs), oral pills were not available in a few sub centres in Tikamgarh district.
- In Damoh district, 76 posts of specialists were sanctioned out of which 65 posts were vacant.
- The CHCs at Tendukheda, Hatta and Hindoriya and the PHCs at Hinotakala, Abhana and Raneh in Damoh district did not have the required staff (two medical officers and three staff nurses) to provide 24x7 services.
- All the PHCs visited (Hinotakala, Abhana and Raneh) in Damoh district had microscopes but they were nonfunctional, due to unavailability of lab technicians.
- In Datia district, 21 posts of Class I Specialists were vacant.
- 80 percent of the posts of PGMOs (Post Graduate Medical Officer) were vacant in Chhatarpur district.
- 57 posts of nursing staff were lying vacant out of a sanctioned strength of 75 in Panna district.

Health facilities at the village level are non-functional - especially in SHCs (where sometimes there are only buildings)
On the top is Mohanpurva village, Badokhar Khurd block, Banda district; on the bottom is Mahuabandh village, Jaitpur block, Mahoba district

Poor accessibility to Sub Health Centre in Mahuabandh village, Jaitpurblock, Mahoba district

Poor accessibility to Aanganwadi in Paderi village, Gunourblock, Panna district

There are some schemes of Government that have found favour with the people. These are detailed in Box 4.7, and are examples of the positive impact of some of the institutional interventions that have been undertaken.

Morbidity - Illness

The Annual Health Survey estimates population suffering from acute illnesses. An examination of the figures for acute illnesses, shows that the districts of Damoh, Chhatarpur, Sagar, Tikamgarh and Panna have the highest level of population with acute illnesses, ranging from 7 percent to over 14 percent. These districts appear to have a very high burden of disease, leading to financial and social stress, loss of work, remuneration, suffering and other consequences of such illnesses.

The rate of acute illness is much lower in the UP-Bundelkhand region, all below 5 percent. On the other hand, the rates in MP-Bundelkhand districts are very high, almost double the incidence of acute illness compared to UP-Bundelkhand. Datia is the only MP district with a low morbidity rate; the reasons for this may be geographic location (situated on the UP side of Bundelkhand, cut off from the MP districts), or better health services in UP, or a better health profile of the population. The figures for the incidence of acute illness match the poorer health status of the districts of MP-Bundelkhand in IMR and CMR.

Box 4.7: Government Health Initiatives: a few good examples

Deendayal Antodaya Upchar Yojana in MP: provides free treatment and investigation facilities to BPL patients. A family can avail benefits up to a limit of Rs. 20,000/- per annum for hospitalised patients. In case of serious illness, the limit has been increased to Rs. 30,000/- per annum.

Call 102 for free ambulances in UP: A special initiative by the UP Government has been taken up; by launching 102 - a free emergency ambulance number, in addition to 108 service that is already operational in the state. A free pick-up and drop-off facility is provided to the patients. The ambulance reaches the spot within 20 minutes of a call and the patient is attended to and then brought to the primary health unit for treatment and further investigation. This service has proved to be most beneficial for pregnant women and for children.

Rogi Kalyan Samiti (RKS): Formed for better management and monitoring of health centres, it involves people in overseeing these health centres. It consists of members from local Panchayati Raj Institutions (PRIs), NGOs, local elected representatives and State Government officials. It has the authority to raise its own resources by way of user fees and utilize the same for improvement of services rendered in the facility. The corpus fund under RKS that is provided is up to Rs 5 lakhs and no other grant like AMG and Untied Fund is provided.

Janani Suraksha Yojana (JSY): JSY is a safe motherhood intervention scheme, provided under the NRHM. It is being implemented with the objective of reducing maternal and neonatal mortality by promoting institutional deliveries among poor pregnant women. JSY was launched in April 2005 by modifying the National Maternity Benefit Scheme (NMBS).

Source: National Health Mission, For UP: Health Department, Govt. of UP, For MP: Health Department, Govt. of MP

Table 4.17: Persons suffering from acute Illness in districts of Bundelkhand, 2011-12

State/ District	Persons suffering from acute illness (% of population)								
	Persons			Male			Female		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Madhya Pradesh	**9.2**	**10.2**	**7.0**	**8.7**	**9.7**	**6.5**	**9.8**	**10.8**	**7.6**
Damoh	14.4	15.7	10.0	13.8	15.3	8.7	15.0	16.2	11.3
Chhatarpur	11.2	9.6	16.4	10.6	9.0	15.5	12.0	10.3	17.3
Sagar	8.9	7.8	11.0	8.4	7.6	10.1	9.4	8.1	12.1
Tikamgarh	8.5	8.8	7.2	8.4	8.7	7.1	8.6	8.9	7.3
Panna	7.6	8.2	4.6	7.2	7.7	4.7	8.1	8.7	4.6
Datia	4.1	4.2	3.7	3.7	3.8	3.4	4.5	4.7	4.1
Uttar Pradesh	**12.1**	**12.2**	**11.6**	**11.5**	**11.7**	**10.9**	**12.6**	**12.7**	**12.5**
Banda	4.6	4.8	3.7	3.9	4.1	2.9	5.3	5.4	4.7
Lalitpur	4.3	4.4	3.8	3.0	2.9	3.5	5.8	6.1	4.2
Hamirpur	3.7	3.8	3.5	3.3	3.4	2.9	4.2	4.2	4.2
Chitrakoot	3.7	3.9	2.0	3.1	3.3	1.8	4.2	4.4	2.1
Jhansi	3.4	3.1	3.7	3.2	3.0	3.4	3.6	3.3	4.0
Mahoba	2.9	2.9	2.9	2.7	2.7	2.7	3.1	3.1	3.1
Jalaun	2.4	2.7	1.5	2.2	2.5	1.3	2.6	2.8	1.8

Source: Annual Health Survey 2011-12

Note: AHS 2011-12 data has been taken as the population data is for the same year. It is difficult to extrapolate population data for male (rural/urban) and female (rural/urban) for 2012

If every tenth person suffers from an acute illness in an average year, the burden on finances, physical burden on the patient and the care-takers, and the financial loss due to loss of working days will take many families from subsistence to below survival situation. Incidence of disease is known to be one of the strongest and most potent factors in transient poverty – households moving from just above poverty line conditions to penury and poverty due to shocks resulting from illness in the family. If this happens to every tenth family every year, then once every ten years, every family will be subjected to such a shock. It just depends then on whether the household can withstand that shock at that time or not.

Nutrition– some decline in malnourishment but high levels continue

An examination of malnourishment amongst children in the two states has been made and even though the data sources are different and are not strictly comparable, yet some broad comparison has been attempted. The figures from MP do not paint a good picture. In the estimates assessed by the National Institute of Nutrition, for the Department of Women and Child Development, Government of MP, the number of malnourished children in MP and in the five Bundelkhand districts, are as high as 50 percent (2011). Although there has been

Table 4.18: Malnourishment among children in MP-Bundelkhand, 2001 to 2011

District	2001 (%)	2005 (%)	2010-11 (%)		
			Underweight	Stunting	Wasting
Damoh	57.59	55.10	42.9	39.5	26.6
Sagar	53.81	47.15	48.3	61.5	19.2
Panna	60.99	56.36	50.3	42.1	29.0
Tikamgarh	57.97	52.36	49.7	45.7	23.1
Chhatarpur	61.97	50.97	48.3	45.9	21.9
Datia	55.15	49.52	59.6	66.7	21.1
MP	57.57	50.38	51.9	48.9	25.8

Source: For 2001 and 2005, data is from surveys undertaken by Department of Women and Child Development, Govt. of MP, and the 2010-11 survey was undertaken by National Institute for Nutrition, Hyderabad, on behalf of Govt. of MP.

a decline in the percentage of malnourished children since 2001, this change is not what might be expected after a decade of nutrition-led interventions. The condition of nutrition based programmes such as the ICDS and MDM in MP, while popular, have been unable to reduce high levels of malnourishment in the state.

The problem is not just malnourishment leading to underweight children, but also high levels of stunting (ranging from 40 percent to 65 percent) and wasting (ranging from 20 percent to 25 percent). Both stunting and wasting indicate severe physical distress in children, which will have long-term effects on their physical abilities and health. One in every five children are 'wasted', which is a worrying signal, a measure of the severity of food insecurity and the limited impact of nutrition-based interventions.

A study by the Naandi Foundation gives information on malnourishment in UP. The proportion of underweight children (in the extreme range) varies from about 9 percent in Jalaun to about 20 percent in Banda and Lalitpur, and in the moderately malnourished

Table 4.19: Malnourishment among children in UP- Bundelkhand 2011

Districts	Wasting (Weight for Height) %		Underweight (Weight for Age) %		Stunting (Height for Age) %	
	<-3 SD	<-2 SD	<-3 SD	<-2 SD	<-3 SD	<-2 SD
Banda	5.24	12.25	20.95	45.67	35.83	61.79
Chitrakoot	3.54	11.07	19.97	47.86	37.11	63.36
Hamirpur	Na	Na	Na	Na	Na	Na
Jalaun	2.79	10.15	9.17	30.47	19.41	44.67
Jhansi	1.78	8.16	16.84	44.57	32.98	61.93
Lalitpur	3.89	13.21	19.54	49.24	37.24	64.33
Mahoba	2.07	8.49	15.64	40.48	33.23	54.91

Source: The Hungama Survey Report 2011
Note: As per internationally accepted parametres, wasting (weight for height) or underweight or stunting (height for age) is calculated as the deviation from the average or normal. Statistically, the term Standard Deviation (SD) expresses the quantum of variation from the mean or how far away the number is from the average. 2SD and 3SD mean that the number is away from the mean of quantums higher than what is accepted as a standard deviation from the mean. The further the level of stunting, low weight or wasting is from the standard of the population, the more serious is the condition.

category, it ranges between 45 to 48 percent everywhere, except in Jalaun. Thus, the incidence of malnutrition among children is not very different in the two parts of Bundelkhand. Interestingly, Jalaun does better in comparative terms, even in stunting, or height assessment, with the lowest number of stunted children. The agricultural prosperity in Jalaun is probably a major explanatory factor for this situation.

About 10 percent of children are in the 'wasted' category, a condition from which perhaps they shall never be able to recover, to be able to live healthy lives like other children. The high figures for stunting (about 60 percent and more in four out of six districts, for which data is available), makes the situation alarming and calls for immediate action.

Service quality – severely lacking

At the primary health level, the provisioning by the Government is clearly much below what is required. Apart from the existence of buildings, their upkeep, medical care, availability of medicines, the presence and active collaboration of para-medical and professional staff with patients and others in disease management and in preventive health care is minimal.

There is no accountability in the system, or appreciation of their service as a non-negotiable service by medical staff in these centres, and the relationship of receiver and benefactor dominates the district and sub-district health delivery system. The distance of health centres from urban areas, distance from residence or usual place of work of the health service personnel, the lack of all-weather connectivity for the health centres, and the lack of proper supervision and political and administrative attention have led to this situation. The condition of most of the infrastructure, on visual inspection, shows the priority that is being given to the most essential and first level health delivery system. Further, there are non-functioning health centres, located in close proximity to thriving private clinics, a contrast that needs to be pointed out and addressed.

Some key issues from the field are:

- There is a general perception that there has been a gradual improvement in the condition of health centres.
- Front line workers like ANM, Asha workers and *aanganwadi* workers were not particular about visiting the centres, except in the

A child being treated with traditional methods in Atariya village, inspite of the presence of ANM and ASHA visits, Babina Block, Jhansi district

In Gudhakala Village, Naraini Block, Banda district, children don't receive adequate medical attention due to prevalent misconceptions and sparse health care facilities

places where they themselves lived, and the centres had limited amenities. However, instances of hard working and popular para health workers were also frequent.

- Timely information and guidance from frontline workers was not available in most places.
- People across the districts reported that their dependence on local, untrained and private health practitioners has increased.
- There were problems of 'rent extraction' in the delivery of health services in many cases.
- Procedural delays in getting benefit were often quoted. Benefits under JSY were limited in the absence of bank accounts and the time-taking and tedious process of opening a bank account was often a disincentive.
- Information and knowledge gaps often led to inadequate child-care and health care. While many misconceptions and local beliefs continue to exist, there was little effort on the part of field and front line workers, and para-staff to provide convincing information and lead people away from these beliefs. Misconceptions about child health and nutrition may lead to inadequate care and high mortality among children.
- There were gaps in programme implementation in many sectors. For example, the focus of ICDS is limited to children, while pregnant and lactating mothers and adolescent girls are not given due attention. ICDS centres were not opened regularly, and this affected nutrition provisioning.

Nourishment and Food Security

A closely associated aspect of malnourishment is food security. Bundelkhand has areas that have performed well in agriculture. The plains have had abundant river water and elsewhere traditional water harvesting structures have helped in providing decent agriculture. However, depleting forests, decline in average rainfall and loss of traditional structures and systems have combined to bring distress in agriculture. In the seven years of drought, production of foodgrains, especially cereals dropped substantially. This has ramifications for food security. The other factors affecting food security have been dependence on HYV seeds and modern inputs that make farming expensive, combined with skewed land ownership and depressed wages, due to the feudal character of the region; with few signs of labour and small-peasantry empowerment.

As mentioned previously, Jalaun has the lowest malnourishment and good agricultural productivity; hence agriculture certainly plays a role in enhancing food security. Food security has been challenged by the changing nature of livelihoods – traditional occupations have become unsustainable, small and marginal farming is just survival based, and environment issues like depletion of green cover, decline in surface water, encroachment of catchment areas of *talaabs*, depleting ground water due to over-exploitation have challenged all farmers.

Providing safe drinking-water is again a challenge. Mining and quarrying-led degradation has led to pollution in rivers, water-bodies and in the air, and there has been a general decline in sanitation. There is a high level of open defecation, poor sanitation in villages, and the growing urbanization with hardly any proper solid waste disposal system, have all contributed to increased contamination in water, food and air. All this weakens bodies, adding to other pressures on under-fed people. The many fault lines concerning food, livelihoods, poverty, cleanliness, environment and equity come together and impact food security, adding to malnourishment, poverty and destitution.

In an assessment of level of food security in Bundelkhand in UP, a study by Adnan Shakeel, Ayesha Jamal and Md. Naiyer Zaidy (2012) found that most of this region is food insecure (see Box 4.8 for details). Barring Jalaun and perhaps Jhansi, which were identified as food secure, the other districts had high food insecurity. Banda

Box 4.8: Food Security in Bundelkhand – availability, stability and access to food are key

A study titled, 'A regional analysis of food security in Bundelkhand region (Uttar Pradesh)', on the level of food availability, food stability and food accessibility among the districts of Bundelkhand found large differences among the seven districts. The combined scores showed wide variation between the high score of 0.988 for Jalaun to the lowest value of -0.650 for Chitrakoot district. Only Jalaun 'recorded high food security'.

The study found that the reasons for high food security in Jalaun were, 'Availability of food and livestock and higher consumption of fertilizer with adequate irrigational facilities, accompanied by higher productivity of crops are responsible for high food security of this district. Purchasing power of the people and high employment are the main factors for the high level of food security in this district'. Apart from Jalaun, 'Jhansi, Lalitpur, Hamirpur and Mahoba show moderate level of food security', and the 'remaining two districts of the study area namely, Banda and Chitrakoot show low food security'.

The conclusions of the study were that 'the condition of food security in UP-Bundelkhand is very critical. The trio of food security that is, food availability, food stability and food accessibility is responsible for food insecurity. Food security in the UP-Bundelkhand is found to be positively correlated with food availability and food stability. Though not significant, it is positively correlated with food accessibility'.

Identifying investment needs for increasing food security, the study recommends –

- Irrigation and drainage needs far more support and promotion in Bundelkhand's districts
- A large part of this region is badly affected by the menace of distressing drought; thus drought mitigation measures should be taken on a large scale
- Diesel subsidy should be provided to the farmers, in drought or limited rainfall areas, so that the farmers can save the standing crops in the field
- Additional storage capacity at community and household level should be developed
- Strengthen the Public Distribution System (PDS)
- Increase purchasing power of people through various employment schemes

Source: "A regional analysis of food security in Bundelkhand region (Uttar Pradesh)", Adnan Shakeel, Ayesha Jamal and Md. Naiyer Zaidy, Journal of Geography and Regional Planning Vol.5 (9), pp.252-262, 4 May, 2012

and Chitrakoot were found to be most food insecure. The reasons for food insecurity and the conditions assessed in UP-Bundelkhand are found in equal measure in the MP-Bundelkhand districts as well. The general findings of this study are likely to be applicable to the rest of the region and a large part of Bundelkhand is likely to be food insecure, prompting a more serious look at the provisions for overcoming these issues.

5

People on the margins: Women, Scheduled Castes and Scheduled Tribes - all less than equal

Chapter 5

The most vulnerable communities in Bundelkhand undoubtedly are women, and people who belong to the Scheduled Castes (SC) and Scheduled Tribes (ST). Each of them have a lower status vis-à-vis those who dominate them, men in the former case, and the general castes and the landed elite, in case of the latter. Most of these prejudices are established in the political and power structure, and are reflected in lower income, in access to assets and amenities. In all cases, the differences are reflected in poorer education, poorer health and lower economic conditions.

i) Gender inequality

The status of women in Bundelkhand, a particularly strongly patriarchal and feudal society, is not equal to men, anywhere. Leading from centuries of active discrimination, institutionalizing male dominance in customs and traditional practices, and an unchanging society have contributed to condition of women, much worse than in other parts of India. While the indicators show their disadvantaged position they do not take into account the cultural customs and practices that deny women a position of equality, safety and dignity. Seeing women as embodying family prestige and honour, believing in the traditional role of women as laid out in a highly patriarchal society, according honour and value to male children, are all hallmarks of Bundelkhand's society.

Extremely low sex-ratio: The sex-ratio is extremely low at 885 women for 1,000 men (Census of India 2011), having improved somewhat from 873 in 2001 (Census of India, 2001). A sub 900 sex-ratio is a sign of severe discriminatory practices in society. There is

some anecdotal evidence that points to female foeticide and possibly even female infanticide. The juvenile sex-ratio in Bundelkhand was 899 girls per 1,000 boys (2011), which has declined from 914 girls per 1,000 boys in 2001. The sex ratio in the MP-Bundelkhand was somewhat better than in UP-Bundelkhand[1].

The districts which had the lowest sex ratios in 2011 were Chhatarpur, Datia, Chitrakoot, Mahoba, Jalaun, Banda and Hamirpur.

The inter census variation in the juvenile sex ratio (from 914 to 899) has seen significant drops in districts of Datia, Tikamgarh, Chhattarpur, Panna, Jhansi, Lalitpur, Hamirpur, Banda and Chitrakoot. The drop has been equally high in both the states, and in both the regions in Bundelkhand, showing a worsening of survival environment for the infant girl.

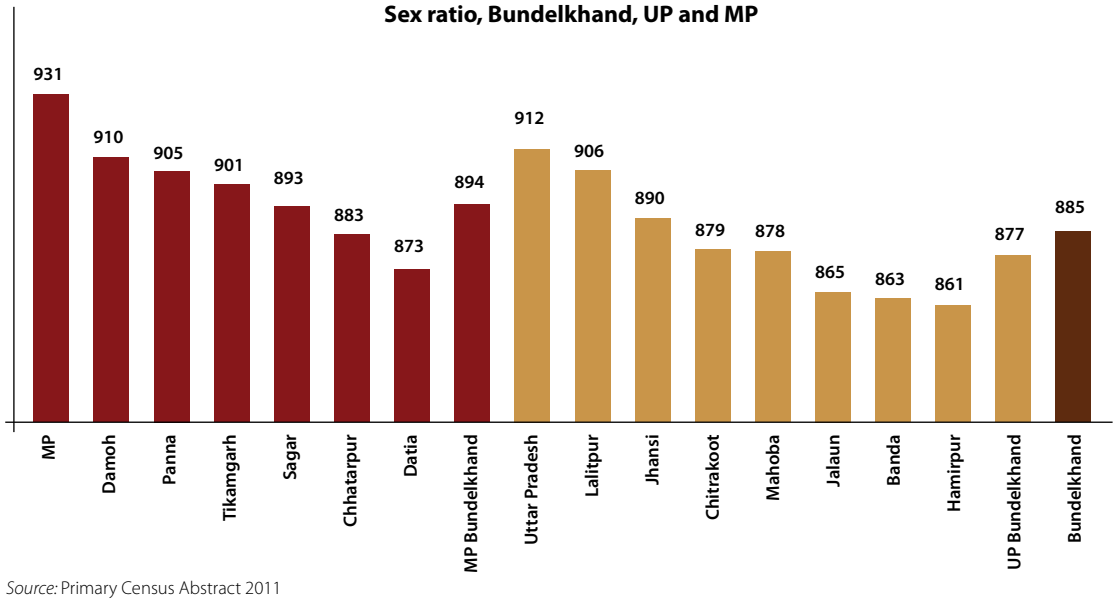
Even in health indicators, women, who biologically usually tend to have better longevity than men, have lower life expectancy

Table 5.1: Juvenile sex ratio, 2001 and 2011

Name	2001	2011	Decadal change
Madhya Pradesh	932	918	-14
Datia	874	856	-19
Tikamgarh	916	892	-24
Chhatarpur	917	900	-17
Panna	932	914	-18
Sagar	931	925	-6
Damoh	935	928	-7
MP-Bundelkhand	922	907	-14
Uttar Pradesh	916	902	-13
Jalaun	889	881	-8
Jhansi	886	866	-20
Lalitpur	931	916	-15
Hamirpur	903	886	-17
Mahoba	901	892	-9
Banda	917	902	-15
Chitrakoot	928	907	-21
UP-Bundelkhand	906	892	-14
Bundelkhand	**914**	**899**	**-14**

Source: Primary Census Abstract 2001 and 2011

Figure 5.1: Sex Ratio, Bundelkhand and its districts



Source: Primary Census Abstract 2011

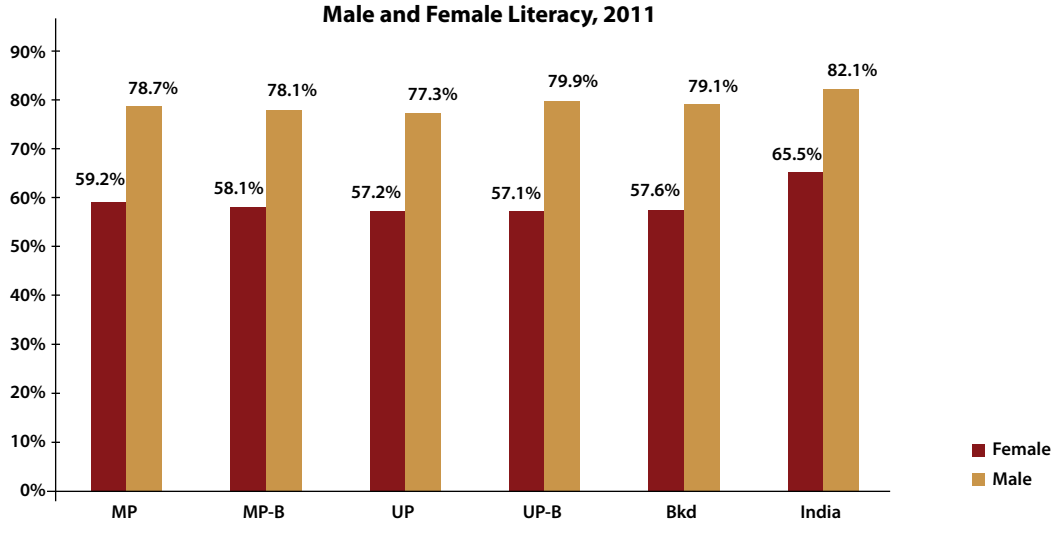
[1] On an average more boys are born than girls, although the female child at birth is a healthier child than the male, with higher life survival chances. Further, women usually outlive men. Contrary to this, the IMR for the girl child is higher than that for the male child, due to reasons of discrimination. Worldwide, there are 107 boy babies born for every 100 girl babies. This skewed ratio is partly due to sex-selective abortion and "gendercide," the killing of female infants, in countries such as China and India where males are more desired. But even discounting those factors, the completely natural male-to-female sex ratio still hovers around 105:100, meaning that women are inherently more likely to give birth to boys.
See http://www.livescience.com/33491-male-female-sex-ratio.html

Table 5.2: IMR and CMR among girls and boys (2012-13)

	IMR			CMR		
	Male	Female	Difference	Male	Female	Difference
Madhya Pradesh	**60**	**65**	**5**	**80**	**86**	6
Chhattarpur	61	66	5	75	84	9
Damoh	59	83	24	91	121	30
Datia	66	82	16	85	104	19
Panna	84	86	2	119	135	16
Sagar	69	70	1	91	94	3
Tikamgarh	57	66	9	77	91	14
Uttar Pradesh	**67**	**69**	**2**	**86**	**95**	9
Banda	55	56	1	84	108	24
Chitrakoot	68	67	-1	111	127	16
Hamirpur	45	45	0	64	68	4
Jalaun	63	67	4	92	102	10
Jhansi	41	41	0	58	61	3
Lalitpur	72	73	1	111	117	6
Mahoba	47	44	-3	71	76	5

Source: Annual Health Survey Fact Sheet 2012-13

Figure 5.2: Male and Female literacy rates, Bundelkhand, UP, MP and India



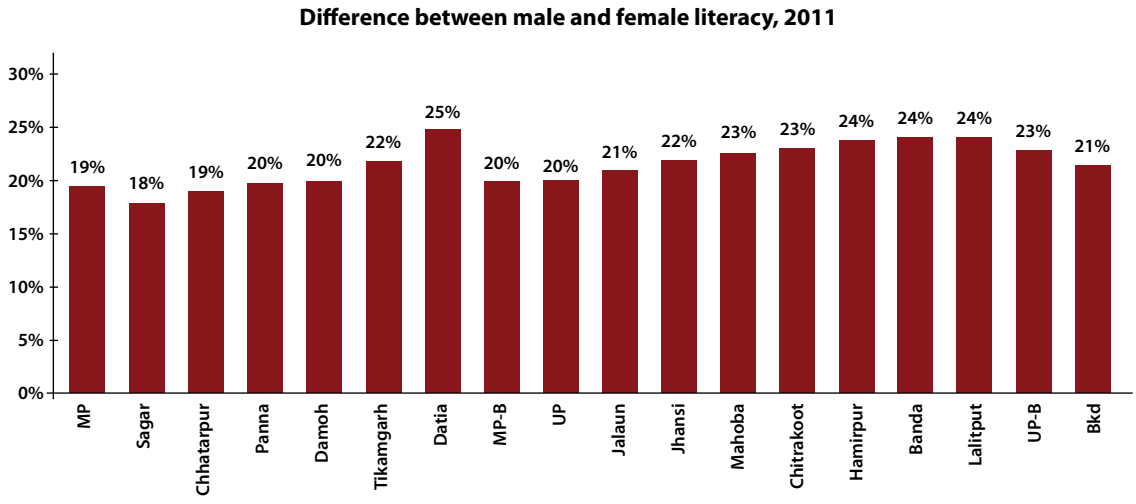
Source: Primary Census Abstract 2011

than men, in Bundelkhand[2]. IMR of the girl child was much higher than of the male child, in most of the Bundelkhand districts, except Hamirpur, Lalitpur and Mahoba, all in Uttar Pradesh. Not only does UP-Bundelkhand have a lower IMR and CMR than MP-Bundelkhand, the difference between the IMR for boys and girls is also lower in UP-Bundelkhand compared to MP-Bundelkhand. This is the case for child mortality as well.[3]

[2] While life expectancy data for Bundelkhand region is not available, life expectancy in MP for males was 58.1 years (2002-06) and for women it was 57.9 years, during the same period. In UP, the figures were 60.3 years for males and 59.3 for females. However when we look at projected life expectancy for the 2011- 2015 period, this is expected to be reversed with life expectancy for women being 65.3 years in MP, slightly higher than the life expectancy for men, which is 64.5 years. In UP too, the life expectancy figures are extrapolated to be 66.9 for women and 66.0 for men. See Report of the Technical Group on Population Projections May 2006, National Commission on Population/ MOHFW - http://www.uni-mysore.ac.in/sites/default/files/content/ABHUDAYA%20Newsletter%20of%20UGC-UPE%20Focus%20Area%20II%20volume%202%20Issue-2.pdf

[3] Child mortality refers to mortality amongst children by the age of five years (per 1,000 live births)

Figure 5.3: Gender gap in literacy, Bundelkhand, MP, UP



Source: Derived from Primary Census Abstract 2011

Table 5.3: Enrolment of Girls in primary and upper primary school

State/ Districts	Enrolment of girls	Percentage of girls in primary and upper primary school
Chhattarpur	212,364	40.1
Damoh	130,211	40.1
Datia	79,423	38.8
Panna	115,965	38.3
Sagar	247,413	43.1
Tikamgarh	164,310	41.5
MP-Bundelkhand	949,686	40.7
Banda	172,560	41.6
Chitrakoot	106,259	39.6
Hamirpur	105,332	43.4
Jalaun	145,470	44.1
Jhansi	176,779	43.3
Lalitpur	128,450	40.8
Mahoba	86,098	41
UP-Bundelkhand	920,948	42.1
Bundelkhand	1,870,634	41.4

Source: DISE 2011-12

Just as there is difference in achievements in health, in education and literacy also women lag behind men. There is a significant difference in literacy rates in Bundelkhand, a difference of 21 percent between male and female literacy in 2011, the gap being substantially higher than the national difference (17 percent).

As far as the districts are concerned, the highest difference between male and female literacy was in Datia, followed by Lalitpur, Banda and Hamirpur. Even the urbanized district of Jhansi had a difference of 22 percent.

The enrolment of girls in schools is also less than for boys. DISE data shows that the percentage of girls enrolled in primary and upper primary schools is only 41.4 percent of the total, which gives a sex ratio in school[4] of 706[5]. When 29.4 percent girls (assuming equal number of girls and boys are eligible for enrolment) are 'out of school', since only 70.6 percent are enrolled, it can be assumed safely that 29.4 percent of girls are missing from school) are not even attending primary and upper primary classes, it is obvious that their enrolment and attendance in higher classes will be even lower. Right from the primary level, girls are kept away from

[4] Sex ratio in schools is total girls enrolled*1000/total boys enrolled.
[5] In 2011-12, there were 18.7 lakh girls enrolled compared to 26.5 lakh boys. Therefore, the sex ratio in school is 706 (18.7x1000/26.5).

school and this practice is accentuated in senior classes.

One of the pressing concerns for women is safety, a concern heightened by the increasing insecurity that women feel both in urban and rural India. While there is considerable discussion about the safety of women in society, and a plethora of laws and guidelines from the Government has been forthcoming in a bid to improve the situation, these efforts have not had any noticeable impact in Bundelkhand. One of the primary causes for attacks on women is the perception of power and domination, and the subjugation of women as a display of that power – a patriarchal attribute that is reinforced constantly in Bundelkhand. The incidence of crimes against women is high, in both MP-Bundelkhand as well as UP-Bundelkhand.

Dowry, which is banned by law, is widespread and many cases of dowry-related deaths are regularly reported. In just one year, 387 dowry deaths were reported in Bundelkhand[6]. While MP-Bundelkhand has 11.9 percent of the state's population, its share of dowry deaths was 22.3 percent of the total of such deaths in the state. UP-Bundelkhand had a share of 4.8 percent of the state's population, and its share of dowry deaths was 9.8 percent of the total. In both parts of Bundelkhand, the incidence of dowry deaths were double the average for the parent states.

Even the general issues of safety and security for women are far worse in Bundelkhand, as compared to the parent states and the neighbouring regions. While crime record data does not necessarily reflect the entire picture, as most crimes against women/ marginalized communities go unreported, these numbers are indicative. In assaults against women, MP-Bundelkhand accounted for 16 percent of such crimes reported in the state, as against 11.9 percent of the population share. Similarly, such crimes in UP-Bundelkhand were 6.1 percent of the state's total, against a 4.8 percent share of population[7].

Women in Bundelkhand's feudal and patriarchal society are a symbol of honour, and this association of honour extends to keeping

[6] National Crime Records Bureau 2012
[7] Ibid

them 'safe' and 'honourable'. In the name of protection, they continue to be limited to their traditional roles within the home, in all castes and communities. They are not allowed to pursue high school education, because the school is too far, they are kept out of college, married off at an early age (see Chapter 4, table 4.11 and figure 4.11), not allowed to make any choices or decisions (deciding whether they want to study, work, get married, etc.). The continuance of the dowry system and the purdah system (where women are kept in the confines of the home, excluded from public places, from speaking out, only allowed to operate in a very restricted sphere and in a very restricted manner) is testimony to the status of women in the society of Bundelkhand.

Change and women's empowerment comes from Self-Help Groups

However, even in the midst of this suppression and patriarchy, there are many signs of change in Bundelkhand. Civil society, women activists, NGOs and the State Government are all responsible for this change.

The self-help group (SHG) movement has been significant in empowering women and creating conditions for change. While SHGs formed by local voluntary agencies are usually much more effective than those formed by State Government, under different schemes, yet all of them have been very active. They have set up thrift and credit societies, and are engaged in small business operations like the preparation of mid day meals, and animal husbandry.

There are a number of instances where the SHG movement has been an instrument of social change and empowerment. In other cases, women's empowerment has come about as an off-shoot of their entry into the economic space. Some of the illustrative examples are:

Box 5.1: SHGs for rearing goats brings change

A few years ago, Gram Development Services working in Birdha Block of Lalitpur district, started Goat Rearing Groups (GRGs). There were 13 GRGs in 10 villages with 300 members in 2011. Each GRG was provided with a unit of 10+1 goats of indigenous breed, and GRG members were trained in animal care and supported with technical guidance. Once group members were trained to become '*Pashu Sakhi*' (friends of the animals) to take care of animals, they guided others on feeding, health care, vaccination, breeding, etc. In 2013, about 325 goats belonging to 215 members were registered under goat insurance. These GRGs were assisted in marketing and they sold their goats in Kalpi, in Jalaun district, earning better prices (between Rs 10,000 to Rs 15,000 per animal).

These GRGs are have now been converted into an all-women's federation called '*Laxmi Bakri Palak Federation*'. The major activities of the federation are:

- Community based Goat Risk Fund management through insurance of goats.
- Soft loan for induction of good quality of buck (male goats) and does (female goats) to the GRGs.
- Manufacturing and sale of Laxmi Bakri Aahar among GRG members.
- Maintenance of a stock of mineral mixture and its promotion among GRG members.
- Provision of medicine on cost basis to the *Pashu Sakhi* of 20 villages.

During discussions with a few groups of GRGs like *Madina Bakri Palan Samooh, Sita Samooh, Saibaba Samooh, Peer Baba Samooh*, the members informed the HDR team that:

- These members were doing goat rearing on a small scale earlier as well.
- The training has helped them to do better. Goat mortality has reduced from 20-30 percent to just 6-7 percent now.
- *Pashu Sakhi* intervention has helped by increasing awareness and knowledge, building confidence and expanding goat rearing.
- Benefits include goats' milk and the sale of male goats for meat.
- Women are no longer dependent on their families or husbands for sundry expenses and can decide how to spend the money that they earn.
- The success of GRG activities has raised the confidence of women and won them the trust and confidence of their family members.

Source: Field Study by HDR Team

- **Change comes in small ways:** In village Kumhdaura, in Mahoba, for example, a women's SHG collected Rs.1.5 lakh. They then had a water tank constructed, for the benefit of the entire village and dug a well for water. Today, pipelines for water have been laid in the village and this tank supplies an hour of piped water to the village. It is now 10 years since this happened, and the group has employed a person to manage the enterprise, collect bills, etc. This example shows that women can bring change. In this case, they were able to do something that the men had not thought of doing. Even the men were forced to concede that women may be able to do things that they are not able to.

- **Mid day meal management:** In Gulat village in Chhattarpur, SHGs are running the

mid day meal programme in all the schools and centres. They employ four women, at Rs. 1,000 per month. The overall satisfaction of people regarding quality of food and service was very high.

- **Managing water resources successfully – the success of Paani Panchayats:** In 2011, in response to the problems of drought, women from 60 Gram Panchayats of the three districts of Bundelkhand – Jalaun, Hamirpur and Lalitpur got together to form *paani panchayats* (water councils) in their villages, which have become a model of local self-governance; focussing on how to address water and employment problems in rural areas. The focus of these *paani panchayats,* led mostly by Dalit women, is to create more water resources, revive old tanks and *talaabs*, and conserve natural water resources with the help of traditional and modern technology. They also address employment problems. The first such formation came up in Jalaun in 2011, and within two to three months, 96 such councils came up. The results are impressive. For example, the Gahuli village *paani panchayat* has revived its traditional pond and now manages it sustainably. In Jalalpur, the women revived an old pond and got a hand pump installed for Dalit families, who were prevented from accessing water from the other sources in their village. The *paani panchayats* work through *jalsahelis* (friends of water). They are supported by the Jalaun based NGO, Parmarth Samaj Sevi Sansthan (PSSS).

- **Social pressure and persuasion:** There has been some change brought about by voluntary organizations or by the voluntary effort of motivated women themselves. The best example is the Gulabi Gang, an organized effort against male domination and the abuse of women. It takes the form of protest against all forms of injustice (see Box 5.2).

- **Using the print medium to keep informed**[8]: A weekly newspaper called *Khabar Lahariya* that is written, edited, produced, distributed and marketed

[8] This newspaper was conceptualized by a Delhi-based NGO, Nirantar, a centre for gender and education.

Box 5.2: Gulabi Gang – wielding the 'lathi' when persuasion fails

Gulabi Gang is an extraordinary women's movement that was started in 2006, by Sampat Pal Devi in Banda district of Bundelkhand region, in UP. This region is marked by a deeply patriarchal culture, rigid caste divisions, female illiteracy, domestic violence, child labour, child marriage and dowry demands. The women's group is popularly known as Gulabi (or pink) Gang because the members wear bright pink saris and wield bamboo sticks, when required.

The Gulabi Gang was initially intended to punish oppressive husbands, fathers and brothers, and combat domestic violence and desertion. The members of the gang would accost male offenders and prevail upon them to see reason. The more serious offenders were publicly shamed when they refused to listen or relent. Sometimes the women resorted to their *lathis* (sticks), if the men used force.

The idea of starting such a pressure group came to Sampat Pal Devi, when she saw a man mercilessly beating his wife, one day. She pleaded with him to stop but he abused her as well. The next day, Sampat Pal Devi returned with a bamboo stick and five other women and gave a thrashing to the man in question. This news spread and soon women started approaching Sampat Pal Devi to intervene when they were being abused. Gradually, other women came forward to join her team and she decided that the sisterhood needed an identity and a name. The pink sari was chosen, to signify both womanhood and its understated strength.

According to Sampat Devi, the woman behind the idea of the Gulabi Gang (who is a mother of five and an ex-Govt health worker) the Gulabi Gang, is not a gang in the usual sense of the term, but is a gang fighting for justice. To protect the powerless from abuse, fight corruption; to ensure basic rights of the poor in rural areas and to discourage traditions like child-marriages is their mission. Today, the Gulabi Gang has thousands of women members, and several male supporters as well, spread across several districts in UP. They have many successful interventions to their credit. Although the group's interventions are largely on behalf of women, they are increasingly called upon by men to challenge not only male authority over women, but human rights abuses inflicted on the weak.

Whether it is ensuring the proper public distribution of food-grains to people below the poverty line, or the disbursement of pension to elderly widows, who do not have a birth certificate to show their age, or preventing the abuse of women and children, the Gulabi Gang is in the forefront, bringing about systemic change; by adopting the simplest of methods - direct action and confrontation

Source: Gulabi Gang. (n.d.). Welcome to Gulabi Gang. Available at www.gulabigang.in

entirely by rural women from backward communities (SCs and STs, Dalits and Muslims) helps to keep its readers informed about local issues and developments and is extremely popular in Bundelkhand. It covers local political news, local crime reports, social issues and entertainment. Today, it has over 40 members, and is sold in 600 villages, and has a circulation of 6,000 copies. This paper was first started in Bundeli, the local dialect, and has now expanded to other languages/dialects like Bhojpuri, Awadhi, Hindustani and Bajjika. It is the only local language newspaper that covers news, which is off the radar of the mainstream media. It connects with its rural audience, with its unique local language content, rarely seen in print, and provides an important platform for the people to voice their concerns.

Summing up

Field visits[9] in Bundelkhand show that women continue to face discrimination in wages and employment, in access to schools and have little or no voice in decision-making.

- There is discrimination in wages paid to women in Bundelkhand (on an average, women are paid 20 percent less than men). Agriculture labour payments for men ranged between Rs. 180-300 per day and between Rs.90-200 per day, for women. Women are actively discouraged from taking up many of the labour jobs.
- Girls are discouraged from going to secondary school and whenever girls have to travel any distance to go to school, families prefer to keep them at home. The poor security environment in the region does not help.
- Low participation of women in family decision-making.
- Although the proportion of women members in local self-government bodies is more than 33 percent, due to reservations, they are usually there largely in name, and it is their husbands/ brothers/ or other male members in the family, who perform the functions. While this is not uncommon in all of UP and MP, discussions revealed that this is more prevalent in the Bundelkhand region.

ii) The Scheduled Castes and Scheduled Tribes

The SCs constituted 23.5 percent of Bundelkhand's population in 2011, evenly divided between the two states. The STs constituted 4.3 percent of the population. They are largely concentrated in the MP region, accounting for 8.3 percent of the MP-Bundelkhand population, and are only 0.8 percent of the population of UP-Bundelkhand. Together, these communities make up 27.8 percent of Bundelkhand's total population (30.5 percent in MP-Bundelkhand, and 25.5 percent in UP-Bundelkhand).

According to the Census 2001 figures[10], Gonds constitute the largest ST group in MP-Bundelkhand, with a population of over 300,000; in MP as a whole they were the second largest ST group, after the Bhils. Other sizeable ST groups in MP-Bundelkhand were Kols, Sahariyas, Saurs, Khairwars and Bharia Bhumias.

The status of the SCs and ST communities is very different. The SCs face caste-based discrimination in social customs, practice and in politics. Literacy rates are 63 percent for SCs, and are between five to seven percent lower than the literacy rates for the general category. Female literacy, even after decades of

Table 5.4: Percentage of SC/ST population in Bundelkhand

State/District	SC population	ST population
MP	**15.6%**	**21.1%**
Chhattarpur	23.0%	4.2%
Damoh	19.5%	13.2%
Datia	25.5%	1.9%
Panna	20.5%	16.8%
Sagar	21.1%	9.3%
Tikamgarh	25.0%	4.7%
MP-Bundelkhand	**22.2%**	**8.3%**
UP	**20.7%**	**0.6%**
Banda	21.6%	0.0%
Chitrakoot	26.9%	0.0%
Hamirpur	21.8%	0.0%
Jalaun	27.7%	0.0%
Jhansi	28.1%	0.2%
Lalitpur	19.7%	5.9%
Mahoba	25.2%	0.1%
UP-Bundelkhand	**24.7%**	**0.8%**
Bundelkhand	**23.5%**	**4.3%**

Source: Primary Census Abstract 2011

[9] These visits were undertaken by the HDR Team where they met local people, individually and in groups, local voluntary organizations, government officials, etc.
[10] Census 2011 has not yet released population data of communities within SCs and STs, hence we use data from 2001.

sustained effort to educate the girl child, and universalizing adult literacy, remains abysmally low, at less than 50 percent. Within the region, the literacy rate of the Dalit population is even lower in Tikamgarh, Chhattarpur, Panna, Mahoba, Banda and Chitrakoot districts.

In the last 10 to 15 years, enrolment of children from the SC community in schools has improved substantially, even though they face discrimination once they are in school. Government campaigns to universalize school education have benefitted all communities, especially people from the SC/ST communities, because the focus in these drives was to ensure that marginalized communities were not left out. The figures for SC children enrolled in schools as a percentage of all enrolment, in each of the 13 districts exceeds the share of the community in the total population[11].

Throughout Bundelkhand, there is a subtle yet evident consciousness of the caste of children, even though this varies from village to village and locality to locality. Interestingly, what this shows is that while on the one hand, education is bringing enlightenment and awareness that enables people to struggle peacefully against the entrenched caste system, on the other hand, these forms of discrimination support the hierarchy of caste as an important social reality, sustaining the caste system itself. These forms of discrimination pertain to "maintaining a balance between the elements that shall enable struggle (education), and a practice that shall allow it". So in some schools, children get separate seating depending on their social status, and in some villages, SC children are encouraged to drop out of school, by the local power elite and sometimes even by the teachers themselves. The progressive change has been near universal enrolment of children from the SC community, due largely to pressure from the Right to Education Act. The persistence of discrimination remains post-enrolment, when there is unequal treatment of children from different communities. In many cases, even school teachers, either themselves do not or are unable to pay equal attention to children from the SC communities. During field visits by the HDR Team, in some villages, school authorities/ teachers claimed that social discrimination is a reality of their schools. The teachers also stated that often they are not able to pay equal attention to children from the SC communities[12].

Literacy among the SC and ST communities

While the SC literacy rate was 63 percent, literacy amongst SC women was less than 50 percent. Similarly, literacy amongst ST was 49 percent

Table 5.5: Literacy rate amongst the Scheduled Castes in Bundelkhand, 2011

	Total	Rural	Urban	Male	Female
MP – Bundelkhand SC	63.4%	60.4%	74.9%	73.6%	51.9%
MP – Bundelkhand	68.7%	64.8%	81.9%	78.1%	58.1%
UP – Bundelkhand SC	62.6%	60.5%	71.5%	74.5%	48.9%
UP – Bundelkhand	69.3%	66.2%	79.3%	79.9%	57.1%
Bundelkhand SC	63.0%	60.5%	73.1%	72.0%	48.9%
Bundelkhand	69.0%	65.5%	80.5%	79.1%	57.6%

Source: Primary Census Abstract, 2011

[11] Data from Census 2011 and DISE 2011-12.
[12] Two teachers informed the field teams of the difficulty in treating all children equally, due to local social pressure from parents of non-SC communities and tacit support of locally elected representatives and school supervisory authorities.

Table 5.6: Literacy rate amongst the Scheduled Tribes in Bundelkhand, 2011

	Total	Rural	Urban	Male	Female
MP-Bundelkhand ST	50.5%	49.9%	59.6%	59.3%	41.2%
MP-Bundelkhand	68.7%	64.8%	81.9%	78.1%	58.1%
UP-Bundelkhand ST	32.3%	31.4%	44.5%	40.6%	23.4%
UP -Bundelkhand	69.3%	66.2%	79.3%	79.9%	57.1%
Bundelkhand ST	48.8%	48.2%	58.0%	40.6%	39.5%
Bundelkhand	69.0%	65.5%	80.5%	79.1%	57.6%

Source: Primary Census Abstract, 2011

and the literacy rate amongst ST women was below 40 percent. The SC and ST communities suffer from much lower literacy achievements compared to the general population, with SC literacy lower than the regions, average by six percent and ST literacy lower by 20 percent. Their women face double marginalization, of being women and a dismal literacy rate.

Land and Employment

Where do these communities stand with respect to ownership of land and employment? Inequality in Bundelkhand is equally visible in land ownership. Most social, economic and political power in this region flows from ownership of land, and the hierarchies in society

and economic classes are as much reflected in land ownership, as in customs and practices. Government recorded data on land ownership does not reflect the full reality. Due to the various land ceiling acts and land registration systems, a large number of erstwhile *zamindars* (land owners) have put lands in the names of various other people (ranging from relatives to servants to loyalists), to avoid violating provisions of the Land Ceiling Act, and are still able to own, cultivate and benefit from the trappings of large land ownership.[13]

This is followed by new land owners, who invest in land and continue to expand their land assets. Land ownership data in fact reports a much lower proportion of large land holdings than what the real situation is, but even so what is reported shows the highly unequal pattern of ownership of land (see table 5.7 below). For STs, land ownership is not a major issue; for them, historically and even at present, the dependence on other land-based activities is more important.

The data shows that people belonging to the SCs and STs (who account for 27.8 percent of the population, of which 23.5 percent belong to SCs), account for only 22.2 percent of the land owners (18.9 percent belong to the SC community) and account for 16.2 percent of the land owned (13.2 percent of the land belongs to the SC community). The average land holding size in Bundelkhand is 1.6 hectares (average for all land holdings in 2005-06), which itself is uneconomic, but the average land holdings size for SC and ST community is even lower; 1.1 hectares for SCs and 1.5 hectares for STs[14].

If the SCs and STs, especially the former are deprived of sustainable land holdings, what employment opportunities do they have? The

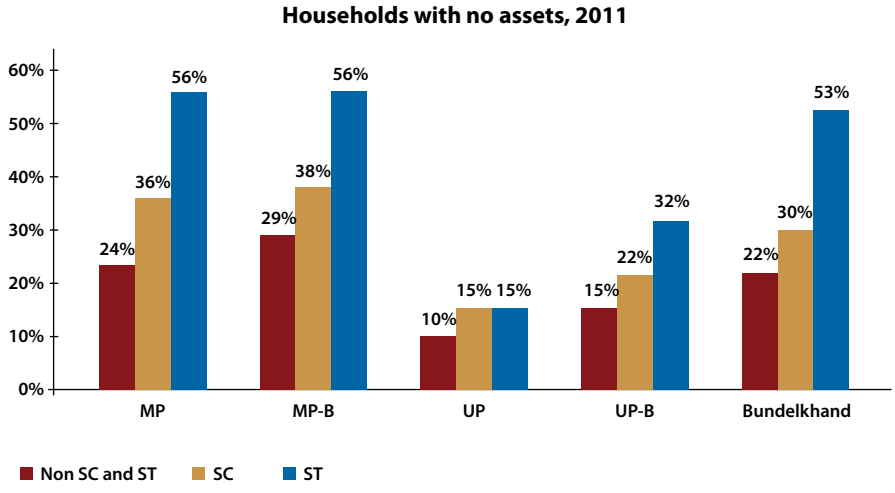
Table 5.7: Land ownership by Scheduled Castes and Scheduled Tribes and average land holdings, 2005-06

	SCs as a percentage of the population	SCs as a percentage of land owners	Percentage of land owned by SCs	STs as a percentage of the population	STs as a percentage of land owners	Percentage of land owned by STs
MP -Bundelkhand	22.2%	19.7%	14.0%	8.3%	6.9%	5.8%
MP	15.6%	13.3%	8.8%	21.1%	20.6%	20.2%
UP - Bundelkhand	24.7%	18.3%	12.4%	0.8%	0.5%	0.4%
UP	20.7%	17.1%	10.8%	0.6%	0.2%	0.4%
Bundelkhand	23.5%	18.9%	13.2%	4.3%	3.3%	3.1%
Average size of Land Holding (in hectares)						
	All	SC	ST			
MP -Bundelkhand	1.8	1.3	1.5			
MP	2.0	1.3	2.0			
UP -Bundelkhand	1.5	1.0	1.3			
UP	0.8	0.5	1.3			
Bundelkhand	1.6	1.1	1.5			

Source: Agriculture Census 2005-06

[13] Economic and Political Weekly. (2010). Drought by Design: The Man-made Calamity in Bundelkhand. Economic and Political Weekly. Vol. XLV No. 5.
[14] Land ownership data is available till 2010, but community wise is last available from 2005-06

Figure 5.4: Households with no assets



Source: Primary Census Abstract 2011

People Speak :

SC households in a part of Lalitpur have lost their traditional occupations. All 60 SC families in this village leave early morning every day, to collect firewood from the forest, where they have to contend with an un-friendly, hostile and corrupt forest administration.

After they collect firewood, they take a local train to the Lalitpur railway station. They reach by the evening and sell their wood lots, and earn between Rs 50 to 60 for the entire lot, but this is not always the case.

Census 2011 data on employment as main and marginal workers[15] shows that 48 percent of SCs and 62 percent of STs were engaged as agricultural labour. Even though these groups account for less than 28 percent of the population, they account for 38 percent of all agricultural labourers. The marginalization in society is reflected in marginalization in occupation. To pick up more specific examples, in UP-Bundelkhand, 24.7 percent SCs make for 37 percent of the agricultural labour, in MP-Bundelkhand, 8.3 percent STs account for 15.4 percent of the agricultural labour.

Data from the Census 2011 provides information on the living conditions of these communities. Census data shows households with none of the queried assets, which amounts to highly vulnerable households.

In each of the regions, the proportion of SC and ST households is higher than non-SC and non-ST households, in asset-lessness. Thirty percent of such households amongst SCs and 53 percent of households amongst the tribal community exhibit high levels of deprivation, while the proportion of non-SC and non-ST households with no assets was 22 percent in entire Bundelkhand. The proportion of such households was substantially higher in MP-Bundelkhand as compared to UP-Bundelkhand, and in MP as a whole as compared to UP (see Figure 5.4).

There are a number of reports on the condition of tribals in Bundelkhand, which highlight the abysmal situation[16]. Combine this with very little land, depleting forest resources from

[15] For marginalized communities such as the SCs and STs, the category of 'marginal workers' as employed by the Census is important in the overall assessment, since these poor communities cannot afford to remain idle, hence even marginal days of work for many constitute an essential job, contributing to household incomes and assisting in surviving and/ or living.
[16] Action Aid. (n.d.). Sustainable livelihoods for Dalits and Tribals in Bundelkhand Region.
Available at http://www.actionaid.org/india/what-we-do/madhya-pradesh/sustainable-livelihoods-dalits-and-tribals-bundelkhand-region

Table 5.8: Households with all the assets, Census 2011

	Non SC and ST	SC	ST
MP	4.2%	1.1%	0.4%
MP-Bundelkhand	1.6%	0.4%	0.2%
UP	3.4%	1.0%	3.2%
UP-Bundelkhand	2.0%	0.9%	1.6%
Bundelkhand	1.8%	0.7%	0.4%

Source: Primary Census Abstract, 2011

which many eke out a living, collecting NTFP, and the deprivation is apparent.

The more prosperous households are very few, only 0.7 percent amongst SCs and 0.4 percent amongst STs. Due to the policy of positive discrimination of the Government, there are reservations in jobs, and Government servants belonging to the SC/ST categories are likely to be having homes/ households with the type of assets that the Census has counted. If in spite of Government servants being counted in the Census, the number of SC and ST households with all assets is so low; the condition amongst the general population of SCs and STs can be imagined.

The SCs undertake a large variety of labour work, even when they posses small portions of land. This has become essential with small-holdings being un-remunerative. Migration is an option that provides for both better earnings and helps to escape the clutches of discrimination, indignity and feudal control. Most SC families combine various alternatives – own farming if they own land, local labour, if and when available, some MG-NREGA work, (although there were many complaints regarding its implementation, including meeting the target of 100 days of work, late payments, corruption by *Panchayat* leaders and staff) and manual labour in nearby areas or even long-distance migration. The most vulnerable are those

who do not have land but have a traditional occupation in which they are skilled. With their skills losing markets (basket-weaving, drum -beating, leather work, etc.), they are unable to move out of their occupations and are unable to acquire any new skills. Most of the younger generation engages in basic un-skilled labour or if they are able to get training in a Government run centre or on-the-job training, they may move to skilled employment.

People Speak :

A Sahariya family in Lalitpur collects firewood, *neem*, *mahua* (in March and April), *tendupatta* (in May and June), *gulli* (in June and July), *achaar, aonla* and *gudbel*, etc. for their livelihood. The male members of their family work as agricultural labour and together they are just able to sustain themselves.

Access to Amenities

Drinking water throughout Bundelkhand is primarily from hand pumps and wells. Tap water is available to only 12 percent of the population, but if we take non-SC and non-ST households, then the percentage of households with access to tap water goes up to 21 percent. Access for SC households is only 8.6 percent, for ST households, it is only 4 percent. The difference in the provisioning of tap water is stark reflecting how and where SC and STs live, and it becomes obvious that people belonging to non-SC and non-ST communities seem to be better provisioned in basic amenities.

Regarding access to electricity, the difference between regional average and SCs is high in the UP part of Bundelkhand, and there is greater equity in MP. However, the tribal communities have similar access figures, in both the states.

The provision of toilets is extremely poor. In MP-Bundelkhand. Less than one in every ten Dalit households had access to a toilet, and for entire Bundelkhand this figure was only a bit better at 15 percent, much lower than the average of 28 percent for non-SC and non-ST households. The results of recent efforts at full sanitation coverage under the Swacchh Bharat campaign are not known and may certainly have improved the access numbers.

Similarly, even in access to electricity, the difference in access is about 10 percent; it is much higher among non-SC and non-ST households, compared to SC and ST households.

In case of all the three basic amenities – drinking water, electricity, and toilets, SC and ST households are worse off than the average in the region, which itself is very low.

Table 5.9: Source of drinking water, social groups, Census 2011

Category	Tap water from treated source	Tap water from un-treated source	Un-covered well	Hand pump	Tube well/ Bore well
Non SC ST	20.9%	8.3%	17.6%	40.9%	9.6%
SC	8.6%	2.8%	17.6%	67.9%	1.3%
ST	4.0%	2.5%	30.7%	57.0%	1.1%
All	11.6%	3.1%	20.5%	60.1%	2.4%

Source: Primary Census Abstract, 2011

Table 5.10: Access of Households to electricity and toilets, SCs and STs, 2011

Area Name	Toilets			Electricity		
	Non SC and ST	SC	ST	Non SC and ST	SC	ST
MP Bundelkhand	21.6%	8.1%	4.2%	58.7%	52.4%	37.2%
UP Bundelkhand	34.5%	21.2%	24.7%	36.3%	25.8%	31.4%
Bundelkhand	28.0%	14.8%	7.3%	47.6%	38.8%	36.3%

Source: Primary Census Abstract, 2011

Discrimination and prejudices

Caste based prejudice is common in Bundelkhand even today; both subtle and open forms of discrimination are seen and practiced. A number of cases of such prejudices and acts of overt and covert violence have been reported about Bundelkhand (see Box 5.3).

The innumerable instances of discriminatory practices manifest themselves in a serious pattern of exclusion, denial of civil rights, fostering illegal ways of denying basic rights, and all this is unfortunately institutionalized into government, service delivery, programme delivery and the political set up.

Tribals and the collection of NTFP

The major tribal groups in Bundelkhand are the Sahariyas, the Kols and the Gonds. These tribes usually depend on the collection of minor forest produce (MFP), apart from tilling the land (by those few who own land), or they migrate in search of better options. Once a heavily forested area, few forest areas remain now in Bundelkhand. The forested area remaining is largely in Jhansi, Lalitpur, Banda and Chitrakoot districts of the UP-Bundelkhand region and comparatively better forest cover is found in the MP-Bundelkhand region; in the districts of Sagar, Damoh, Chhattarpur and Panna.

For centuries, the dense forest in Bundelkhand region has played a vital role in the livelihood of tribal communities residing in the adjoining forest areas; by complementing agriculture, providing grazing for livestock, fuel-wood and the collection of NTFPs. Degradation of the forest cover has meant that all these communities dependent on the collection of NTFP have been severely affected. The condition of the Sahariyas, who were totally dependent on forests and on NTFP, has become very vulnerable following decrease in forests and inability of Government to effectively deal with these issues. Their condition has always been precarious and they were identified amongst the Particularly Vulnerable Group amongst tribal communities (see Box 5.5). The Kols, are also heavily dependent on the forests, while the Gonds do some farming, so their dependence on forest-based livelihoods is a little lower (see Box 5.6).

The major NTFPs found in forest areas of Bundelkhand are *aonla, tendu, mahua, harra, bahera, gular, jamun, siddha, chironji, bel, palash leaves, shatavar,* honey, etc. Besides, there were about 450 species of medicinal and aromatic plants that were found till 1980-85, in Bundelkhand, but this figure has now reduced to about 40 to 45 plants. These plants are the main source of income for the tribals. It is the women of the tribal communities who are largely engaged in collecting NTFPs, from the forests and selling this in the markets nearby. Since there is no Government support for the purchase of NTFPs, except for *tendupatta*, the people have to sell the collected NTFPs to local traders, often at un-remunerative rates. For example, the local traders purchase *mahua* at

Box 5.3: Discrimination against Dalits in Bundelkhand

Caste discrimination and the practice of untouchability are still rampant in the Bundelkhand area. According to a Hindustan Times report, in Lalitpur district, Dalits cannot join literacy centres. Five women were beaten up by upper caste people for opening an adult literacy centre for Dalit women in Digwara village. Dalit women are not allowed to wear footwear in front of upper caste people in rural areas.[1]

In Mahoba village, located in Mahoba tehsil of Mahoba district, a Dalit village pradhan was tied up and brutally beaten by a moneylender, belonging to the upper caste, after failing to repay the very high interest on a loan.[2]

In another case of caste-based discrimination, a Dalit bridegroom in Sadwa village, Chhattarpur district, was forced to get off his horse and was brutally beaten by men belonging to the upper caste, because the right to ride a horse was limited to the upper castes while the lower castes had to go on foot to seek the blessings of the village elders as per the "village tradition".[3]

A Dalit woman who works as an agricultural labourer in Chhattarpur district was forcibly dragged away from her house, brutally beaten and raped by men belonging to the Thakur community (upper castes). The men who raped her have also raped other women from the Dalit community but the villagers are scared to raise their voice against them because of the rampant caste discrimination.[4]

Sources:

[1] Hindustan Times. (2013). Dalit atrocities in Lalitpur: NHRC demands report. Hindustan Times. Available at http://www.hindustantimes.com/lucknow/dalit-atrocities-in-lalitpur-nhrc-demands-report/article1-1073012.aspx

[2] Singh, L.B. (2007). Atrocities against UP Dalits in the wake of Mayawati's victory: Disturbing Trends. Available at http://www.cpiml.org/liberation/year_2007/July/up_dalit_atrocities.html

[3] Outlook. (2014). NHRC Notice to MP Govt over atrocity against Dalit groom. Outlook. Available at http://www.outlookindia.com/news/article/NHRC-Notice-to-MP-Govt-Over-Atrocity-Against-Dalit-Groom/846440

[4] Bundelkhand.in. (2004). Valorized and real status of women in Bundelkhand. Available at http://www.bundelkhand.in/portal/info/valorised-real-status-women-in-bundelkhand

Box 5.4: Dalits discriminated against even in MGNREGA implementation, in UP

According to a study, *Dalits of Bundelkhand*, conducted to evaluate the performance of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), corruption, irregularities, lack of transparency and accountability were found in the implementation of MGNREGS in the 50 poorest villages of Bundelkhand, UP, which was the focus area of the study. Some examples:

- In Mangawan village, Manikpur block, Chitrakoot district, several Dalit people have not been given work under MGNREGS. Muwai, a very poor Dalit, was given only 28 days of work in 2008 and four days of work in 2009. Rampratap and Rajiyawan got 60 days of work in 2008 but were paid a daily wage of Rs. 50, when the wage should have been Rs. 100.

- Even the Dalits who were awarded work under MGNREGS were not paid their full wages. Sitaram, a Dalit in Mangawan village worked for 120 days in 2008 and 2009 but was paid only Rs. 1,000 whereas his total wage amount was Rs. 23,000. Sitaram's case is not the only one. Several other Dalits have not been paid their wages including Daddu and Raj Kumar. Raja, a Dalit worker, who worked in a NREGS project, implemented by the forest department, has not received any money after working for 120 days in 2008 and 2009.

- In Gaharoulimaf village, Lalitpur district, 27 Dalit households were surveyed. Most households had worked for a few days under NREGS, but their job cards had numerous fake entries. Harabubai says that she has not worked for a single day under NREGS in the past four years, but her job card showed fake entries for 99 days. Haribai, another poor Dalit, worked for 70 days but her job card shows that she worked 239 days.

- In Sakara village, Madawara Block, a Sahariya Adivasi had worked for 100 days in four years but his job card had fake entries showing that he had worked for 425 days.

- The villagers in Lakshmanpur Choukipurwa, Manikpur block, complained that they did not get adequate work under NREGS. When they did get work, they had to wait for several months before they received their payments.

- Five households of Doms (considered to be the most backward Dalits) in Haradidadi Bhathapurawa village, were denied work under NREGS by the Gram Pradhan, because they were untouchables, and other castes would not work with them.

- A dominant community in Chheriyakhurd, Chitrakoot district is the local land owning community. Most of the households of this community in the village had job cards. According to local activists, a large amount of money had been siphoned off from NREGS funds and distributed between leaders of this community and collaborating officials.

- In Kekramar village, only one household has a job card out of a total of 40 Dalit households.

Source: Rai, P. (2010). Dalits of Bundelkhand. Centre for Environment and Food Security. Available at http://www.cefs-india.org/reports/State%20of%20NREGA%20in%20Bundelkhand.pdf
NREGA. (n.d.). State Wise Notified Wages for MGNREGA (Rs./Day). Available at http://nrega.nic.in/nerega_statewise.pdf

prices as low as Rs. 4 to Rs. 5 per kg, from the villagers and sell it in the market at Rs.25 to Rs.30 per kg. *Mahua* is the most remunerative of all the forest produce, and discussions with tribal groups[17] show that in good years, *mahua* collection can fetch them additional incomes of Rs.40,000 to Rs.50,000 per annum.

The people are also engaged in bamboo crafts, made from harvested bamboo. Basod families engaged in this craft used to get a certain amount of bamboo, free of cost, from the forest in the past but this has stopped. In the open market, the cost of bamboo is very high, and people are now turning away from this traditional occupation.

Villagers used to make *donas* and *pattals* (small containers and plates made from leaves) from *tendu* and *palash* leaves. However, deforestation has affected this work as well. Removal of firewood, fodder collection, grazing and unsustainable NTFP collection have resulted in the gradual depletion and degradation of forests in the region. In the MP part of Bundelkhand region, there are eight district unions, which have been formed for minor forest produce, under which 228 primary minor forest produce co-operative societies function. The Government of Madhya Pradesh has established the Minor Forest Produce Processing and Research Centre (MFPPARC) for value addition and better marketing of the MFP and the products are now being sold under the 'Vindhya Herbals' brand.

The Sahariyas and Kols – tribal and not tribal – but equally destitute

The Sahariyas and the Kols are designated as STs in MP but not in UP. The Sahariyas are mostly forest dwellers; their main source of income comes from the forest, and they are expert forest gatherers and woodsmen. Depleted forest resources have rendered them almost destitute, reducing not just their incomes but also the resources for their own consumption. With forests unable to sustain them, they have taken to labour and sundry work as woodcutters, basket makers, working in mining and quarrying, and breaking stones. Due to their precarious condition, they have now been classified as Particularly Vulnerable Tribal Groups. The condition of the Sahariya tribals is distressing in entire Bundelkhand, but more so in UP, where they do not have tribal status. They live in abject poverty, and there are reports of Sahariya children having been sold as bonded labour or even as modern day slaves (see Box 5.5). The high intensity of migration and the poor condition in their homes, confirm reports that there is starvation and widespread malnourishment amongst the Sahariyas. There are also many stories of change in Sahariya lives, where they are bringing change in their lives through organization, resistance, demanding their rights and in co-operation with other organizations[18].

The Kols, also depend on forest resources and are already facing the challenge of depleted forest reserves, especially in UP, which does not recognize their rights (since they are not listed as belonging to STs in UP). Rights recognized under the Forest Act and the Forest Tribal Rights Act, are not accorded to them, therefore their right over land that they have cultivated over years but which falls in the forest area has not been recognized. The Kols have faced exploitation across the Bundelkhand region, and are forced into semi-bonded labour, and face harassment from forest officials, as their livelihood depends on collection of forest

[17] Fieldwork by HDR Team
[18] http://actionaid.org/sites/files/actionaid/critical_stories_of_change_iv.pdf

Box 5.5: A hard days night for the Sahariyas of Bundelkhand - children out to work

In the hope to make some money, 16-year old Babu Lal Sahariya left his home in Sakara village in southern Uttar Pradesh's Lalitpur district, in January 2014. He headed to the jungles of adjoining Rajasthan. In his new job, he walked 30 kms everyday, grazing cattle in return for two square meals and Rs. 2,000 a month. This was his eighth trip. He was among 100 such children of the Sahariya tribe, from the district, to become bonded labourers in the jungles of Madhya Pradesh and Rajasthan. Their families have been pushing children into modern day slavery in the hope of saving them from poverty and starvation.

Parents have been handing over their children, for sums of money as little as Rs. 2,000 to Rs. 6,000 a month, to men who then transport them to different states to work. There are no written contracts and no clear definition of work or working hours. Often, the children do not even know when they would be allowed to return home. Yet, the grim conditions at home make the children eager to leave.

Today, the villagers of Sakara are dependent on farming, selling of tendu leaves, and government welfare schemes like MGNREGA. Farming is often difficult, as the area has little irrigation. MGNREGA work has not been very helpful either as the villagers say that the payments are irregular. Therefore, the tribe has been resorting to sending their children away. Some villagers say that the children have been sent out for the last decade or so. However, there are others, who are apprehensive about media coverage and insist that the trend is only about two years old.

In May, based on a complaint filed by the NGO, Action Aid, the National Human Rights Commission sent a notice to the Lalitpur district magistrate. A team was constituted to look into the matter. Subsequently, the police have brought back five minor children from Mainpuri (UP) and Jalaun (MP), based on the testimonies of villagers. During interviews with

members of the Child Welfare Committee, all five children said they had set out willingly to work and that they would happily go again. This only points to how horrible the conditions are in Sakara. According to the report in the Hindustan Times, children do not mind working on such arduous jobs because they were guaranteed two meals a day. Poor and illiterate parents, who are often ignorant about child labour laws, point to how compelled they feel to send their children to work in such inhuman conditions.

The day begins at 4 am in the jungle and goes on until 9 am, when the children get an hour-long break, then the second shift begins, from 10 am to 5 pm. Each child is responsible for about 500 sheep. Sanju stayed in the forest for eight months during his last trip. He was paid Rs. 3,500 a month. "Here, I will die of hunger. In the jungle, we get food and occasionally, milk and curd. I am itching to go back," said Sanju.

After Sanju's father Ram Lal's crop was destroyed, he incurred a loss of Rs. 10,000 and needed another Rs.7,000 to repay the loan he had taken to buy a water pump to irrigate his 2.5 acre plot of land. Had he not sent his son to work, his entire family would have died of hunger.

Jaalam Sahariya's son, Brijesh has an inflated stomach, hollow cheeks and sunken eyes. For three years, the father of five observed other families sending their children away to work. After observing other families send their children away to work, this father decided that Brijesh was old enough to earn and asked one of the boys to take him along.

His son, like in other families, was helping him in his time of distress. Jaalam rolls tendu leaves (a hundred bundles will get him Rs. 75). He said that numerous pleas to the village head for payment for MGNREGA work went unheeded. It is common for the village head to keep the job cards of the villagers. Making false entries in them becomes easier that way.

Source: Raza, D. (2014). Hard lives for the Sahariyas of Bundelkhand. Hindustan Times. Available at http://www.hindustantimes.com/india-news/hard-lives-for-the-sahariyas-of-bundelkhand/article1-1227259.aspx

produce. Another form of exploitation that they face is from local dacoits, who often force Kols to give them shelter, and have been known to abuse their women. The Kols face harassment from the local police as well, who accuse them of sheltering dacoits[19] (see Box 5.6).

Box 5.6: Bonded Labour exists in the quarries and mines

A study of Manikpur and Mau blocks in Chitrakoot's *pathar* region (plateau and hilly region) to investigate the prevalence of 'bonded labour' found that "there are still large numbers of Kols, who are working in the stone quarries and mines in Chitrakoot district, under conditions of acute bondage". The study further found that "the root cause of perpetuation of bondage lies in the strong entrenchment of landlordism and its alliances with the contractors of stone quarries and mines, which is inextricably tied to the political and administrative power structure".

The study commenting on the history of Kols in the region, states that, 'until some 200 years back, the Kols were the real landowners in the Manikpur and Mau blocks. Within the last 200 years, most of the Kols have been reduced to landless workers and, further, to a situation of bondage'. Several unscrupulous castes from outside took advantage of the simplicity of the

[19] Gautam, R.S. and Iyer, G. (2005). Analysing the effectiveness of the programmes for the eradication of the bonded labour system in Uttar Pradesh. Centre for Education and Communication. Available at http://www.cec-india.org/archs/EffectivenessoftheEradicationofBondedLabour2005UttarPradesh.pdf

Kols, and grabbed their land in the initial stages. As a result, within a few generations they lost most of the land cultivated by them. They became slaves to the big landowners. The latter reduced them to the status of wage labour and went on to become forest contractors and quarry owners. The Kols were subjected to ruthless exploitation both by the landlords and the quarry owners. Land is the single-most important source of livelihood for the Kols. The land is controlled by the big landlords, and the Kols are often forced to work as bonded labourers getting as little as five pav (about 1.2 kilograms) of grain a day.

The land reform and land redistribution measures failed, as influential landowners colluded with corrupt officials to retain a portion of even those lands that had to be allotted to the poor. The Kols, in many cases did not even know that the land was allotted to them. Moreover, any resistance was put down heavily.

"Newer forms of exploitation and atrocities have been perpetrated on them. A grave instance is that of officials of the forest department grabbing the lands of the Kols, on the plea of 'encroachers'... threatening the very base and source of their livelihood".

A local voluntary organization, formed in 1978, namely the Akhil Bharat Samaj Seva Sansthan (ABSSS) Karwi (Chitrakoot), has done considerable work for the liberation of the Kols from such bondage.

Source: Gautam, R.S. and Iyer, G. (2005). Analysing the Effectiveness of the Programmes for the Eradication of the Bonded Labour System in Uttar Pradesh. Centre for Education and Communication. Available at http://www.cec-india.org/archs/EffectivenessoftheEradicationofBondedLabour2005UttarPradesh.pdf

Description of caste on house wall in Mahuabandh Village, Jaitpur Block, Mahoba district

Basod families fetch drinking water from the river in Gudhakala village of Narayani block, as they are not permitted to use other sources in the village

Children belonging to Basod families in Gudhakala village of Narayani block

6

Development and the Infrastructure Challenge

Chapter 6

Basic infrastructure is essential to an enabled and better life, for example, good roads ensure that people can travel safely, that they can transport their goods to the market or access markets for themselves. The availability of electricity helps to light up people's homes, to make their businesses more productive, allows access to the many technologies that modern science has made available to make their lives better, to be able to communicate with each other, or to access information. The availability of drinking water and sanitation facilities, help to lead healthy and quality lives and are the very basis of human development.

The State is the biggest player in the provisioning of infrastructure, in deciding what infrastructure is needed, where and in what manner, it enables access to critical education and health services, to places of work and markets, to drinking water, sanitation, etc. For a backward region like Bundelkhand, the supporting or energizing role that infrastructure can play is even more important. Infrastructure development has a positive effect on reducing poverty and in bringing dynamism to livelihoods. Studies from across India have shown how rural roads, irrigation infrastructure, establishing mandis, regular power supply, etc. have had substantial impact on villages, reducing poverty and drudgery and giving a boost to people's incomes.

Providing connectivity – road to development

Bundelkhand region has reasonable national connectivity; it is connected through national highways to Delhi, Gwalior and to regions of

the south, west and central India. It is also well connected to Kanpur, Allahabad, Bhopal, Indore and the NCR. The national highway runs east to west connecting Jhansi to all the major UP districts and the MP districts, to its east and north-east. Major national highways (NH) in Bundelkhand are NH 25, 75, 76, and 86 and all the large towns and district headquarters are connected to one of these highways. The road density in UP Bundelkhand is nowhere near the average of the state as a whole, but when we consider the fact that the population density of UP-Bundelkhand is just 40 percent of the state's population density, then the road density that is half that of the state as a whole, is not inadequate. In MP-Bundelkhand too, the road density is 92 percent of the state's average, and population density is about 90 percent of the average in the state. Unfortunately, very little data is available on road connectivity to villages/ habitations in either of the two states to be able to say how many villages/ habitations or towns have all-weather connectivity. There are four to five

Table 6.1: Road network in Bundelkhand

State	Area in square kms	National Highways (in kms)	State Highways (in kms)	District main roads (in kms)	Total rural roads (in kms)	Road density in the state (roads per 100 square kms)
UP	**240,928**	**6,035**	**9,198**	**8,827**	**166,043**	**76**
Banda	4,460	67	234	107	1,738	47
Chitrakoot	3,164	96	21	275	943	39
Hamirpur	4,282	63	155	142	1,315	38
Jalaun	4,565	82	142	85	1,936	47
Jhansi	5,024	137	142	69	1,482	34
Lalitpur	5,039	99	0	116	1,325	29
Mahoba	2,884	144	7	86	1,141	43
UP-Bundelkhand	**29,418**	**688**	**701**	**880**	**9,880**	**39**
Share of UP	**12.2%**	**11.4%**	**7.6%**	**10.0%**	**6.0%**	
MP	**308,245**	**4,721**	**8,217**	**11,051**	**48,590**	**22**
Chhatarpur	8,687	204	167	480	1,412	24
Damoh	7,306	0	345	250	991	22
Datia	2,691	29	125	70	352	20
Panna	7,135	55	195	332	565	15
Sagar	10,252	295	269	582	812	16
Tikamgarh	5,048	16	187	216	1,040	29
MP-Bundelkhand	**41,119**	**599**	**1,288**	**1,929**	**5,171**	**20**
Share of MP	**13.3%**	**12.7%**	**15.7%**	**17.5%**	**10.6%**	
Bundelkhand	**70,537**	**1287**	**1989**	**2809.3**	**15,051**	**28**
India	**3,287,240**	**79,243**	**131,899**	**467,763**	**265,000**	**26**

Source: Compendium District Wise Industrial Profile of MP 2012; Directorate of Economics and Statistics, UP; National Highway Authority of India

major centres where national connectivity needs to be further strengthened. These are Khajuraho, Jhansi, Sagar and Chitrakoot.

Overall the condition of the roads is poor throughout the region. Travelling through some of the regions, especially in the interior

In the Kabrai block headquarters, trucking operations have destroyed the entire stretch of the road

Box 6.1: Quality of roads – ground reality

As the HDR team drove through some districts a log was maintained detailing the condition of the roads. Some of the stretches require urgent attention.

- 15 kms from Mahoba town is the Kabrai block headquarters, where over 250 stone crushing machines were in operation. The trucking operations have destroyed the entire stretch of the road (see the photograph above)
- The Banda to Karbai road had a stretch of 20 kilometres or so, which was very badly damaged, out of the entire 72-kilometre stretch.
- From Kabrai to Gram panchayat Bila south, the four kilometres stretch from the main road was entirely damaged (see photographs on page 160).
- Of the 350 kilometres distance between Chhatarpur and Bhopal, 200 kilometres of road was damaged, and the total time taken to travel this distance by a motor vehicle was 10 hours.
- The distance between Lavkushnagar and Maharajpur bock headquarters in Chhatarpur is 22 kilometres and this entire stretch was found to be in a very poor condition.
- The 80-kilometre stretch between Lalitput and Tikamgarh was damaged in most places.
- About 20 kilometres of the 52 kilometres long distance between Banda and Mahoba was damaged.
- The entire road between Chitrakoot and Manikpur block headquarters was damaged.
- The Chitrakoot to Bharatkup road was totally damaged.
- From Chitrakoot Dham to Krishi Vigyan Kendra at Ganiva, there was a stretch of 18 kilometres of totally damaged road.

Source: HDR Team Field Report

Sections of the four kms-long damaged stretch between Kabrai to Gram Panchayat Bila south

parts of the state, connectivity is a problem. The poor condition of the roads in the area is detailed in Box 6.1. While there has been huge improvement in the condition of roads in the country, such as the National Highway 86, or some sections of the Agra-Mumbai National Highway, both the state and national highways, especially in the MP region, lack adequate and timely maintenance. Half completed works, heavy encroachment, damaged road shoulders creeping onto the central portions, etc. are a common sight. The quality of the roads is poor in comparison with the neighbouring states of UP and Rajasthan.

The railway network in Bundelkhand totals about 1,045 kilometres; the north-south rail network passes through Bundelkhand, accessing Jhansi and Lalitpur. Sagar, Jhansi and Chitrakoot districts account for 45 percent of the rail network in the region.

Urbanization – slow rate in Bundelkhand

Urban regions have a significant impact on human development, and this is primarily because there is a delivery bias towards urban centres. People in urban India have better human development indicators, except for poverty rates, which match or are sometimes higher than rural poverty rates. Higher urban poverty numbers are due to two factors – the first that people migrating to the cities (apart from the urban job seekers) are often the poorest or the most helpless, who come looking for livelihood opportunities to the towns and cities, and second, in India's policy framework and programmes and schemes, urban poverty alleviation continues to be a secondary objective to infrastructure and amenities provisioning for urban areas.

Due to the delivery bias of the administration and private service providers, schools are better, teachers' attendance is better, health centres function, doctors are present and discrimination against SCs is relatively lower in urban areas compared to the rural areas and more remote regions. In addition, there are a number of liberating elements in the urban economy that afford people a chance to break out of the low development trap.

Low urbanization and an equally slow rate of urbanization in Bundelkhand has meant that the region has not been able to benefit from urbanization. The urbanization rate is still 22.4 percent, and the number of towns with a population over 100,000 people, (considered as an important indicator of urbanization) was just eight, with a combined population of 16.2 lakhs[1]. Only Jhansi had a significant urban population, while only Sagar, among the other towns had a population over 2,00,000 people[2]. Five of the 13 districts namely Hamirpur, Panna, Chitrakoot, Mahoba and Tikamgarh do not have a single city of this size. Some districts do not have the advantage of being close to large towns (like Gwalior, Bhopal, Allahabad and Kanpur, which have served as centres of refuge and provide employment opportunities) and have not developed any economic or social linkages.

Even the peri-urban areas around these smaller cities do not provide a sufficiently strong urban pull for the economy and development of the region.

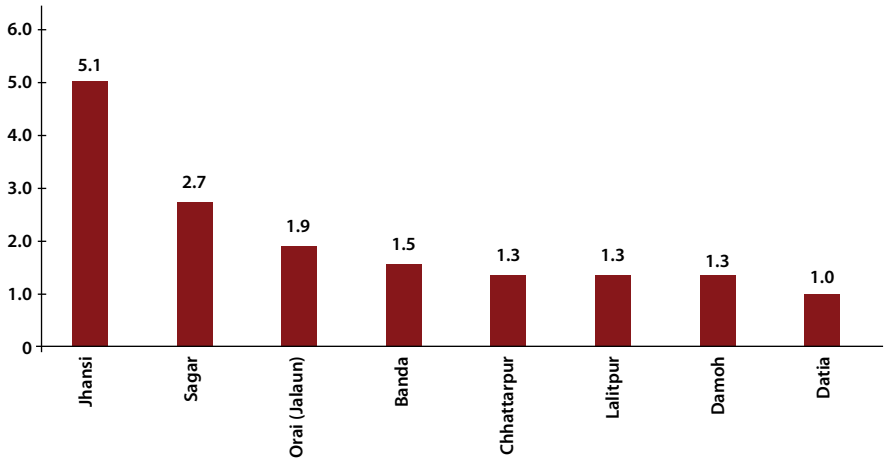
Essential amenities – inadequate cover, poor access

Drinking water

There is a general stress on availability of water that often leads to a crisis in the availability of safe drinking water (SDW). The most recent estimates of household level accessibility to drinking water from Census 2011 data show that about

[1] All data from Census of India, 2011
[2] Ibid

Figure 6.1: Cities with a population of more than 100,000 people, 2011



Source : Census of India, 2011

Table 6.2: Access to Safe Drinking Water, 2011

	Within the premises	Near the premises	Away from premises
MP	24%	45.6%	30.5%
MP-Bundelkhand	15%	48.1%	37.1%
UP	52%	36.0%	12.1%
UP-Bundelkhand	26%	52.6%	21.9%
Bundelkhand	20%	50.2%	29.8%

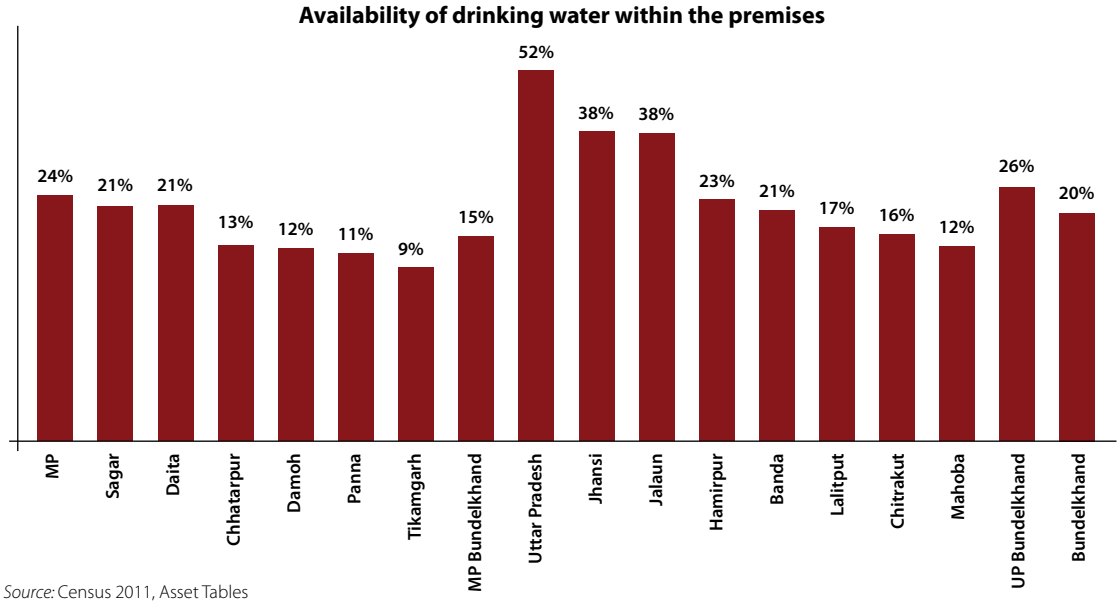
Source: Census 2011

30 percent of the households in Bundelkhand did not have access to a drinking water source, either within their premises or even nearby, and had to traverse a long distance to access water. This combined with the examples of the various kinds of discrimination that marginalized people face in accessing public resources, illustrates how difficult it is for disadvantaged communities to access drinking water.

The data for drinking water shows that just 12 percent of the population receives tap water, and the principle source of water for 60 percent of the population is hand pumps. Un-covered wells are the other major water source, covering about 21 percent of the population. In MP-Bundelkhand, 50 percent of the people get water from hand pumps and approximately 32 percent from open wells, while in UP-Bundelkhand nearly 72 percent depend on hand pumps and about 9 percent on open wells[3]. There is greater dependence on hand pumps in UP-Bundelkhand, but both regions need to reduce dependence on un-covered wells. In case of un-covered wells or open wells, the quality of water is at risk due to lack of cover and the general cleanliness around hand pumps is often unsatisfactory.

[3] Ibid

Figure 6.2: Percentage of households with drinking water available within their premises



Source: Census 2011, Asset Tables

Table 6.3: Sources of Drinking Water, 2011 (%)

	HHs with tapwater from treated source	HHs with tapwater from un-treated source	HHs using water un-covered wells	HH using water from hand pumps	HHs without safe drinking water*
	1	2	3	4	100 - (1+4)
MP-Bundelkhand	8.90%	3.50%	31.50%	49.50%	41.60%
MP	16.40%	6.90%	18.90%	47.10%	36.50%
UP-Bundelkhand	14.60%	2.70%	8.50%	71.60%	13.80%
UP	20.20%	7.10%	3.40%	64.90%	14.90%
Bundelkhand	11.60%	3.10%	20.50%	60.10%	28.30%

Source: Census 2011
*According to the Census definition water from handpumps and tapwater from treated source are considered to be safe drinking water.

Together, ground water and surface water (in case of wells) serves 80 percent of the people for their drinking water needs, and the people are therefore dependent on adequate rainfall and water harvesting systems to ensure proper availability of drinking water. In recent years, forests have been depleted and there has been greater variability in the rainfall. The undulating terrain of the region calls for intelligent watershed-related work to improve year-long water availability.

The data itself shows a large number of households without access to safe drinking water (28.3 %), since only tap water and hand pumps are safe. Field experience shows that actual access, both in quantity and quality, equity to all, and perennial supply is not assured by the existence of a hand pump or a pipeline connection.

The provisioning of drinking water through the coverage of habitations/ hamlets, by the respective State Governments has been comprehensive, in both the regions of Bundelkhand. Box 6.3 shows the habitation/ hamlet coverage, but the significant difference between this data and households with access

to SDW data, as assessed by the Census, is due to the different definition that is used. While State Governments enumerate a habitation/ hamlet as covered if it is provided an estimated 40 litres per capita per day (LPCD) through various drinking water sources, such as piped water supply, hand pumps, etc.; the Census enumerates access to SDW by safe sources of water and distance from source, further counted as within the premises or outside. The first set of definitions and data ensures that adequate water is at least available, if accessed equitably by all, but the Census data gives a better idea of household level access, or ease of access.

The difference between a habitation that is covered by a water scheme/ source and actual access is apparent in various experiences from the field (see Box 6.4). While hand pumps have been installed in various villages and in urban centres, if pipelines have not been laid and they are the only water source, they are unable to provide adequate water supply.

Box 6.2: Public provisioning for drinking water in parts of UP-Bundelkhand, rural and urban

Uttar Pradesh Jal Nigam has installed 1,42,628 India Mark II hand pumps across rural regions of UP-Bundelkhand, covering an average of 57 persons per hand pump. Apart from these, 529 piped water schemes have been also installed and operational covering 1,729 villages (out of 4,576) covering a population of 36.42 lakh people, and another 89 such schemes are under construction.

In urban Bundelkhand in UP, the State Government provides potable and safe drinking water to 50 towns, covering 18.8 lakh people (covering 77 percent of the urban population), and is able to provide 271 Kilo Liters per Day (KLD) as against water demand of 296 KLD. Additionally, 18,374 India Mark-II hand pumps are also servicing urban regions.

Source: Note made by Chief Engineer (Jhansi Zone), UP Jal Nigam, Jhansi, March, 2016-05-11

Box 6.3: Provision of drinking water – Bundelkhand (MP and UP districts)

In MP, a household is treated as covered (for availability of water) if the following three criteria are fulfilled:

- Drinking water source is available within the periphery of 500 metres
- In hilly areas, the source is available within an altitude difference of 30 metres
- 55 LPCD of water is available

According to the above criteria, the coverage of habitations is as follows:

District-wise provision of drinking water in MP

District	Total habitations	Fully covered habitations	Partially covered habitations	Habitations fully covered @ 55LPCD	Habitations fully covered @ 40LPCD	Population covered by piped water supply	Population covered by HH connections
Chhatarpur	1972	1269	703	62%	100%	23.5%	2.58 %
Damoh	1679	968	511	58%	100%	27.0%	3.18 %
Datia	1112	950	162	85%	100%	41.9%	4.82 %
Panna	1773	1024	779	58%	100%	26.3%	2.88 %
Sagar	2238	1317	921	59%	100%	33.5%	5.16 %
Tikamgarh	2090	1543	547	74%	100%	17.3%	2.98 %

In UP, data is available for hamlet/ village coverage, and the criteria used for coverage is 40 LPCD –

District-wise provision of drinking water in UP

District	Total Villages	Water facilities to inhabited villages	Hamlets with drinking water facilities
Jalaun	937	100%	100%
Jhansi	764	100%	100%
Lalitpur	697	100%	100%
Hamirpur	521	100%	100%
Mahoba	421	100%	100%
Banda	682	100%	100%
Chitrakoot	545	100%	100%

Sources: Data provided by Public Health Engineering Department, Government of MP, Bhopal,
District-wise Development Indicators, UP, 2012, Department of Economics and Statistics and Statistical Abstract, UP, 2012, Government of UP

Box 6.4: Access to water - observations from the field

- In village Nayatal, in Chhatarpur, there are only two hand pumps; in the part where the weaker sections live no one had access to quality drinking water.
- In village Karari Khurd in Datia, only two of the five hand pumps were working and people had to wait for hours to fill up their utensils.
- In Dhanwaha in Tikamgarh, the village is divided into a part where the upper castes and landed people live and the other where the poor and weaker sections live. The first part had working hand pumps, while the other had no operational hand pump, and even the 1.5 kilometre road connecting this section to the main village was in total disrepair.
- In village Chilheta, in Banda, five out of 10 hand pumps were not working, and the existing hand pumps could not meet the water needs of the entire village.
- In Mahua Bandh in Mahoba, women have to go to an extreme corner of the village to fetch water, wasting hours on this single activity.

Source: Field visit by HDR team

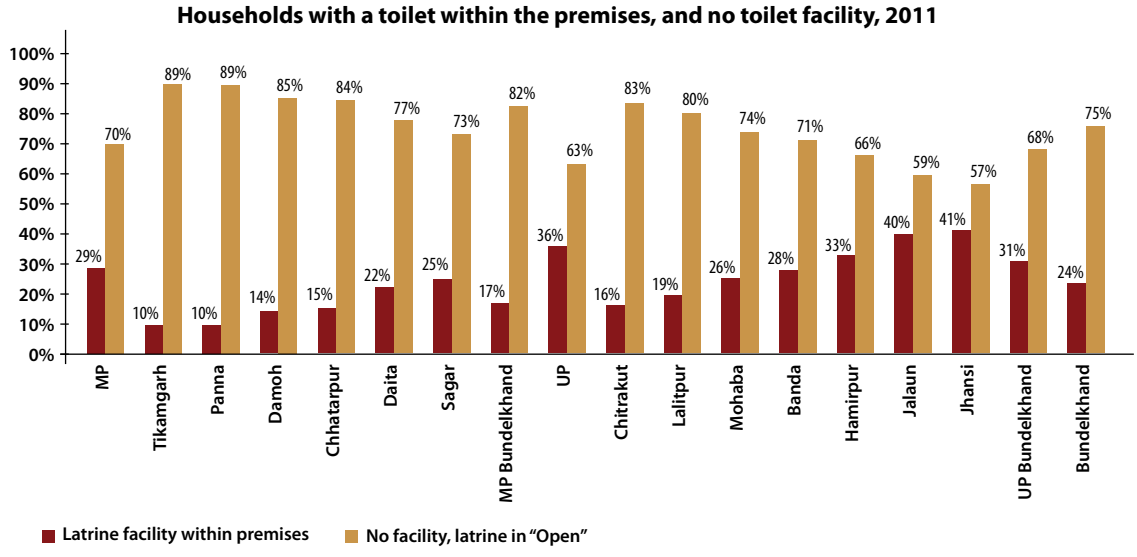
Sanitation – less than a quarter of households have access to toilets

Sanitation infrastructure continues to be very limited, and 75 percent of the population in Bundelkhand uses open toilets. The districts in MP-Bundelkhand are worse off in this regard; their dependence on open defecation is as high as 82 percent, compared to UP-Bundelkhand, where it is 68 percent[4]. As mentioned earlier, impact of Swacchh Bharat programme has not been included in the report.

This situation with regard to the absence of sanitation facilities is very serious. When 70 to 80 percent of the people use open spaces for sanitation purposes and four out of every five people drink water from open wells or from hand pumps, the incidence of water-borne diseases is likely to be high. Cleanliness levels around hand pumps and wells are far from satisfactory, and the maintenance and cleaning mechanisms are also absent. The open form of defecation is most problematic for women.

[4] Ibid

Figure 6.3: Households with access to sanitation facilities, Bundelkhand and its districts



Source: Household Tables Census 2011

The general condition of sanitation and cleanliness is under stress in all of Bundelkhand. The main reasons for the increase in solid waste and general garbage are:

- Urbanization, that is largely unplanned, with no proper facilities for sewage management and solid waste management.
- Increase in solid waste, due to the change in lifestyles, increase in the use of plastic and increase in products with metal and plastic wrappings. Styrofoam packaging, electronic waste, etc., are all new components of solid waste and disposing these is beyond the capacity of gram panchayats or civil urban bodies. Except for dump yards, where this waste is collected, there is no technological solution being used to dispose this waste.
- The decline in the availability of common land has reduced the land that is available for setting up common facilities that can be used for garbage management.

A woman using an open well in KarariKhurd village, Datia block and district

Water scarcity is leading to unhealthy practices in Rehwata village, Chitrakoot block and district

Electricity – more than half the households are without access to electricity

Gains in household electrification in Bundelkhand have been rather slow in the last decade (2001-2011). The percentage of households that had electricity as the principal source of lighting (the bare minimum was used) was only 44.9 percent, up from 40 percent in 2001. This is not a particularly promising situation. While there has been a five percent increase in households accessing electricity in Bundelkhand as a whole, the percentage of households with electricity in MP-Bundelkhand remained at about the same level over the 2001 – 2011 period, in fact it declined marginally from 56.3 percent to 55.3 percent).

Arguments regarding definitional changes or methods of measuring may be put forward to explain this decline, but the main point is that less than half the households in Bundelkhand had an electricity connection. This in spite of the many gains in increased power supply, rationalization on the distribution front and mission-like announcements promoting rural electrification.

Financial Services - improved access due to Government's financial inclusion initiative

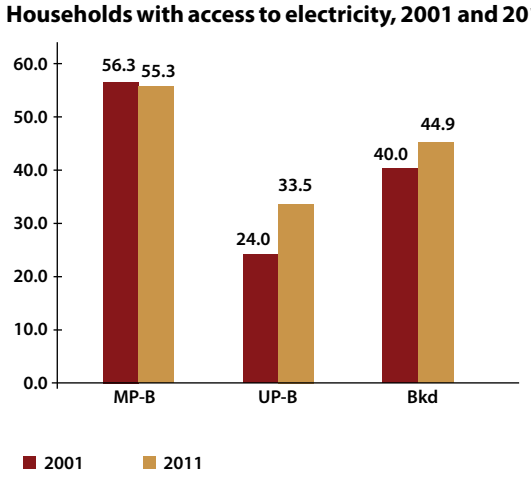
Access to a bank account, riding on the back of the Central Government initiative to push agriculture and rural credit, is an empowering and enabling element. Of course, the mere opening of an account will not shake up the extremely conservative banking system to take up the cause of farmers when they need credit, or of the poor and vulnerable sections of people when their monetary requirements are high. Yet, the opening of a bank account is enabling; as many schemes are being pushed through the banks (AADHAR linking and direct transfer schemes), *mandi* sales of agriculture produce are paid through banks, Kisan Credit Cards (KCCs) operate through bank accounts. The recent push by the Government to increase rural lending, finds bankers less reluctant to lend to people with an account history.

The proportion of households with a bank account was 54 percent in Bundelkhand, higher than the proportion of households with access to electricity and much higher than the proportion of people with access to toilets.

Glimpses of poor infrastructure at Mahuaband village in Mahoba district of UP

The proportion of such households in the MP-Bundelkhand region was only 39 percent as compared to 70 percent of households with bank accounts in UP-Bundelkhand.

Figure 6.4: Households with access to electricity, 2001 and 2011

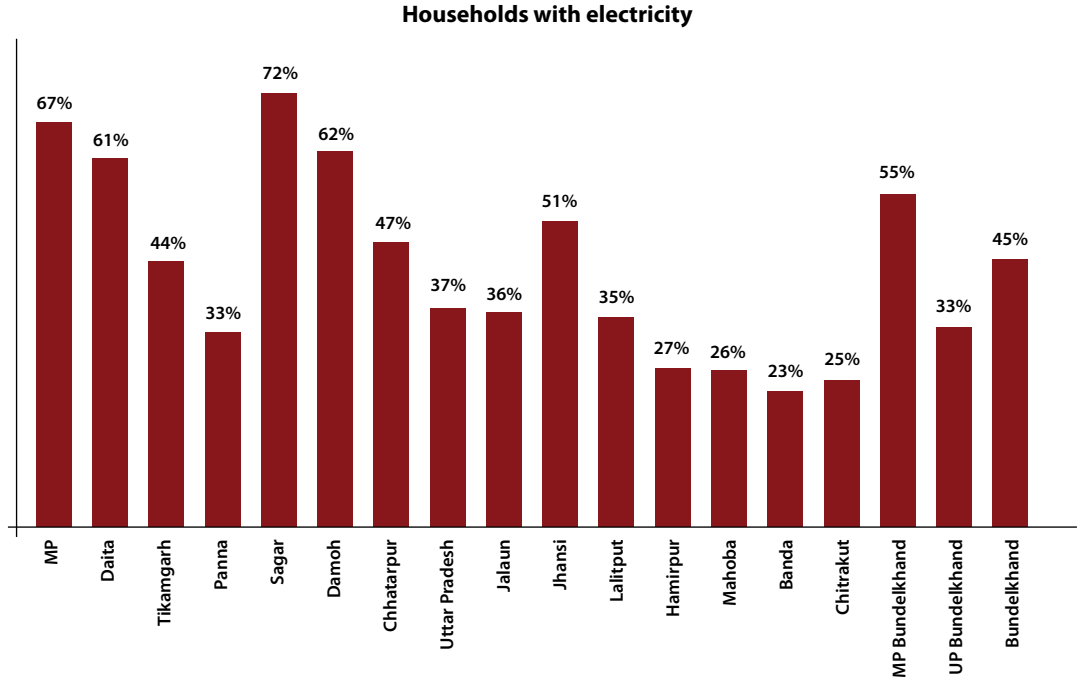


Source: Household Tables, Census 2001, 2011

The access to banking changed substantially in UP-Bundelkhand, from 27 percent to 70 percent in the 2001 to 2011 period. Today, the situation has changed even more dramatically, following the Prime Minister's *Jan-dhan Yojana*, promoted by the Central Government, which aims to ensure universal access to financial services, starting with the opening of bank accounts for every citizen.

Under the Prime Minister's *Jan Dhan Yojana*, every individual has been facilitated to open a no minimum balance account, along with an accident and life insurance policy, and an overdraft facility of Rs. 5,000 per account. All the 13 districts of Bundelkhand now have universal coverage for bank accounts. This is a welcome change and has given a large number of people access to formal credit, an insurance cover of Rs. 1,00,000, in the event of an accident and a consumption loan facility. However, it must be kept in mind that the

Figure 6.5: Percentage of households with access to electricity, Bundelkhand and its districts, 2011



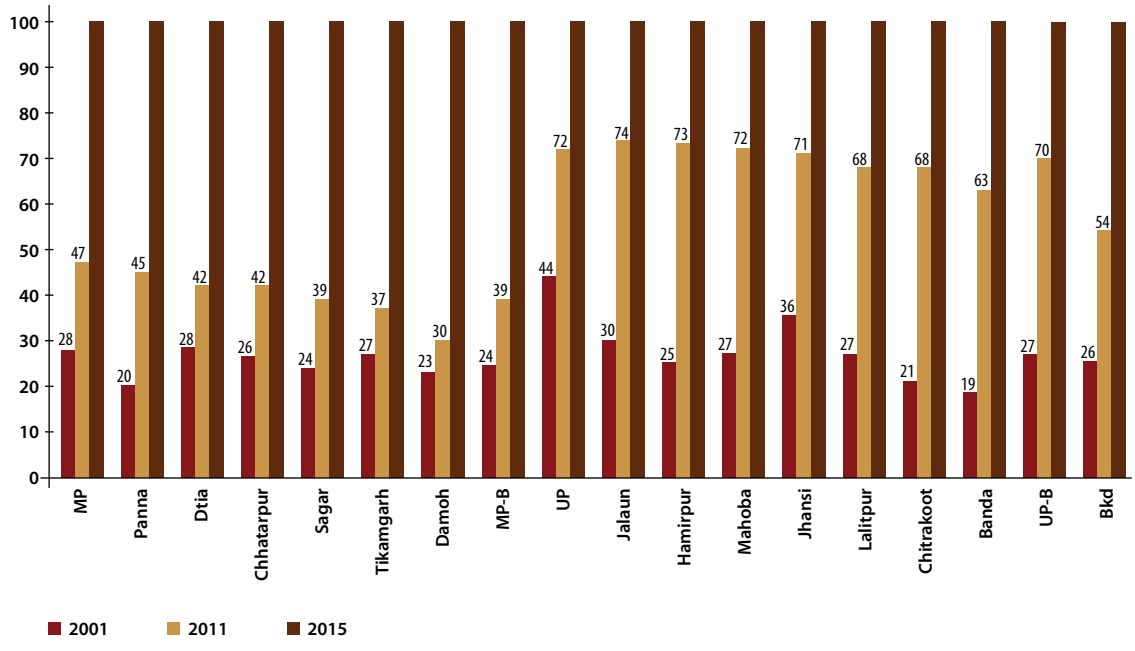
Source: Census 2011, Household Tables

Table 6.4: Households availing banking services, Census 2001 and 2011

Area	Households availing banking services, 2001	Households availing banking services, 2011
MP	27.9%	47%
MP -Bundelkhand	24.4%	39%
UP	44.1%	72%
UP - Bundelkhand	26.8%	70%
Bundelkhand	25.6%	54%

Source: Household Tables, HH-12, Census 2001 and 2011

Figure 6.6: Households with bank accounts, Bundelkhand and its districts 2001, 2011, 2015



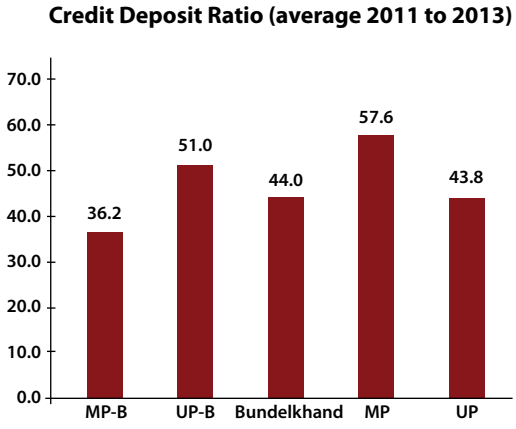
Source: Household Tables (HH12), Census of India, 2001 and 2011, and pmjdy.gov.in for 2015 data

actual use of the banking services will need a far greater push by the banking leadership. It will require the provision of small loans that are necessary for livelihoods, credit facility for crisis periods, ensuring that actual delivery of the insurance amount takes place, when an accident occurs for example, as well as ensuring that other forms of insurance such as crop insurance, animal insurance, business insurance are available.

Most studies and estimates on Bundelkhand region state that informal credit amounts to up to about 60 percent of all credit taken[5]. The usual rates of interest range from a minimum of 24 percent per annum to 60 percent per

[5] "About 58 percent of credit was raised at high rate of interest from non-institutional sources. Co-operative banks served only 7 percent of loans and that too for the large farmers." See Report of the Central Team on Drought Mitigation Strategy for Bundelkhand Region", NRAA, 2008, page 4

Figure 6.7: Credit Deposit Ratio, Bundelkhand, average from 2011 to 2013



Source: Economic Survey, Directorate of Economics and Statistics, Government of MP 2013-14
Statistical Abstracts Directorate of Economics and Statistics, Government of UP, 2010-11, 2011-12, 2012-13

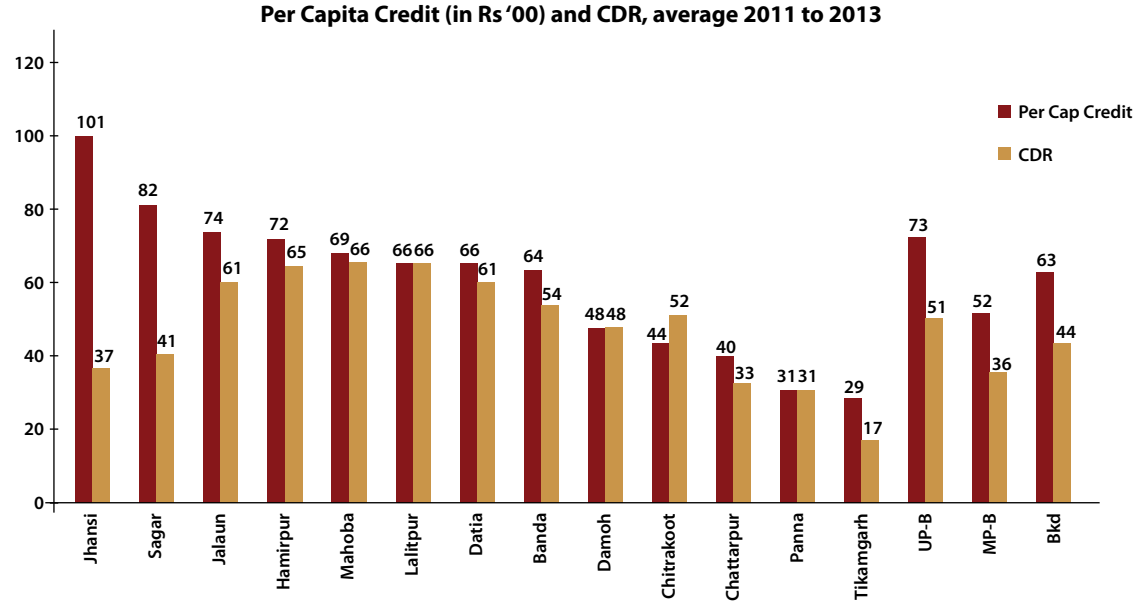
annum. At these rates of interest, the chances of indebtedness become very high.

The Credit Deposit Ratio (CDR) averaged over the three-year period, (2011, 2012 and 2013) was 44 percent in Bundelkhand. When investments are low, industrialization is also low, and 60 percent of agricultural households are unable to get formal/ institutional credit. The four districts where CDRs are below 40 percent were Jhansi, Chhatarpur, Panna, and Tikamgarh. The low CDR in a district like Jhansi with its locational advantage, strength of urbanization and potential for growth, shows how even this district is not able to utilize funds generated here for investment.

Although, the per capita credit is highest in Jhansi, followed by Sagar and Jalaun, in each of these three districts the CDRs are low, leaving untapped credit potential.

These three districts can be considered as having good potential for investment. Sagar is a large town, with a large *bidi* industry and a number of households with investible capital and a University that provides a strong cosmopolitan character to the town, and Jalaun, performs very well in agriculture.

Figure 6.8: Per capita credit and CDR, Bundelkhand and its districts, average 2011 to 2013



Source: Directorate of Economics and Statistics, Government of Madhya Pradesh. (2013-14). Madhya Pradesh Economic Survey. Statistical Abstracts Directorate of Economics and Statistics, Government of UP, 2010-11, 2011-12, 2012-13

Figure 6.8 plots per capita credit with CDR and shows an interesting situation in Bundelkhand. Examine the districts with higher CDRs (marked in red in the graph); interestingly these are not the districts with the highest per capita disbursement of loans, showing that deposits are being made in some districts while there is higher credit utilization elsewhere, a trend seen in developed and developing states or districts across India. A 15 to 20 percentage points increase in CDR would enable a much better investment situation. In the districts, with low per capita credit and CDR, like Tikamgarh, Panna, Chhatarpur and Chitrakoot, the banking network will have to be cajoled to partner in agriculture and non-farm credit, since in both these areas, the performance in these districts is lagging behind.

7

Institutions and the environment – impacting development

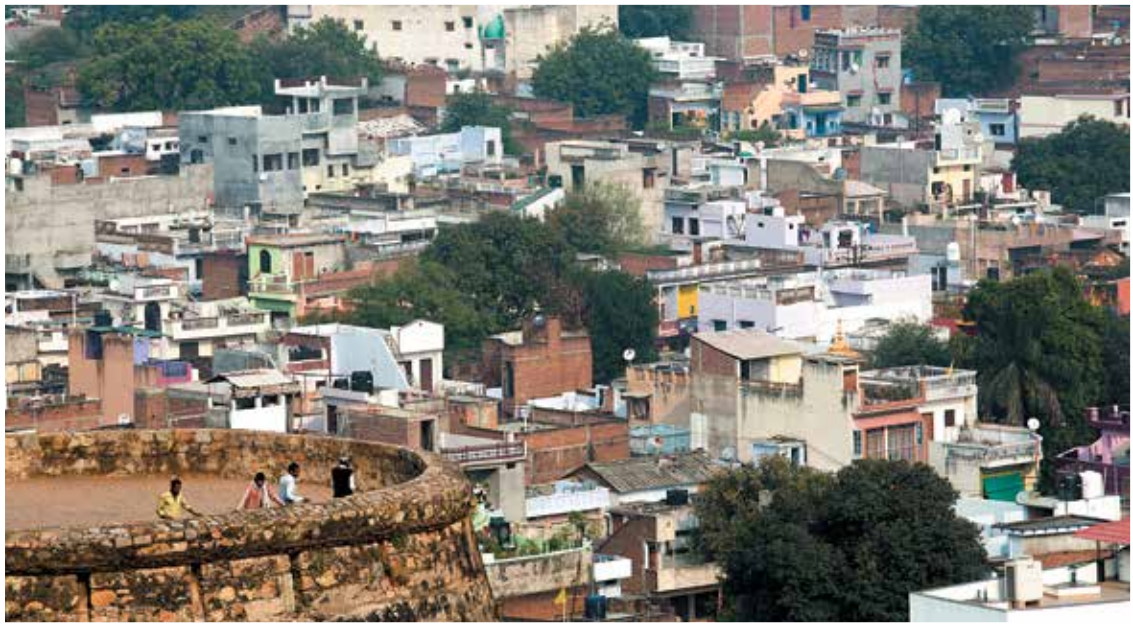
Chapter 7

There are a number of specific institutions and issues that impact the human development process in Bundelkhand in critical ways. The first is administration and governance and the second is the organization of society and its strong feudal character. Understanding these dimensions is imperative for an understanding of the region. Many of the conflicts between established equations and change, between progressive and inclusive growth and between growth and development, can be better appreciated if there is a fuller understanding of these issues. Another aspect that bears examination is the impact of the environment and climate change on Bundelkhand[1]. Recent experience has shown how changes in the climate can impact people, the economy and society adversely. In Bundelkhand, the environment is a defining feature of development, and one that is being constantly affected by the conflicts in the region.

i) Governance and the periphery

As the Bundelkhand region spans two states, it is governed by two different governments. This leads to different styles of governance, different priorities and different state level programmes and schemes. The preceding sections show that the level of development is very different in the many districts within Bundelkhand. This can be explained by circumstances of the local economy, topography, historical growth, endowments, etc. but can also be attributed to the initiatives taken by the two State Governments and their respective priorities.

There are, however, some similarities about the administration in these 13 districts, which affect the performance of programmes and schemes.



These similarities have to do with the basic character of society and the historical legacy of power and land relations in Bundelkhand. In terms of implementing programmes, attitude and working styles of officials, there is no significant difference in the administration of these districts vis-a-vis other parts of Uttar Pradesh or Madhya Pradesh. There are two areas where differences are observed, both of which impact governance and development work. The first is the non-availability of Government staff; in many service delivery posts (in education and health for example), personnel are not posted, which directly affects the quality of service. The second is that the Bundelkhand region or districts are not viewed in the policy space of the State Governments as pivots – these 13 districts are often mentioned or selected as the 'listed districts' rather than pivot districts. What this means is that the policy priorities of State Governments are determined usually by an understanding of problems or solutions pertaining to the regions in the state's mainland, and then these are adjusted to or adapted to the Bundelkhand districts.

There is a perception amongst the people of Bundelkhand that the region suffers from administrative and political neglect. Officers do not wish to be posted in these districts, and if they are posted they tend to be more absent than present. This idea of being on the periphery or on the margins of administrative and political attention has some merit, but not to the extent to which it is perceived by the people of the region. The lack of adequate personnel for different services is a phenomenon that is not peculiar to this region. Many of the districts of Bundelkhand are on the geographic periphery, and are therefore un-attractive areas to serve in, especially for implementation level staff like doctors, teachers, technocrats, etc. Districts like Chitrakoot, Mahoba, Banda, Tikamgarh, Chhatarpur, Datia, Panna, often face this problem. Once again, this is an issue that is not unique to Bundelkhand but common in other geographically distant districts, in both these states and elsewhere in the country.

A closer look at administration and governance was taken and discussions were held with officials in the field. Some of the feedback and shared experience of officials is presented here to help understand the issues on the ground. The comments have been culled from discussions with field officers to build a picture, and when read together illustrate the issues in administration.

People Speak :

Perspective of officers:

Need for more participative planning and programme design and implementation: *Officers felt that local participation and local knowledge in planning and implementing schemes would make the impact of development schemes much more visible and sustainable. The diversity and peculiarities of the culture, terrain and state of local factors get over looked, and initiatives would be achieved better if these aspects were considered in micro planning.*

What they said:

- Schemes and programmes by the Government do not necessarily reflect the need and priorities of people.
- People feel that they do not have any say in deciding their priorities and as a result there is no ownership of the programmes that are being implemented by the Government.
- Monitoring of schemes and programmes at the ground level is not effective. Problems like non-existence of assets, in the physical space even though they are present on paper, presence of ghost beneficiaries, issue of corruption and bribery demands are common. To some extent, these issues arise from the lack of participation by the people in the planning and implementation of schemes and projects.

Lack of adequate personnel hampers effective delivery of services

What they said:

- Inadequacy of teachers in the school and missing health personnel in the sub-centres and health centres affects delivery of services.
- The experience of block and district officials is similar; both suffer from lack of adequate human resources. Paper work does not get completed and they do not have enough people for supervision, project planning, etc.
- In Uttar Pradesh, while a number of health centres including PHCs and CHCs have come up in the recent past, adequate and trained health staff is a major problem. In Madhya Pradesh, there is a shortage of both health institutions and of health staff.
- The majority of Government employees are residents of the different districts in Bundelkhand and commute from their homes to their place of work, everyday. The absence of effective public transport affects their regular presence and work efficiency. This is particularly true for teachers and health personnel, who are required to go to the school/ dispensary /hospital, etc.

Need to strengthen Panchayats: *Officials feel that effective panchayats and gram sabhas will energize participative development in the region. They were very supportive of this system and offered a number of suggestions for improved functioning of local self government institutions.*

What they said:

- In the absence of regular holding of the *gram sabhas*, people do not have an appropriate platform to raise their concerns and express their needs effectively.
- In Madhya Pradesh, the experience of panchayats is better than in Uttar Pradesh, where they operate with much less powers and responsibilities. However, even in MP, where the decentralization process has been institutionalized to some extent, and people have space to articulate their needs and priorities, the corresponding delegation of funds or provision of functionaries to achieve these goals is absent.
- In a village, there are often as many as 20 to 25 schemes and programmes being implemented. The Sarpanch and Sachiv are the only people responsible for the execution.
- Government employees working at the village or panchayat level are not accountable to the *gram sabha* and are not responsive to the people's concerns.
- The State determines the extent of decentralization to local bodies - as to how powers are to be delegated. Officers stated that even though powers are delegated to local bodies, in many cases the State Government has taken these back through alternate channels and even amendments to law. Powers such as imposition of local taxes, royalty on mining, etc. which are intended to be administered and shared by local self governments have been excluded through amendments to specific laws.
- A conflict of interest between the MLAs, MPs, ZP Chairman and members and the administration was observed in many cases.
- Panchayat level committees like the School Management Committee, Village Heath and Sanitation Committee, Development Committee, etc. all have nominated members only and they are not very effective.

Feudal nature of society is a challenge to governance and independent decision-making: *Perhaps this is the biggest challenge to good governance and ensuring that schemes focus on the real beneficiaries.*

What they said:

- Caste and gender discrimination is part and parcel of our life and is difficult to get rid of easily.
- Caste, class and gender discrimination is one of the major impeding factors in the region's development.
- Feudal and caste leadership influence administrative decisions.
- Pressure and political interference hampers our work.

The Bundelkhand Package – work in progress

Apart from general schemes, Bundelkhand received a special package, known as the Bundelkhand Package, following the drought years. This was an impressive package designed after making a scientific assessment of the region's needs. The Bundelkhand Package was announced for these 13 districts, and it focussed primarily on the causes of the drought and its mitigation and attempted to build the local economy, such that agriculture and local livelihoods would be sustainable and the impact of climate/weather changes could be better dealt with.

The Government of India constituted an Inter-Ministerial Central Team for suggesting integrated drought mitigation strategies in the Bundelkhand region of the states of UP and MP. Based on the report of the Central Team, a special package of Rs. 7,266 crores, comprising Rs. 3,506 crores for the seven districts of UP and Rs. 3,760 crores for the six districts of MP was approved. Initially, the Bundelkhand Package was to be implemented over a period of three years starting in 2009-10. However, the Government of India approved the continuation of the Bundelkhand Special Package during the 12th Plan period (2012-2017), under the Backward Regions Grant Fund (BRGF) with a financial outlay of Rs. 4,400 crores[2].

This package has been in operation since 2009-10, and both State Governments made special administrative arrangements to implement it. In all the 13 districts, administrations have been fairly keen to use the financial and programme opportunities that the package offers, however, it has had its share of problems. The package is not fully integrated into the on-going programmes and work, and the ownership of the package is not granted to the regional governments. The duality of institutions involved in it, one planning and funding it, and the other implementing it, amidst the political and social challenges of the area have affected the implementation of the Bundelkhand Package.

A complete assessment of the impact of the package is not possible, since it is still being implemented, however, a look at what has been done till 2012-13 is attempted. In terms of where efficient utilization has taken place, the information from MP shows that rural drinking water and projects concerning water resources utilized over 70 to 80 percent of the resources allocated for it, reflecting local priorities. However, long-term sustainability work through watershed programmes and

Box 7.1: Objectives of the Bundelkhand Package

The broad objectives of implementation of the Bundelkhand Package are:

- Implementation of a drought mitigation strategy;
- Water conservation and optimization of water resources through rainwater harvesting and through proper utilization of the river systems;
- Promotion of Intensive and diversified agriculture for productivity gains;
- Support to animal husbandry and dairy activities as an ancillary activity to enhance farmers' incomes to cope with the drought conditions.

Source: Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand Drought: Retrospective analysis and way ahead. National Institute of Disaster Management, New Delhi.

[2] All information in this section is from Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand Drought: Retrospective analysis and way ahead. National Institute of Disaster Management, New Delhi.
See http://nidm.gov.in/PDF/pubs/Bundelkhand%20Drought%202014.pdf

work on improving agriculture, the mainstay of people's livelihoods saw poorer utilization. In UP too, rural drinking water supply and water resources related work saw the highest utilization of funds, whereas agriculture, animal husbandry and watershed management were low on utilization[3].

Watershed management is critical in bringing long-term sustainability to the region, so the poor utilization in this area shows where administration must prioritize in the coming years in utilizing these funds. Also, areas like agriculture and animal husbandry did not get enough impetus, in the initial years. Discussions with the officials responsible for implementing the programme revealed that initiatives were not properly planned. In the initial years, the package was implemented in a rush and the administration could not gear up to take advantage of it. At the same time, interventions that helped individual beneficiaries were not given the required funds, so the impact of the package was less than what was expected.

Table 7.1: Implementation of Bundelkhand Package as on 31 March 2013

Region	Approved budget (Rs crores)	Allocation (Rs crores)	Release (Rs crores)	% age Released	Expenditure till 31 Dec 2012 (Rs crores)	Utilization
MP Bundelkhand	3,860	3,015	2,209	73.3%	1,141	52%
UP Bundelkhand	3,606	3,522	1,532	43.5%	744	49%
Total	7,466	6,537	3,741	57.2%	1,885	50%

Source: National Rainfed Area Authority, Planning Commission, Govt. of India

[3] Ibid

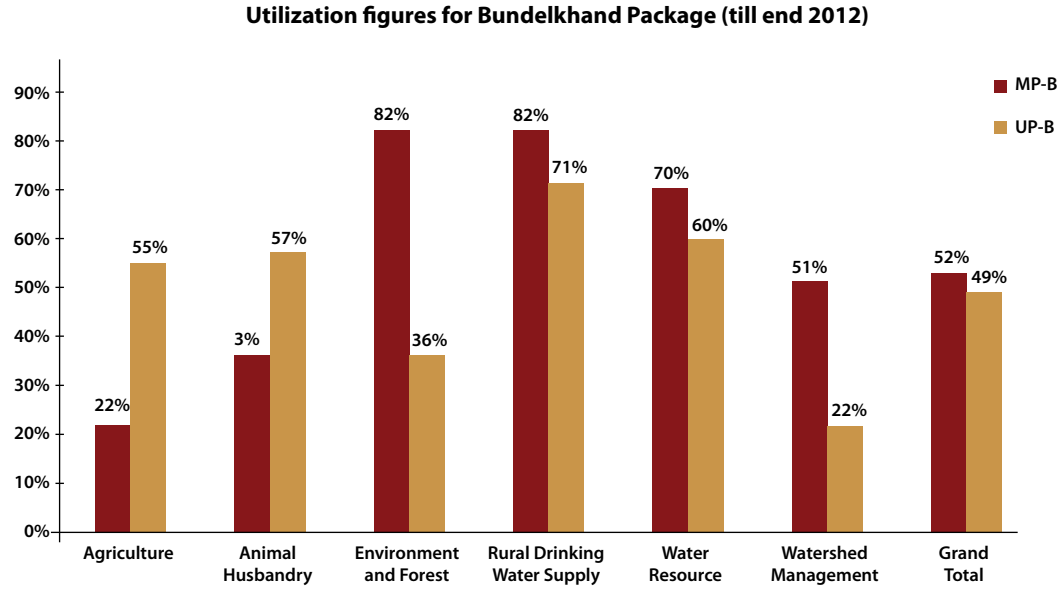
In terms of release of funds, based on demand and utilization by the State Governments, MP has been able to better use the available funds; it had used 73 percent of the total funds allocated up till March, 2013, compared to just 44 percent by UP. The overall achievement in both states could have been better, especially in Uttar Pradesh, and the scale of funds available is not matched with either any particular enthusiasm or capacity of the two states to utilize them. The utilization level for the funds for crucial sectors like agriculture and animal husbandry was dismal in MP and very low, even in UP. Large sum of funds (nearly Rs 2,000 crores) were unspent at the end of 2013.

A physical target review provides a better idea of what priorities were followed by the local administration and where the gaps are. For example in MP, in water resources, 16,500 hectares (out of 22,624 hectares) of area was developed under Command Area Development of Rajghat project, 39,479 hectares area (out of 50,232 hectares) was added under 146 new and minor irrigation projects, 34,000 hectares of area out of 43,850 hectares was covered under Bariyapur medium project and three canal renovations were completed.[4] Since the State Government of MP had taken up physical work in irrigation as a state-wide exercise, it utilized these funds more efficiently.

In many other sectors, the MP Government seems to have taken less interest. For example:

- In the forest sector, 1,00,000 hectares of area was treated for soil and moisture conservation, out of a proposed 2,00,000 hectares.
- Only 668 rural drinking water supply schemes were supplied through tubewells/ dugwells with power pumps and cisterns.
- Watershed management work shows moderate performance with distribution of 28,219 pump sets out of target of 45,000 and 161 stop dams were constructed out of the

Figure 7.1: Utilization of funds under the Bundelkhand package



Source: National Rainfed Area Authority, Planning Commission, Govt of India

[4] National Rainfed Area Authority, Government of India. (2013). Allocation, release and expenditure of funds from ACA component to Madhya Pradesh as on 31.03.2013. Available at http://nraa.gov.in/pdf/mattermp.pdf

353 dams that were proposed. Watershed development work was undertaken only on nine percent of the 33,1000 hectares area that was proposed.

Other interesting aspects are:

- The sectors showing lowest utilization of funds were agriculture and animal husbandry, where individual beneficiaries would have been able to receive assistance. For example, only 930 out of 2,434 Murrah buffalo bulls were distributed, 110 Artificial Insemination Centres were established out of 225 that were proposed and only 2,598 goat units were set up out of the targeted 5,061 units.

- On the other hand, the sectors that show very high utilization are activities like development of special market yards, including construction of warehousing and market infrastructure facilities, at 120 places against the target of 110, establishment of three fodder banks, establishment of 561 dairy co-operative societies against a target of 500 and the development of 23 (out of 27 mini markets) to be run by the Primary Agriculture Co-operative Societies (PACS).[5]

- In UP, there is a less discernible pattern in utilization but even here the individual benefit programmes and livelihood support programmes were not as well implemented as the other programmes.

- In terms of physical achievements, upto 31 December 2012, 2,560 hand pumps were installed (against the target of 2,725) and out of eight surface water schemes only four were being implemented.

- Under the water resources sector, 39,140 hectares of area was brought under the Command Area Development of Rajghat project, out of 69,500 hectares that was proposed, 20,570 hectares area was irrigated under the Betwa Gurusarai Canal System out of 27,000 hectares of area. Out of 39 canals, eight canals were repaired and renovation and restoration of 18 water bodies out of the 28 that were proposed, was undertaken. In addition, 17,569 beneficiaries received High Density Polyethylene (HDPE) pipes for lifting the water from source to place of use.

- Under the animal husbandry programme, three fodder banks were established, 120 Artificial Insemination Centres were established and 560 dairy co-operative societies were established, and a 100 percent target was achieved.

- In the agriculture sector, not much progress has been observed in terms of physical achievement. For the development of special market yards, including construction of warehousing and market infrastructure facilities, project sites have been finalized in four out of seven districts only and work on the development of the rural infrastructure nucleus has started in 85 sites out of a proposed 168 sites.

- In some cases, less than half the targets were met. For example, only 1,335 goat units were distributed against the target of 2,560 units, and only 17 percent of the Murrah buffalo bulls were distributed against the target of 410 bulls that were to be distributed.[6]

- The most disheartening performance was in the watershed management sector where upgradation and construction of community wells[7] dug ranged between 17 to 36 percent only.

[5] All information in this section is from Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). *Bundelkhand Drought: Retrospective Analysis and Way Ahead.* National Institute of Disaster Management, New Delhi.
[6] Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand Drought: Retrospective Analysis and Way Ahead. National Institute of Disaster Management, New Delhi.
[7] Digging of community wells is considered part of watershed management under this package.

The observations with regard to the Bundelkhand Package from the field have been -

- Schemes of direct benefit that are most effective are those for dug wells, distribution of diesel pump sets and the distribution of animals like goats and cattle.
- Construction of dug wells, under Kapildhara scheme was supported with distribution of pump sets for water lifting; which has helped farmers by increasing the irrigated area, and enabled them to grow more than one crop, raised production and given them better income from farming.

Box 7.2: Kapildhara Yojana – providing irrigation for farmers

Kapildhara is a sub scheme of NREGS. The irrigation facilities include digging of new wells, ponds in fields through water recharging, check-dam, stop-dam, and digging of small ponds for farmers with no irrigation facilities. Diesel pumps have been distributed to beneficiary farmers under Kapildhara as part of the Bundelkhand Package, under the convergence programme.

Thirteen farmers in Dhauri village, in Chhattarpur district have befitted from Kapildhara, and been provided diesel pumps under the Bundelkhand Package. The farmers say that the wells have ensured irrigation to their land even during summer, ensuring a *rabi* crop and a summer crop. Production has gone up, family income has increased and resulted in improved livelihood. Farmers are now also taking up vegetable production.

- Distribution of goat units to the poor and landless families has helped in raising family incomes. The villagers who have been provided with indigenous goats continue with goat rearing. Selling of four to five goats provides them with an additional income of Rs 12,000 to Rs 15,000 per year. Goat manure is used as an organic fertilizer. This scheme is very much in demand due to high subsidy rate of 80 percent for SCs and STs and 75 percent for the general population.
- Minor irrigation works have been very beneficial for farmers, providing additional irrigation facilities. It has helped farmers to grow two and sometimes even three crops on their land, thereby raising agriculture production and income from agriculture.
- The real impact of watershed management and water resource of major and medium irrigation projects is not that visible except in Lalitpur, where work on canal irrigation has been successful. A major part of water resource and watershed related work has been undertaken in the forest area and the direct benefit to farmers is not seen in the field.
- There are a number of tanks and ponds in Bundelkhand. However, very low priority is accorded to repair, renovation and reconstruction of these existing water bodies. Often more financial resources are wasted in the construction of new water bodies rather than on repair and maintenance of old tanks/ponds.

Thus, while there has been some improvement in agriculture and in livelihood generation, the gains from the Bundelkhand Package are much less than what was expected and the package has not been able to change the economy of the region in a substantial way, so far. Many of the works that have been implemented have certainly benefited the region but better utilization of funds and better implementation would have had more impact. It may be termed as a missed opportunity for Bundelkhand. Fresh infusion of funds, and in-house evaluation to show areas for improvement have been recently undertaken and hopefully will bring greater benefits to the region.

People Speak :

Increased income thanks to irrigation

Jagat Singh, a BPL farmer of Dhauri village, owns nine acres of land out of which 6.5 acres of land was not irrigated. He was able to cultivate only 2.5 acres in the past. In 2011, a 20 feet deep well was dug on his farm under the Kapildhara scheme and a diesel pump was provided to him. Now all nine acres are irrigated, and his earnings from agriculture have increased nearly three times, as he takes a *rabi* crop and summer season crop as well, growing wheat and vegetables.

ii) Social order – feudal in nature

Bundelkhand is characterized by a feudal social order based on the land holding patterns established by pre-independence rulers. The local feudal lords belonged to the higher echelons of the caste-based society and they continue this domination even after independence. While *zamindari* has been abolished and many State-promoted and independent movements have arisen to reduce the domination of the feudal lords, Bundelkhand continues to retain a feudal character. Although UP was amongst the first states to abolish *zamindari* and implement the Land Ceiling Act, the implementation of the latter was subverted by various means and families retained their large land holdings and the caste hierarchies also remained intact.

Socially, the dominance of upper castes is articulated in social behaviour and is displayed both overtly and covertly. The rigid caste hierarchy is slowly crumbling in the urban centres and amongst some groups of people but by and large this system continues to prevail.

Box 7.3: Reel life in Bundelkhand- standing up for rights

In the Dalit-dominated Patahwara village in Jhansi district, an independent television crew was filming the impact of drought.

On being told that Dalit families were not getting employment under MGNREGA (including not being issued job cards), the TV crew decided to take a vociferous and agitated crowd to the *Sarpanch* of the local Panchayat.

As the crew approached the *Pradhan's* residence, they found that the number of people who were accompanying them had gone down substantially. "It was an interesting exercise because I realized that by the time we got there, from the many Dalits who were willing to fight for their rights - we were down to a mere handful. I gave the *Pradhan* a fair chance to explain himself before we rolled our camera. Naturally, he said they were lying and continued that for the next 20 minutes - but that's not what grabbed my attention. Imagine this, the Dalit men were standing in front of the *Pradhan* with their heads lowered, their voices meek and their hands in front.... and the *Pradhan* and his 'men' were sitting opposite them. The Dalit men were asking for their right (getting work under MGNREGA) in starts and stops..... in voices that you could barely hear....and that's when I realized what a big step this was for them!!. We were also told that the *Pradhan* was going to beat them up later that day - the ones that dared to stand up to him and get him into trouble - but for now, they seemed fired up and ready to take on whatever came their way."

Source: Gupta, K. (2009). The Bundelkhand Story. NDTV. Available at http://www.ndtv.com/news/blogs/harsh_realities/the_bundelkhand_story.php

This legacy is drawn from the history of Bundelkhand. With upper castes dominating both political and economic power, and many years of internal squabbles and wars, the rise of feudatories and large landholders, came with political prestige and power. The large landholders combined this pattern of power with economic relations and used it to gain an unequal hold over the small peasantry and labour, and establishing their hegemony over chosen areas of influence. Bundelkhand has thrived on an exaggerated sense of valour and honour, in which the upper caste landlords stood at the apex, commanding respect and enjoying a high status in society and this continues till today.

The caste hierarchy is reinforced in all actions.

- Socially, upper castes demand and are given status and primacy in the leadership of society.
- Most other castes, especially the SCs still live in fear and awe of the upper castes, under institutionalized hierarchies.
- Examples that illustrate how caste based inequality in customs and practices is still much more in Bundelkhand than elsewhere are: in some instances, even today, many persons of the lower castes will not cross the house of an upper caste, without bowing their heads or removing their footwear; SC people will not sit in front of people from upper castes, especially the feudatories, etc.
- The caste hierarchy is reinforced with symbols of power – with guns, with living styles that are similar to the European Manor House, by following a *darbar* style of meetings and social gatherings in living quarters, by exercising influence over administration, etc.

Caste/ feudal hierarchy finds reflection in the administration

- In some cases, some field level Government functionaries pay special attention to local feudal lords, treat them with favour and some of them even have patrons amongst them. The influence of the feudal lords and upper castes is akin to a kind of lordship. They are even addressed with appropriate suffixes, reflecting and reinforcing their special status.

- On visiting villages or *kasbas*, usually representatives of the administration and field level functionaries pay their respects first to the feudal leaders and then move to the others. Officers use this as a strategy to ensure their collaboration and co-operation. Officials visiting villages attend to the landlords first and then to the elected Panchayat representatives. Often officers act as their surrogates and on the direction of the landlords

- Many cases were reported where elected Panchayat leaders were really surrogates of the traditional elite.

- Even high-level district officials respond to such hierarchies and reinforce them by their own actions[8].

Caste controls economic activities

- Feudal relations are dictated by traditional socio-economic dominance of the landholding peasantry over small and poorer farmers and labourers, and the landless. There is also a direct correlation between land holding and caste, with the upper castes dominating land holding, and traditional trading castes dominating trade and business. Backward castes and SCs and STs make up for small farmers, labour (especially SCs), and the dwindling numbers of non-farm producers such as artisans, small producers of goods and services and people with traditional services.

- The landed gentry and upper castes not only own most of the land, and run most of the local trades; they are the people who invest in enterprises like mining and control capital and investment. These influential and moneyed communities use their influence over the administration and the symbiotic relationship with the police and other regulatory authorities to help them in undertaking mining and quarrying operations.

- Many of the erstwhile rulers and those with feudal titles and palaces, have branched out into tourism, their assets being developed as tourist infrastructure. This however, is a positive initiative, and as the experience elsewhere shows, tourism promoted by royalty attracts 'high value' tourists and brings quality.

This system of social and political control is reflected in the society in a number of ways, such as:

Valorized status of women[9]: Women have been venerated as holders of the pride and dignity of the region. Bundelkhand's history has produced many women of great valour and sacrifice, and these tales are related to symbolize this. The practice of *sati*[10] is also celebrated in folklore and popular history, to reinforce that women will take the extreme step 'to save their honour'. While this puts women on a pedestal, the veneration and dignity stops here, and in real life women are subjugated and remain subservient to males,

[8] There is anecdotal evidence that supports this assertion, which was gathered by the HDR team. For example, i) district officials always addressed feudal superiors with higher respect and a subservient body language compared to non-feudatories. ii) In district meetings feudatories are even today referred with titles. iii) In meetings convened by Government officials with citizens, the places of importance such as seating near the Collector, for example, were always occupied by the feudatories.

[9] Bundelkhand.in. (2004). *Valorized and Real Status of Women in Bundelkhand.* Available at http://www.bundelkhand.in/portal/info/valorised-real-status-women-in-bundelkhand

[10] Sati: An obsolete Hindi custom where a widow immolated herself on her huasband's pyre, banned by law.

to caste superiors, to social hierarchies, and in second step in public, political and social life. Work responsibilities are the same as in all other patriarchal societies, and a study by the Indian Grassland and Fodder Research Institute, Jhansi, found that 'on average farm women in Bundelkhand worked for 8.75 hours a day, whereas men worked for only 4.72 hours'[11]. Women are paid lower wages, incidents of domestic violence are common place (most of it remains unreported and is accepted as a part of life), and except for a few places where some local women-supported organizations/ movements have come up, women remain voiceless and powerless. It has been reported that even today, 'among the forms of violence practised are literal demonstrations of the phrase *naak-katwana* – where the woman's nose is chopped off'.[12]

Sense of honour: The self-image of Bundelkhand is a land and people of and for honour. This sense of honour is a central theme in local songs and stories, and a continuous reference to this imagery is found in writings, commentaries and descriptions of the region and its people. It is an idea that has in fact been internalized by the people. The negative outcome of this has been that it has been interpreted in its extreme. The construed honour is brittle and hence can be easily assumed as having been compromised. The accepted means to restore it is the extreme use of force, which is vocal, social, and even physical. Locally termed as *'pat,'* this sense of honour was more important than ensuring the creation of stable and prosperous kingdoms. Till the British took over, a major cause of instability in Bundelkhand was this exaggerated sense of honour that fuelled relentless violent conflicts. The exaggerated sense of honour and attendant sense of self pride persisted among members of the former ruling clans, even after they were completely overpowered and deposed by the British[13].

Display of power and position through weapons: There is a visual display of weapons, especially guns in this belt. Carrying of guns and moving with people carrying guns is a symbol of power and position in many parts of

[11] Manju, S. (2008). Participation of rural women under household and farm activities. Indian Journal of Agricultural Research. Volume 42. Issue 1.
[12] "People of Bundelkhand" from Kalinjar.com Courtesy: Bundelkhand info.org
[13] Ibid

India, especially among the political class, but in Bundelkhand it has been adopted by others as well. Although this practice is going down, yet guns do come out and are used in ceremonies and festivals, symbolizing power and a sign of suzerainty.

Power of local *dadus*: Akin to local strongmen, and popularly referred to as *dadus*, these are people who belong to the erstwhile ruling families, who have not yet forgotten their past, and have not accepted the changed India, one that is democratic and based on equity. They dominate their villages or areas of influence, exercising illegal but powerful authority and managing control over local public resources, land, water bodies, local Panchayats, and influence through their over lordship over public works, planning and expenditure, irrespective of who the elected leaders are. Many of them double up as government contractors, miners, quarry owners, and have no regard for minimum wages, labour rights, women's rights, etc. They may even run gangs that help them to run their business and exert control and enhance their prestige. *Dadus* come from non-upper castes as well.

iii) The Environmental Challenge

Periods of drought, topographic challenges to retain water and access ground water, encroachments that render traditional water systems redundant, legal and clandestine mining causing environmental damage and land devastation has led to an increasing awareness of the environmental challenges facing Bundelkhand, especially in the uplands and undulating regions, which account for a large portion of the total land. The substantial human influence in changing the status of land, water, air and forests has been described in earlier sections of this report. It has led to a reduction in the forest and green cover, weakening the surface water situation and encroaching upon fragile land zones, which affects catchment areas and soil-saving vegetation, etc. Climate change is further straining the already strained environmental situation.

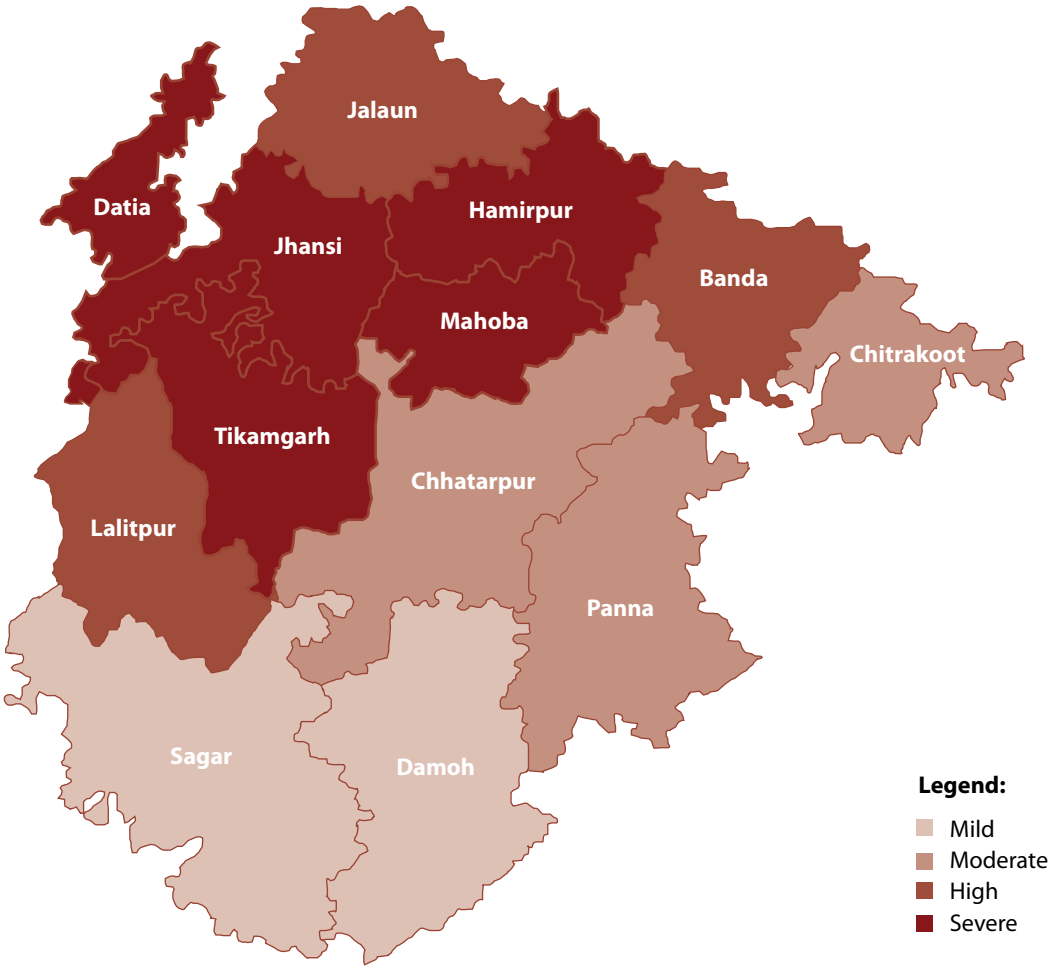
The Bundelkhand region is a hard rock area with limited or inadequate ground water resources. The region is largely rain fed and variable precipitation trends, and drought conditions are frequent here. The continuous years of drought in Bundelkhand has severely affected agricultural productivity and weakened the livelihood systems[14]. Owing to its fragile geophysical system, the Bundelkhand region is significantly sensitive to climate change.

A recent study "*Bundelkhand Drought: Retrospective Analysis and Way Ahead, 2014"* by the National Institute of Disaster Management (NIDM)[15] provides a composite map of the drought, which explains the reasons for the region witnessing drought year on year. The study shows that droughts are not a result of just climatic conditions, but are also the result of what humans do. However, climate change is not to be ignored. The climatic modelling experiments by United Nations Institute for Training and Research (UNITAR) have predicted that temperatures are likely to be higher by about 2°C to 3.5°C in the Bundelkhand region, by the end of this century. The impact of the recent drought years has been severe, and if this trend becomes recurrent, then along with other impacts of climate change, the region could see a worsening of the situation.

As mandated in national policy, the State Government of MP prepared the Madhya Pradesh State Action Plan on Climate Change

[14] Bisht, H., Shaikh, G.G. (2015). Climate Resilient Development In Bundelkhand Region of Madhya Pradesh: Mainstreaming Climate Change in Policy and Planning. Development Alternatives. Available at http://www.irf2015.org/sites/default/files/publications/Climate%20Resilient%20Development.pdf
[15] Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand drought: retrospective analysis and way ahead. National Institute of Disaster Management, New Delhi. Available at http://nidm.gov.in/PDF/pubs/Bundelkhand%20Drought%202014.pdf

Figure 7.2: Composite drought hazard map of Bundelkhand



(MPSAPCC) in 2014 with a focus on devising appropriate adaptation guidelines with the aim of strengthening the developmental planning process of the state to adequately address climate change concerns[16]. The plan identified ten climate change sensitive sectors, three of which (forestry/ biodiversity, water resources, and agriculture) have direct implications for the Bundelkhand region[17]. The State Action Plan on Climate Change for Uttar Pradesh is under preparation, but there is no specific 'climate change mitigation and/or adaptation plan' particularly for the 13 districts that make up the Bundelkhand region.

A related research titled, *'Vulnerability assessment and mitigation analysis for drought'* in Bundelkhand region[18] discusses three kinds of droughts—meteorological, agricultural and hydrological. The study mentions, "There has been no plan or scheme on increasing awareness on impact of climate change, its local implications on water systems, and know-how to cope with the challenges for agriculture

[16] See Govt. of MP Climate Change Cell, 2012
[17] Though climate change studies have been undertaken for the six districts of Bundelkhand region in Madhya Pradesh by Development Alternatives supported by the Swiss Development Agency, and other agencies, not many studies have been conducted for the seven districts of Uttar Pradesh per se.
[18] Bisht, H., (n.d.). Climate Resilient Development In Bundelkhand Region of Madhya Pradesh: Synthesis Report. Development Alternatives. Available at http://www.devalt.org/images/L2_ProjectPdfs/ClimateResilientDevelopmentInBundelkhandRegionof%20MadhyaPradesh_SynthesisReport.pdf

and food security. In the present context, no strategy of drought disaster management can be complete without including the climate awareness and adaptation framework. Crop improvement must be augmented with crop adjustment to suit the changing environmental settings and events of deficit rainfall." This and other experiences call for more detailed and specific assessments of climate change and its impact; and strategies for adaptation and mitigation.

The impact of climate change varies by agro-climatic zones, socio-economic factors and other facets of vulnerability. The response capacity of communities also varies. Therefore, adaptation to climate change is different across locations, making it a local process[19]. Another report states that communities in climate sensitive regions face several vulnerabilities making climate change communication at the grassroots extremely challenging[20]. Lacking strategic information about climate change adaptation options, few are aware about government schemes and remain poorly linked to scientists, scientific knowledge and policy makers. Communicating scientific information in a simplified manner that is appropriate to local stakeholder needs and to the socio-cultural context remains critical for the adoption of sustainable solutions. Local applied research institutions such as the Krishi Vigyan Kendras (KVKs) and Agriculture Technology Management Agencies are valuable resources that can act as an interface institution between scientific institutions and policy makers to design locally appropriate options.

Water scarcity, drought and its impact on agriculture

The Bundelkhand region, with its dependence on livestock and agriculture, is extremely vulnerable to climate change impacts such as warmer temperatures, lower precipitation and greater weather variability. These climatic uncertainties lead to more frequent spells of extended droughts, which in turn drastically affect agricultural yields[21]. Some cases of climate change affecting people are illustrated below:

- The frequency of days of rain has changed from an average of 52 days of precipitation to an average of 24 days in the last eight years. Rains often get delayed which disturbs sowing, and intermittent rains lead to inadequate irrigation at the required times and heavy rains in smaller periods leads to higher run offs.

- Changes in temperature extremes have taken place. Heat periods have changed, disturbing paan cultivation, and cold temperatures have affected vegetable cultivation in the late winter. For example, the peak temperature in Chhatarpur used to be 41°C in May, but in 2008, it touched 42°C on 12 April. Similarly, winter temperature in the second week of December used to be 25°C maximum and 11°C minimum, which was recorded at around 34°C maximum and 20°C[22] minimum.

- With unpredictable rains, fodder for animals has become deficient. Fodder prices in

[19] Blaikie, P., Cannon, T., Davis, I. and Wisner, B. (1994). At Risk: Natural Hazards, People's Vulnerability, and Disasters. Routledge, London, 333–3 and Agrawal, A. and Perrin, N. (2008). Climate Adaptation, Local Institutions, and Rural Livelihoods. IFRI Working Paper #W08I-6. Available at http://www.umich.edu/~ifri/Publications/W08I6%20Arun%20Agrawal%20and%20Nicolas%20Perrin.pdf

[20] Jha, A., Bisht, H., (2011-12). Shubh Kal. Available at http://cdkn.org/wp-content/uploads/2012/11/Manuscript-Addressing-the-information-and-knowledge-needs-of-farmers-to-enable-CCA.pdf

[21] Bhaduri, A. (2014). Technology and Public Awareness to combat climate change. India Water Portal. Available at http://www.indiawaterportal.org/articles/technology-and-public-awareness-combat-climate-change

[22] Jain, S. (n.d.). Climate Change and Bundelkhand. Media for Rights. Available at http://www.mediaforrights.org/environment/english-articles/360-climate-change-and-bundelkhand

drought years and even in normal years are very high. The cost of one fodder trolley was Rs 200 in 2004, which rose to Rs 2,500 in 2008 and is probably much higher now.

These changes in the climate manifest themselves in different ways, and what happened in 2011 is illustrative. In 2011, while most districts had more than average rainfall, even leading to near flood like situation in many areas (like Lalitpur), in the same year, residents of Bundelkhand experienced acute scarcity of water for agricultural and domestic use[23].

People Speak :

Increased income thanks to irrigation

The Government is pushing "so-called development plans", in mining, cement producing and dust generating plants, which damage the environment. The MP Government through its investors' meet at Sagar pushed large investments in exploitation of natural resources by allowing the entry of multi-national corporations. Most of the investors prefer to invest in mineral-based industries like steel plants, cement, beneficiation of iron and coal, Jatropha plantation, food processing industries, etc. The State Government is also promising investors the availability of water, power and other policy support in the name of development. However, people felt that the agriculture sector has not seen a single project being sanctioned.. People suspect that these projects will damage the productivity of land; exploit a huge amount of water, as a result the land of Bundelkhand will become barren. Ultimately, farmers and poor and marginalized communities will be left alone with the un-answered question of what happened in the Bundelkhand region.

Adaptation measures

The Bundelkhand region, with its dependence on livestock and agriculture, is extremely vulnerable to climate change impacts such as warmer temperatures, less precipitation and greater weather variability. These climatic uncertainties lead to more frequent spells of extended droughts, which in turn drastically affect agricultural yields[24]. Further, the study by National Institute of Disaster Management makes the following observations[25]:

1. Irrigation intensive or dependent agriculture is being promoted, with less emphasis on the promotion of dryland agriculture and reclamation of wastelands in the region. Dryland agriculture holds the key to the departure from dependence on rain and rain-fed systems.

2. The focus so far has been on major crops grown in the *kharif* and *rabi* seasons. The emphasis should be on minor crops like essential oils, aromatic and medical plants, floriculture, fisheries, and dairy promotion integrated with wasteland development, animal husbandry and livelihood diversification programmes.

In the current global scenario, solutions to climate change lie in promoting farming techniques, which will help farmers in adapting to changing climate without reducing their agricultural income. Most experts advocate the same - "In the arid and semi-arid belts, we should opt for drought resistant and short

[23] Gupta, A. K., Nair, S.S., Ghosh, O., Singh, A. and Dey, S. (2014). Bundelkhand Drought: Retrospective Analysis and Way Ahead. National Institute of Disaster Management, New Delhi. Available at http://nidm.gov.in/PDF/pubs/Bundelkhand%20Drought%202014.pdf
[24] Bhaduri, A. (2014). Technology and Public Awareness to combat climate change. India Water Portal. Available at http://www.indiawaterportal.org/articles/technology-and-public-awareness-combat-climate-change
[25] Singh, J. (2014). Bundelkhand's cycle of droughts: is it man-made? Down to Earth. Available at http://www.downtoearth.org.in/content/bundelkhands-cycle-droughts-it-man-made

duration seed varieties that are less vulnerable to climate change. For example, certain varieties of wheat use less water and grow in less time and so are more suitable for drought prone areas"[26]. Along with climate resilient crop varieties, organic farming, water efficient irrigation techniques, line sowing, dry sowing etc. are other sustainable agricultural practices that farmers need to adopt to reduce their vulnerability to climate change as well as save resources[27].

In order to push agriculture incomes, crops like mentha (also called menthe) are being promoted by the State machinery (see Box 7.6). While on standard economic calculations these are good crops to promote, their long-term suitability and environmental sustainability to Bundelkhand was perhaps not adequately understood, and has resulted in farmers rejecting it due to its high irrigation intensity. On the other hand, many local varieties, like the famous *Katia* wheat of this region, could be brought under the focus of agriculture research and extension machinery and could be developed further.

Alternate efforts

In addition to Government efforts in a number of directions, there have been some alternate efforts such as people's movements and some work by voluntary organizations. Some efforts by NGOs inspired and promoted by non-Bundelkhand institutions have also helped, although the role and effort of the local agencies has had more impact, even though it is less advertised.

In empowering women, giving them a platform, providing opportunities to work, to become gainfully employed and to do tasks that break patriarchal chains, a lot of excellent work has taken place in Bundelkhand. Some of these

[26] Dr. Nishi Rai, scientist working at the Krishi Vigyan Kendra, http://zeenews.india.com/news/eco-news/sustainable-farming-can-help-indian-farmers-counter-climate-change_865485.html
[27] Sustainable farming can help Indian farmers counter climate change,July 30, 2013
http://zeenews.india.com/news/eco-news/sustainable-farming-can-help-indian-farmers-counter-climate-change_865485.html

Box 7.4: Climate change impacts cultivation

Paan (betel leaf) cultivation in parts of Bundelkhand was a very remunerative business. Today, it has been affected adversely by uncertain weather. Gauri Shankar has cultivated 18 rows of betel leaves. According to him, *paan* is planted every season between 20 February and 20 March. To ensure that the crop flourishes, it should not be exposed to temperatures beyond 30°C for about three months after plantation. For this purpose, he turns the cultivated area into a temporary shed of straws and twigs. However, Gauri Shankar says that this year (2013) he planted *paan* when the temperature had already touched 35°C. This situation has never been witnessed earlier. (These experienced producers of betel leaves are capable of measuring the temperature of the atmosphere by merely spreading their hands in the sun or feeling the ground by their bare feet.) This change has adversely affected both the quantity and quality of *paan*.

According to Rampal Singh, the production of vegetables in Niwari and Teela village used to be so much that it had become a trivial commodity for them. Wheat, gram, peas and other vegetables used to be present in sufficient quantities on every plate. However, there has not been a single crop of gourd or potato in his 40 bigha (11 acres) of land holding for the last four to five years. Nearly all the wells in the region have dried up due to poor rainfall in the last four/five years.

Nutrition by anganwadi centers has received a setback because of lack of water for cooking purposes. Ramkali Raikwar cooks the mid-day meals for the primary school in Ghura village, in Palera Block, of district Tikamgarh. She has to fetch cooking water from a distance of two kms everyday. Since no drinking water is available in the school, only about 30 students are attending school regularly as against the 99 that are registered. Many of the students have either migrated with their parents or have stopped coming to school because there is no arrangement for drinking water in the school or in the vicinity (nearest water source is two kms away).

The villagers in Bundelkhand, are now migrating to nearby cities for work and livelihood, thus endangering their children's future, say that the major part of the daily meals for their children in the village came from the mid day meals and anganwadi centres. The drought has hit the very foundation of these villages, and no activity is possible without agriculture and water supply.

The impact of climate change is very visible in the Bundelkhand region of MP. It has, in the last seven years, changed the lives of the betel leaf producers and farmers.

Source: Jain, S. (n.d.). Climate Change and Bundelkhand. Media for Rights. Available at http://www.mediaforrights.org/environment/english-articles/360-climate-change-and-bundelkhand

Box 7.5: Protecting and conserving the environment using ancestral knowledge

Babulal Dahiya is among the few people from Satna district of Madhya Pradesh, who belong there and who is keen to protect and conserve the environment using his ancestral knowledge. He is affiliated to a non-profit organization named Sarjana Samajik Sanskratic Evam Sahityatik Manch, Pittaurabad, Satna, MP.

Dahiya observed that the local varieties of rice and other cereals were vanishing due to modern agricultural practices and started conserving them. He focussed on conserving rice species as they were more in number and often used locally. He started with 10 species of rice and now conserves more than 80 varieties of rice species in his agricultural fields in Satna. He cultivates the crops in small plots, using a trial and error method. Once the crops are ready, he harvests and shares them with other farmers. He has developed his own seed collection of rare species, which he distributes to the farmers who are interested in cultivating them in their field. In return, during harvest, he gets back new grain to continue the seed bank. He also conserves *desi makka, sama, kakun, kutki, kodo* and *katia* wheat and other varieties. Besides this, Babulal Dahiya has written several poems and documented local songs of tribal festivals, rituals, customs and traditions in the Bagheli language the local dialect.

His work has benefited the tribal and rural community of MP, for which he received the Biodiversity Award (2011) from the Madhya Pradesh State Biodiversity Board, Bhopal. He is also recognized by different government and non-governmental institutions for his work in the field of rice conservation. To continue and promote his work, institutions like Madhya Pradesh State Biodiversity Board, SGP, GEF and Paryavaran Mitra Project of the Centre for Environment Education have supported him financially.

Source: Ministry of Culture, Government of India. (n.d.). Babulal Dahiya - Protect and conserve the environment through their ancestral knowledge. Parampara. Available at http://www.paramparaproject.org/individuals_babulal-dahiya.html

efforts have been mentioned in the earlier chapters, but there are many more that continue to inspire and lead. Similarly, there has been exemplary work done to identify and work with bonded labour, with child labour, protesting against exploitative work conditions in mines and factories, and against semi-bonded labour contracting systems. People and organizations have done work highlighting the localized ills of caste-based discrimination, against use of alcohol and drugs, in re-generating dying crafts and reviving livelihoods for crafts persons, as well as in saving the environment. There are also many examples in constructive work involving SHGs, in promoting water conservation in agriculture, in re-generating traditional and current water structures, and in sustainable and organic agriculture.

The conditions and circumstances in which such work has taken place in Bundelkhand is a matter of inspiration, as the very power structure that inhibits equality and equal opportunity also militates against anyone and anything that strives to break their hold.

How to make things better

The administrative structure needs to address two specific issues: first it needs to close the gap in the number of people required to adequately staff various services and second it

Box 7.6: Farmers quit mentha (mint)

Farmers of Jalaun district in UP were persuaded to cultivate menthe plants which promised good returns, when they were reeling under persistent drought from 2003 to 2008. Instead, it increased their debt. Cultivation of this water-intensive crop is shrinking due to depletion of groundwater and no alternative source of irrigation in the drought-prone Bundelkhand region of the state.

About 40,000 farmers in UP have stopped growing mentha due to lack of water in the past three years. The worst hit are the farmers in Bundelkhand. The State Government introduced mentha cultivation in the region in 2005 to help farmers earn more. "Given the persistent drought in the region, the irrigation cost has gone up," said Utkarsh Sinha of non-profit Centre for Contemporary Studies and Research (CCSR), Lucknow. In 2009, the state produced 30,000 tonnes of mentha on 0.2 million hectares of land, according to the UP agriculture department.

A year later, the area under mentha reduced to 0.15 million hectares. Though there is no official data for 2011, the department estimates it will be less than 0.1 million hectares. Laluram Niranjan, a farmer at Gadher village in Jalaun, rued, "Failure in mentha cultivation is inevitable." He was one of the first farmers to take up mentha farming in the district in 2005. He then saw only profits—a return of Rs 60,000 a year, per acre (0.4 hectare). "This is three times what one gets from wheat cultivation," he said. In the first year, he earned a profit of Rs 75,000. With a large number of farmers in the district turning to the crop, he sensed a business opportunity and set up a mentha distillation unit at the cost of Rs 5 lakh. Now mentha cultivation is fast shrinking because of the dipping groundwater level. "I am in debt," he said. Niranjan has abandoned two hectares of his six-hectare mentha crop.

Mentha needs 18-22 rounds of irrigation in 90 days. It takes 0.1-0.125 million litres of water to produce one litre of mentha oil. Farmers in the region first exploited surface water sources. Once they dried up, the farmers installed hand pumps for tapping groundwater. This increased the cost. A study by CCSR in 2008-09 found that on an average, a farmer had to spend Rs 42,885 per hectare of mentha, half of which was on pumping water.

Increased cost has forced the farmers to bring in more area under mentha, to up the profit. In 2009, about 80,000 more hectares were brought under mentha cultivation compared to the previous year. This had a twin impact. One, more production meant price of mentha oil came down from Rs 700/litre in 2004 to Rs 500/litre in 2009. Two, indiscriminate withdrawal of water led to drying up of handpumps.

The CCSR study conducted in 20 villages showed that within three years, most of the hand pumps in Jalaun have dried up. It found that in 65 percent of the villages, groundwater had dipped by six metres. As a result farmers abandoned mentha on a large scale. "In my village, out of 5,000 farmers only 100 now dare take up mentha," said Ajay Kumar Niranjan, a mentha farmer in Gadher. "Those who have water sources of their own can grow the crop but profit has reduced by 60 percent."

Source: Mahapatra, R. (2011). Farmers quit mentha. *Down to Earth*. Available at http://www.downtoearth.org.in/content/farmers-quit-mentha

needs a more participative form of governance, which reflects local needs, builds ownership, strengthens local institutions to break feudal barriers and bureaucratic apathy. Both of these are quite achievable. In terms of basic performance, the UP region has been doing better in most parameters than MP, and the administrative efficiency is better. A cross-region assessment of how this has happened can help in drawing some lessons.

Interventions package/programmes for the region need to be extended and expanded, and should look at much more than just 'drought-proofing' the region, as was the case of Bundelkhand Package. The feudal mind-set and practices cannot be changed without bringing growth, investments in agriculture and manufacturing, thus giving a thrust to economic relations, promoting education, strengthening local self government and ensuring a robust implementation of law and order measures. The environmental challenges should be knitted into all socio-economic policies and programmes, reducing and/or eliminating damaging practices, and ensuring sustainable use of resources for growth and development.

8

Measuring Human Development in Bundelkhand

Chapter 8

From the very first Human Development Report (HDR) that was published by the United Nations Development Programme in 1990, a composite index that could measure the state of human development of countries, regions and sub-regions, of people and communities – comparing nations, regions and smaller areas, like states and districts in India – has been used. This measure termed the Human Development Index (HDI) is better known than the report itself. While the methodology of calculating the index has changed over time, it has remained a number that attracts attention, and has helped to generate interest and policy and programme support for human development.

The HDI for the districts of Bundelkhand is based on the international methodology[1], and measures longevity, knowledge and income, in a simple weighted average to arrive at the HDI. Within each indicator, it takes one or more parameters to arrive at the index. This HDI is not an absolute number, and its components measure how well a region does with respect to a particular parameter, from a basic minimum, and how far away it is from an ideal maximum (see note on methodology for more details).

Not surprisingly, Jhansi district has the best human development indicators, explained in large part by its high urbanization rate and

[1] Due to non- availability of data, some of the parameters used in this index are different from what the global HDR uses, however, what they intend to measure remains the same, and the selection of slightly different indicators does not change what the index attempts to measure in any significant manner.

Table 8.1: HDI for Bundelkhand and its districts, parent states and India, 2011

District	Literacy rate	Literacy index	NER (primary)	NER Index	Education index	IMR	Health index	Per capita income	PCI index	HDI	HDI rank
Jhansi	75.05	0.688	95.8	0.948	**0.775**	41	**0.621**	37,999	**0.379**	**0.592**	1
Mahoba	65.27	0.566	100	1.000	**0.711**	46	**0.568**	34,661	**0.336**	**0.538**	2
Hamirpur	68.77	0.610	94.2	0.928	**0.716**	45	**0.579**	26,941	**0.240**	**0.511**	3
Jalaun	73.75	0.672	98.3	0.979	**0.774**	65	**0.368**	29,476	**0.277**	**0.473**	4
Sagar	76.46	0.706	99.3	0.991	**0.801**	69	**0.326**	29,028	**0.271**	**0.466**	5
Banda	66.67	0.583	100	1.000	**0.722**	55	**0.474**	24,540	**0.200**	**0.465**	6
Datia	72.63	0.658	100	1.000	**0.772**	73	**0.284**	29,307	**0.274**	**0.443**	7
Damoh	69.73	0.622	100	1.000	**0.748**	71	**0.305**	27,999	**0.257**	**0.437**	8
Chattarpur	63.74	0.547	100	1.000	**0.698**	63	**0.389**	23,799	**0.189**	**0.425**	9
Lalitpur	63.54	0.544	100	1.000	**0.696**	73	**0.284**	28,989	**0.271**	**0.417**	10
Tikamgarh	61.43	0.518	100	1.000	**0.679**	61	**0.411**	21,502	**0.148**	**0.412**	11
Chitrakoot	65.05	0.563	100	1.000	**0.709**	67	**0.347**	24,011	**0.140**	**0.399**	12
Panna	64.79	0.560	100	1.000	**0.707**	85	**0.158**	23,170	**0.178**	**0.347**	13
UP-Bundelkhand	69.30	0.616	98.3	0.979	**0.737**	56	**0.463**	29,884	**0.280**	**0.493**	
MP-Bundelkhand	68.70	0.609	99.8	0.998	**0.738**	69	**0.326**	25,893	**0.224**	**0.430**	
Bundelkhand	69.00	0.613	99.0	0.988	**0.738**	63	**0.389**	29,021	**0.266**	**0.464**	
UP	67.70	0.595	94.2	0.928	**0.706**	68	**0.337**	26513	**0.149**	**0.397**	
MP	69.30	0.616	99.2	0.990	**0.741**	62	**0.400**	33028	**0.247**	**0.463**	
India	74.00	0.675	99.9	0.999	0.783	44	0.589	54042	0.522	0.632	

Source: Primary Census Abstract 2011, DISE 2011-12, Annual Health Survey 2011-12, Directorate of Economics and Statistics, Govt. of MP and Govt. of UP

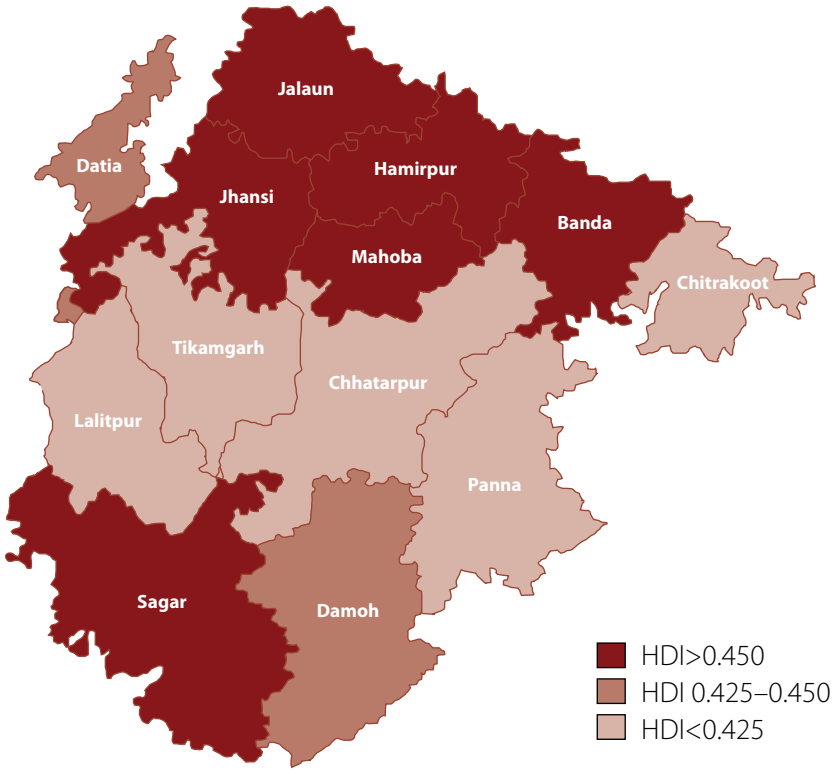
the dynamic urban economy, by the centres of learning and better education institutions (with a plethora of private schools) and better access to health care. Mahoba, Hamiprur and Jalaun follow Jhansi, and these three districts have better agriculture than in most other districts of the region. Sagar, inspite of being a great historical urban centre, is ranked at number five, just above and with nearly the same HDI as Banda. Chhatarpur, Lalitpur, Tikamgarh, Chitrakoot and Panna are ranked at the bottom of the table.

In the map (figure 8.1), the districts with the best human development indicators are marked in green, those with the lowest HDIs are marked in red and those marked in yellow are the districts in the middle. There is a clear regional pattern – Jhansi, with Mahoba, Hamirpur, Jalaun and Banda are in a geographic continuum, only Sagar district, which has a large town, with an established and flourishing agro-processing industry, is located away from this region. The red coloured districts are the poorest in human development, and run like a central belt within Bundelkhand. These districts also have the typical Bundelkhandi characteristics – the uneven geographic terrain, an entrenched feudal relation of power, social organization and economic power, are located on the margins of the administrative boundaries of their respective states, and have not yet seen any social movement or call for change from within the society and polity.

An analysis of the components of HDI

The data shows that with substantial effort, over the last two decades, some success in education has been achieved, but two essential points need to be kept in mind – literacy is the most basic measure of education,

Figure 8.1: HDI in the districts of Bundelkhand, Map



and enrolment figures do not say anything about the quality of education imparted and received. Yet, there have been impressive gains in education, and the governments of both states have managed to improve literacy rates and improve enrolment and retain children in schools, at least till the elementary level and this aspect is seen across all districts. The greatest variation in the HDI is visible in the status of health, followed by high variation in per capita incomes. The inter-district variation in health varies from a high of 0.621 to a low of 0.158, and in income it varies from a high of 0.379 to a low of 0.140.

The health indicator displays extreme inequalities, and has the poorest achievement levels in Bundelkhand. The IMR is amongst the highest in the country and reflects huge gaps. Only three districts Jhansi, Mahoba and Hamirpur) have IMRs that are in the 40 to 50 (per 1,000 live births) range. The remaining districts have IMRs that are all very high, with some as high as 85 (per 1,000 live births). The discussion in Chapter 4 shows that the state of delivery of preventive and curative health is abysmal and even the initiatives that actually boost up health like nutrition, reproductive health, improved sanitation facilities for pregnant mothers and new-borns, etc. have not had any significant impact.

The two states – for better or for worse

Looking at the two states within which the region falls, the UP-Bundelkhand region has a HDI of 0.493, much higher than the HDI for the MP-Bundelkhand region of 0.430. The UP-Bundelkhand region has a HDI much higher than the state of UP, and the reverse is true for MP, where MP-Bundelkhand's HDI is much lower than the HDI for MP. What are the reasons for this contrast?

Some of the possible explanations for this are: The districts of UP, especially the ones at the top

of the table have better Government-created irrigation, and thus better agriculture, including plains areas that enable higher incomes from agriculture. The presence of a large city like Jhansi also helps. There is better inner district road connectivity in parts of the UP region. Social change, militating against feudal politics, changes in status of women, and the Dalits/ SCs emerging from the shadows of the upper caste stranglehold also appear to have affected social progress in UP more than in MP.

Both the states and the parts of the Bundelkhand region within them, as well as Bundelkhand as a whole, all perform poorly when compared to the national HDI, and are very far away from the HDI of the better performing states of India, like Kerala, Tamil Nadu, Himachal Pradesh, etc.

The four districts with the highest HDI are all in UP – Jhansi, Mahoba, Hamirpur and Jalaun. The HDI of Banda is nearly same as Sagar (HDI of 0.465 and 0.466 respectively). The other two UP districts namely Lalitpur and Chitrakoot come at number 10 and 12 respectively (see graph, with UP districts labelled in green and MP districts in orange). The HDI for Chitrakoot in UP and Panna in MP are both less than 0.40, indicating that much more needs to be done in these districts.

The HDI for Bundelkhand as a whole is 0.464, which is considerably less than the HDI for India at 0.632, and reiterates the gap between

Figure 8.2: HDI, UP - Bundelkhand, MP- Bundelkhand, UP, MP and India

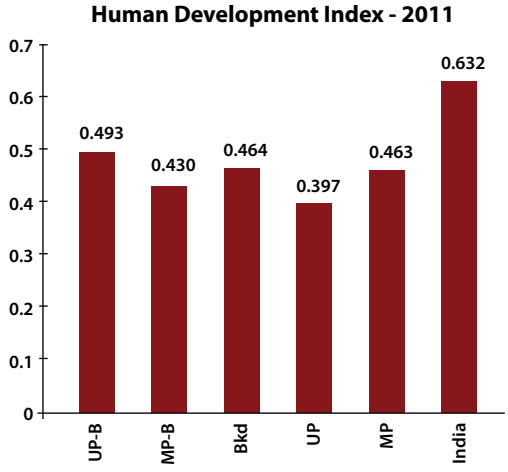
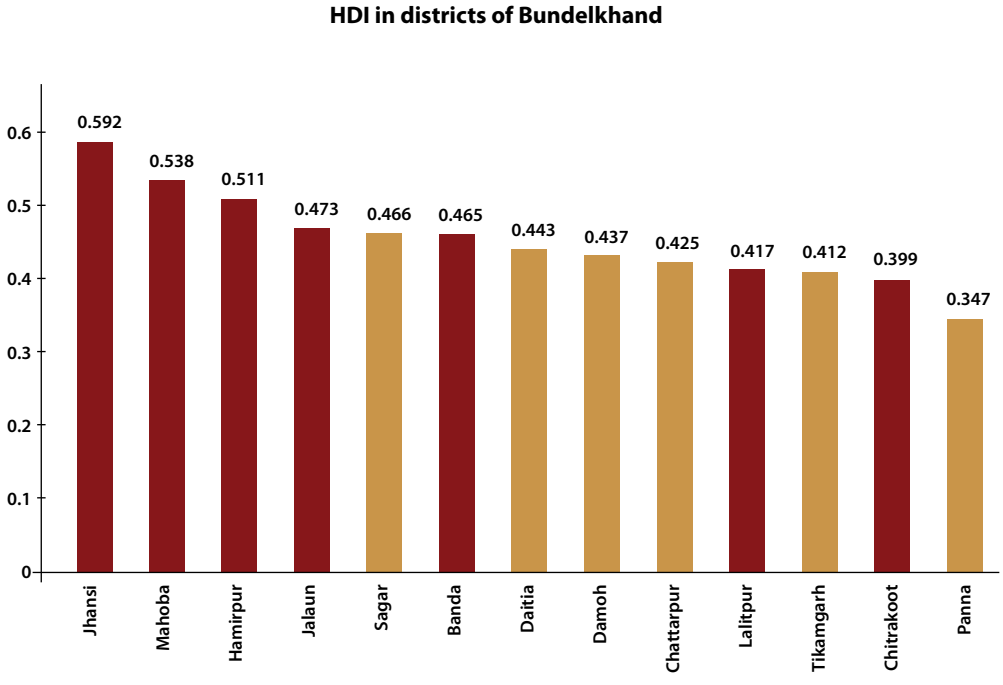


Figure 8.3: HDI in the districts of Bundelkhand



Bundelkhand and India, which has been discussed in this report. The two regions that fall in two different states have their fortunes inextricably tied to those of the parent states, the distinct local circumstances that prevail in the area and the development patterns that have been followed.

Towards initiating action in this region, a very significant result that emerges is that while in most parameters the state of UP falls behind MP, both in the recent past and today, when we take comparable regions with a common historical past, a common development sub-stratum, the state of UP does much better than a similar region in MP. Is this a reflection of better policies and initiatives being taken by UP, or of comparatively less effective strategies being followed by MP? This is a difficult question to answer but it certainly merits a better understanding. While the other regions pull down the aggregates of UP, and pull up the aggregates in MP, this more relevant comparison shows that UP's longer term efforts at building agriculture infrastructure, including irrigation and marketing, building transport linkages and ensuring more vibrant connectivity between the larger cities and Bundelkhand in UP, has paid it dividends.

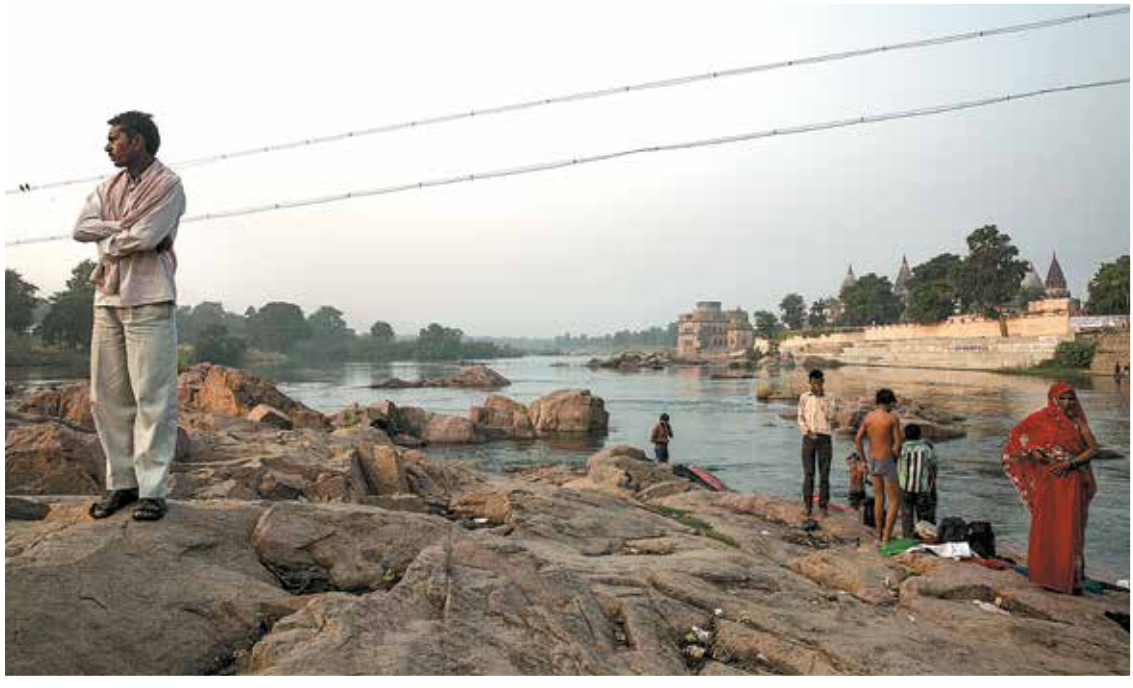
9

Potential for progress in Bundelkhand

Chapter 9

Bundelkhand has an identity etched by historical circumstance, due to a series of common rulers, who even though they did not have a distinct administrative or revenue system, did bring a sense of region-hood to this area. The Chandelas were perhaps the most significant dynasty (10th to 13th Century AD), under whose rule, the main settlements in the area were established, and a big impetus was given to the local economy, through the patronage of architecture, crafts and skills, including the water conservation tanks that were built by them. The Chandelas had their capital at Khajuraho and the Khajuraho temples (a UNESCO world heritage site) were built in the late 10th Century and were dedicated to both Hinduism and Jainism, reflecting a degree of cultural acceptance and respect for different religions[1]. It was during the reign of the Chandelas that the social and cultural identity of the region was established and nurtured through folk music, dance, painting, sculpture and poetry.

The unique identity of Bundelkhand is the result of a cumulative history, over 800 to 900 years, and a heritage that has culminated in its distinct architecture and cultural traits. It retains a distinct regional identity, reinforced by an undercurrent of belief in a region - a region worthy of its unique identity.



[1] Kamiya, T. (n.d.) UNESCO World Heritage: Hindu and Jain Temples at Khajuraho. Available at: http://www.kamit.jp/02_unesco/08_khajuraho/kha_eng.htm

In terms of development, the region shows a mixed performance. In some parameters, the region is either marginally ahead or marginally behind the situation that prevails in the parent states, except in matters of the economy, agricultural productivity and industrial investment. When a comparison is made with the national average, however, Bundelkhand lags substantially behind The feudal nature of this region has penetrated every sector of development, including the economic sphere. Patronage, lineage, primogeniture; ownership of social capital[2] (which leads to unequal access to economic capital); have all held the region back from development. Caste dominates and describes a person for all his/ her life. Similarly, gender affects birth, life, health, education, dignity, equality, freedom and choice.

In terms of human development, education levels are low, health indicators are poor, incomes are low; and poverty and deprivation is high. Approximately 30 percent of the population of the region belongs to the SC and ST communities[3], who continue to face discrimination and live off a poor capital base and survive on the periphery of livelihoods (as labourers and marginal farmers). Another half of the population – women - live less years than men, remain less educated, are more malnourished and have to contend with a strong patriarchal society and its norms, and face crimes and physical intimidation (both within and outside the family).

Only about 25 percent of the population has access to adequate sanitary facilities, less than 50 percent have electricity in their homes, and over 60 percent depend on hand pumps for drinking water. This is not the quality of life that signals a society and an economy that can take off and break from the shackles of a low productive economy.

Some telling characteristics of the current situation are:

- Class and caste-based discrimination still persists
- Widespread exploitation at the hands of landlords and upper castes
- Caste-based discrimination in accessing water sources and education, for example, is common
- Marginalized communities have the least priority in availing benefits of Government schemes and programmes
- In all human development parameters, SCs and STs lag behind the general population
- Feudal relations promote male domination in polity and society
- Low sex ratio, with high malnourishment in children and women
- The child sex ratio in Bundelkhand region is low and has declined further in recent years, in fact there is some evidence indicating female foeticide and active discrimination in practice
- There is severe gender discrimination, often women face double discrimination, due to gender and class and caste based discrimination
- Age at marriage for girls in Bundelkhand is lower than in other regions
- Women have low participation in decision-making at the family level
- Women leaders in panchayats are often figure-heads for their male guardians

However, there are some signs of change – the marginalized are raising their voice, pushed by political change and a new-found confidence and independence. Women are finding opportunities for uniting and working through group identities, leaving their homes and working for themselves and not just for their families.

[2] The central premise of social capital is that social networks have value. Social capital refers to the collective value of all "social networks" [who people know] and the inclinations that arise from these networks to do things for each other ["norms of reciprocity"]. See https://www.hks.harvard.edu/programs/saguaro/about-social-capital

[3] According to the Census 2011 Dalits and tribals constitute 27.8 percent of the population of Bundelkhand.

The potential for agriculture remains unexploited so far. Bundelkhand's specific terrain and climate affords opportunities in certain crops, in horticulture, including fruits, and this needs to be developed. The region also has abundant natural heritage, forests and natural beauty, and has specific advantages of historical heritage and an enormous locational advantage that few other parts of India can claim. It is on the north-south route, on the new highway from east to west, and on the new corridor from Amritsar to Kolkata that is being planned. Poised as it is at this crucial juncture in its development, the region needs to set its own path.

Some of the issues that confront Bundelkhand are unique to it and an appreciation of these concerns is vital to understanding how this region can be assisted to attain development and prosperity. Just to re-iterate them: skewed asset base affecting the poor; inequity in delivery of Government services; caste and gender discrimination; low technology equilibrium, in which most rural livelihoods and enterprises operate, due to which there is inefficient utilization of resources, leading to low outputs and hence, low or no surpluses. Lack of sufficiently enabling infrastructure; lack of local growth centres; non-availability and sometimes non-democratic nature of capability-enhancing services; most livelihood opportunities are external; high poverty (lack of assets and opportunities, and exclusion and feudal practices further pressurize the poor); low irrigation, and even more important, the watershed potential is being wasted. Higher education opportunities need to be provided; promotion of industries, linked to minerals, construction, agro processing, etc. is needed.; and safety of investment and promotion of entrepreneurship is not sufficient.

To realize the potential of the region, a two-pronged approach is suggested. First, the growth and development potential of the region needs to be unlocked through investments, building people's capabilities, promoting businesses among small farmers and small entrepreneurs, as well as in areas with high potential like tourism; and ensuring that there is equity in access to opportunity. Simultaneously, direct action is required to tackle destitution, deprivation and discrimination – to provide support to the poorest, build up their assets and productivity, as well as to provide institutional support to enhance nutrition, health and livelihood opportunities. In addition, the Government has to ensure that there is justice – in wages, in enforcing tenurial systems that are just, in access to all common assets, and that the poor are able to leverage all anti-poverty and social security programmes to break out of the regressive economic cycle that they are caught in.

Identifying the potential

The report makes clear that progress in agriculture, both in the current basket of production and through large scale shift in crop choices, technology and management patterns, is the core around which change in Bundelkhand may be expected. Productivity of different crops can be improved, water should be better managed at the farm level, both through watersheds and farm level water conservation and use of water-saving technologies. Funds are already available through various Central and State Government schemes, and farmers can adopt high value crops, including horticulture to enhance incomes. Much of what is stated here is already being undertaken through the Bundelkhand Package and other government schemes. Development of agriculture is inextricably linked with efficient and sustainable water management and new agricultural possibilities. Unless agriculture gets a thrust, limited progress in Bundelkhand can be expected.

Apart from agriculture, there are two other areas with promise; the first is tourism, a sector that can be developed given the historical richness and natural beauty of the region. The

region has a large number of historical tourism sites, such as palaces, forts, etc. The region has 277 protected monuments and archaeological sites (173 in UP-Bundelkhand, and 104 in MP-Bundelkhand). Compare this with 171 such sites in the Agra Circle and 161 in the Jaipur Circle, the two great tourist conglomerations in northern India, to get an idea of how unexplored this region is. It is not just the number of monuments and historical sites; Bundelkhand houses two of the nation's most attractive tourist destinations and both remain under developed[4]. The first of these two sites is the Khajuraho cluster, which is synonymous with Indian tourism, both internationally and nationally, and yet the facilities here are not adequate and the average tourist days spent are just one or two. The supporting tourist activities are missing, and the site is unable to attract tourists for more than a few days. The other cluster is around Chitrakoot, one of India's principal centres for religious tourism. Once again, the infrastructure is poor, and there are no facilities for high-spending tourists and almost no supporting activities. The potential in tourism remains unexplored.

In a region flanked by the two most important and crucial tourism clusters, to find tourism being marginal to the region's economy and livelihood, speaks of missed opportunities. Tourism and its attendant downstream impact can actually provide a stimulus to the entire region. The population of forts and castles and places (associated with religious/mythological folklore and history) in Bundelkhand present possibilities that are comparable to those in Rajasthan. Eco-tourism can be planned for the areas around the palaces and forts; coupled with folklore to attract visitors from far and near.

The tourism sector has to be assigned policy attention and focus, which it has not received so far. Specifically, investment is required to build up road infrastructure, as well as hotels and motels, and designing imaginative itineraries that encourage visitors to stay in the region for at least three to four days. This will require supporting services in travel and tourism and state supported advertising. Visits to Adivasi villages, rural tourism and home stays are options that need to be encouraged and explored around Khajuraho. In this context, lessons may be learnt from the experience of the conservation efforts made for the temples of Angkor Wat by the international community and the Government of Cambodia. In addition to the conservation efforts, the Government and business community has successfully developed the infrastructure in the region to be able to accommodate two million tourists per year (2013)[5]. Such an effort will require a specific policy intervention from the Government. (See Box 9.2 for details of the Angkor Wat experience.) Around Chitrakoot, a similar tourism experience can be built up; associated with the mythology of the area, the places associated with the Ramayana and by linking the area with neighbouring centres like Ayodhya, Varanasi and Allahabad.

Unfortunately, industry-led solutions are likely to be marginal to the development of the region. While policy-led industrial promotion is often advocated by State Governments, industry is free to choose where it wishes to invest and there are no advantages that will attract industry to the region. Thus, an industry-led promotion strategy cannot be central to any plan for this area. Similarly, knowledge-based service led growth also does not offer much possibility.

Being in the centre of India, with good connectivity the second area of promise is developing Bundelkhand region as a logistical hub. If it can generate enough warehousing and transport related infrastructure, its locational advantage can be exploited. Adequates schemes promoting investments in this regard already exist and an aggressive effort to make this a logistic hub can develop this sector substantially.

[4] See Kamiya, T. (n.d.) UNESCO World Heritage: *Hindu and Jain Temples at Khajuraho*. Available at: http://www.kamit.jp/02_unesco/08_khajuraho/kha_eng.htm

[5] Tourism Cambodia. (2013). *Cambodia's Angkor Wat Breaking Records for Visitors Again*. Available at http://www.tourismcambodia.com/news/localnews/8637/cambodias-angkor-wat-breaking-records-for-visitors-again.htm

An analysis of some of the areas identified for growth and change in Bundelkhand is presented here:

Modernization in agriculture - using water management, micro-farm solutions and moving to high value crops. Breaking the stranglehold of cereals and high input agriculture and moving to high technology agriculture is the way forward. Agriculture promotion should be through technology promoting agencies, farmer owned agencies (not in the co-operative set up, but possibly farmer owned and managed marketing agencies), farmer-industry linked production and promotional tie-ups and special focussed promotion to meet the new emerging demand like that for organic crops and vegetables, and gluten-free cereal production. In addition, the growing demand for horticulture (both for the table as well as fruits for the food processing industry) and other specific high value crops need to be promoted. In this context, micro planning on farm basis for profitable cropping choices supported by water management technology will be very beneficial. Bundelkhand's terrain, temperature and rainfall afford distinct advantages to certain types of fruits, vegetables and other vegetation, which can profit from scientifically managed technical interventions[6]. These are *amla*, *ber*, custard apple, lemon, pomegranate, etc. There is considerable wasteland in Bundelkhand which can be put to productive use by using new scientific production methods such as green-houses and water management technologies, to produce high value vegetables and flowers, to meet the growing demand in the cities. Agro-forestry, horticulture, animal husbandry, rearing small ruminants (for example goat rearing and sheep rearing), cultivation of improved varieties of pulses, oil seeds and cereals could be important components of the farming system[7]. Financial support for such initiatives can be provided from various national programmes such as the Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), etc., as well as the State Government's own programmes.

Credit related promotion in agriculture, including in agriculture processing and small manufacturing is yet to take off in Bundelkhand. Credit services need to expand their reach, reaching every household, and servicing it in its time of need. Similarly, weather based insurance needs to become a reality, and bankers need to look at small manufacturing units catering to local needs as bankable.

Water is critical to the development of agriculture. Hence, rejuvenation of the tanks that have fallen into disrepair and of their catchment regions is essential. Curtailing encroachment and destruction of the catchment area will need strong political will and administrative action; something that has not happened so far.

Livestock management and the development of fisheries in the small and rudimentary sector is another area with considerable potential. Units in irrigated regions will be assisted with entrepreneurial level dairy units and these have been known to catalyze growth. Similarly, fisheries offer much greater opportunities than have been utilized so far. While MP Government has been keen to promote fisheries in their part of Bundelkhand, similar effort must also come for the UP side. While some districts have seen some promotion in fisheries, the Governments must ensure that the fisherfolk co-operatives are able to take advantage of the potential available.

Road infrastructure has been built or is coming up and industrial investments linked to roads, based on local resources, can provide a good ground for take off. As mentioned earlier, Bundelkhand's location in central India provides a potential for the region to emerge as a transport and warehousing hub. Warehousing

[6] National Rainfed Area Authority. (2008). Report on drought mitigation strategy for Bundelkhand region of Uttar Pradesh and Madhya Pradesh. Available at http://nraa.gov.in/pdf/drought%20mitigation%20strategy%20for%20bundelkhand.pdf
[7] Ibid, page 51

and storage facilities need to be developed, as there are large tracts of land that do not suit agriculture. The Government of India has innovative financing and buy back schemes for agriculture warehousing/storage facilities and both State Governments should focus on this sector.

There is some scope for **small to medium level manufacturing, especially in agro processing**, but this requires a change in the mind-set and in the locational priorities of both the State Governments. Uttar Pradesh has also identified some potential in solar energy in the region (see Box 9.1) Recent efforts at industrial investment have been counter productive to Bundelkhand, especially in MP, and special instruments of promotion must be evolved to detect and promote the industrial potential with institutional support from industrial development and financing institutions.

Minor **mineral mining** is another possible growth area. The way that mining is being done so far has been very damaging for the environment and is controlled by local elite. It is carried out in a quasi-legal manner and has robbed the Government of revenue, damaged the sustainability of mines and quarries, destroyed river beds, depressed the labour wage, followed unprofessional and unsafe mining practices and encouraged malpractices in labour tenureship. This sector requires capital, professional investment and greater regulation. Sustainability needs to be a priority – in fact higher value added investments in mining and quarrying would help in better regulatory control and more sustainable operations.

The development of **tourist attractions of Khajuraho and Chitrakoot** can provide a stimulus to the local economies of the region. Apart from these two tourist sites, the entire region is strewn with architectural sites that can be developed as tourist destinations. There is the romance of history associated with Jhansi and its surrounding regions, for example, which can be marketed and there are other itineraries that can be developed as well. This will require investment in infrastructure and will provide employment (see Box 9.3 for what needs to be done and some suggested itineraries).

Social sector development - a priority

The social sectors need focus to improve on both delivery and outcomes, to effect better human development indicators and improve the capabilities of the people of the region. Issues of equity and access are key to social sector development. Gender equity and access for people of all communities are required to help people to participate and benefit from services in education and health.

Box 9.1: Solar Energy Potential of Bundelkhand

Under the Solar Power Policy, 2013, Uttar Pradesh Government has identified non-agricultural barren land for setting up solar power projects in Bundelkhand region. It will increase private investment in the state as well as make barren land productive. According to the Solar Power Policy, 2013 the state will bear the expenses for construction of transmission lines and sub-stations in the Bundelkhand region. The solar power plants, which are expected to be constructed by 2017, with a capacity of 500 MW, will expand the conventional power generation capacity of the region. The solar power policy of the State Government will encourage alternative projects and also provide cheaper irrigation facilities, which will lead to overall development of the region.

Sources: Note from Infrastructure Development Department, GoUP.

Box 9.2: Learning from the Angkor Wat conservation experience

Angkor is one of the most important archaeological sites in South-East Asia, containing remains of the different capitals of the Khmer empire. In 1992, Angkor Wat was added to the list of World Heritage Sites. It was added to the list of World Heritage in Danger as the site was threatened by illegal excavations and lined with landmines. The King of Cambodia and the Director General of UNESCO appealed to the international community to help safeguard the site.

In 1993, an International Coordinating Committee (ICC) was formed with the help of UNESCO to carry out archaeological and architectural conservation and to develop the capacity of the Cambodians in an attempt to assist them to manage the site.The ICC was co-chaired by Japan and France and they provided the necessary financial support. Hungary, Germany, Italy, Indonesia, China, Singapore, USA, UK and India were some of the other countries that helped to restore the site.

To protect the national interests of the Cambodians the Cambodian Authority for the Protection of the Site and the Development of the Region of Angkor (APSARA) was formed. This body has wide ranging authorities. In 1993, in an initiative supported by Japan, more than 500 Cambodian archaeologists and architects were trained, out of which 50 were employed by APSARA and the Cambodian Government.

The Government has a strong political will to preserve Angkor and it has adopted a holistic approach for its conservation. This is reflected in the following:

- Economic development of the site and new legislation for the conservation, management and protection of Angkor Wat provides an integrated framework.
- APSARA has been given a clear mandate to oversee the site and it can balance the needs of conservation and development.
- The involvement of the ICC brings invaluable scientific knowhow to the government on training, tourism, community participation, etc.
- UNESCO's unique professional experience spanning decades has helped in the restoration of the site.

The strong collaborative spirit displayed by the international community along with the political will of the Cambodian Government has effectively established oversight over Angkor Wat and created sustainable restoration. The influx of tourists into Angkor has increased by almost 20 percent year-on-year.

Apart from the temple complex for which tourists can take a one or a three day pass (most opt for the three day pass), other activities for tourists include visit to the Artisan d' Angkor centre, to view (and buy) the making of various craft items; cycling tours, cultural performances, visits to the floating villages on the Tonle Sap lake and community-based tourism sites.

Sources:

National Geographic. (n.d.). *Angkor*. Available at http://travel.nationalgeographic.com/travel/world-heritage/angkor/
United Nations Educational, Scientific and Cultural Organization. (n.d.). *Angkor*. Available at http://whc.unesco.org/en/list/668
Tourism Cambodia. (2013). *Cambodia's Angkor Wat Breaking Records for Visitors Again.* Available at http://www.tourismcambodia.com/news/localnews/8637/cambodias-angkor-wat-breaking-records-for-visitors-again.htm
United Nations Educational, Scientific and Cultural Organization. (2009). *15 Years of International Cooperation for Conservation and Sustainable Development.* Available at: http://unesdoc.unesco.org/images/0018/001890/189010e.pdf
United Nations Educational, Scientific and Cultural Organization. (2013). *20 Years of International Cooperation for Conservation and Sustainable Development.* Available at: http://unesdoc.unesco.org/images/0022/002272/227277e.pdf

Box 9.3: Some ideas on developing the tourism potential in Bundelkhand*

1. **Circuit development**

- Undertake a mapping study to identify existing tourist circuits near and around the Bundelkhand region, as well as all the potential tourism sites in Bundelkhand itself.
- Ensuring all sites with tourism potential are matched with existing circuits; as well as creating new packages, integrated tourism offering to showcase various aspects of the Bundelkhand region - heritage monuments, nature and wildlife, culture – performing arts, dress, occupations, livelihoods, local cuisine, etc.

2. **Tourism related infrastructure development**, such as adequate accommodation to cater to different tourist segments; good road infrastructure, development of road transport – easy to access, ensuring safety for commuters; restaurants that specialize in local cuisine and are tourist friendly and dedicated facilities to promote cultural and folk arts including the setting up of museums, amphitheatres for cultural performances and the like.

3. **Livelihood development** for tourism related activities – tourist guides (training and certification), management of accommodation, performing arts, local cuisine, promotion of local crafts, etc.

4. **Marketing and promotion of the region** - For Khajuraho look at the possibility of developing a larger circuit; and explore the possibility of developing 'Ravine Tourism (possibly by engaging with former dacoits guides for tourists visiting the Chambal region), a Rani Laxmibai tour; a Chitrakoot tour, etc.

- As is clear from the discussion in Chapter 4, Government health services from the sub-health centres to district hospitals will have to be geared up if they are to meet the health service requirements of the people. The current state of non-availability of doctors, medicines and other professional staff remains a serious lacuna in the strategy to build Bundelkhand. It is essential to ensure adequate staff is posted and present at the various centres, and to ensure availability of medicines and machines to provide a functional health care system. A much tighter oversight and control is required in the health centres.
- Provisioning of schools has reached a level where schools are available and are largely accessible, but it is the quality of teaching and learning, reaching the remote regions of Bundelkhand, removing caste-based discrimination that continues to be a challenge. Quality of learning can be overcome with a host of measures including proper availability of staff, teacher training and motivation, community involvement in school management, and the introduction of skills training in higher classes. Girls' education at the senior level can be assured only with easier access, by opening more medium and senior level

* Excerpts from Travel & Tourism Industry - Constrains and Opportunities by Mayura Balasubramanian, Craftizen Foundation.

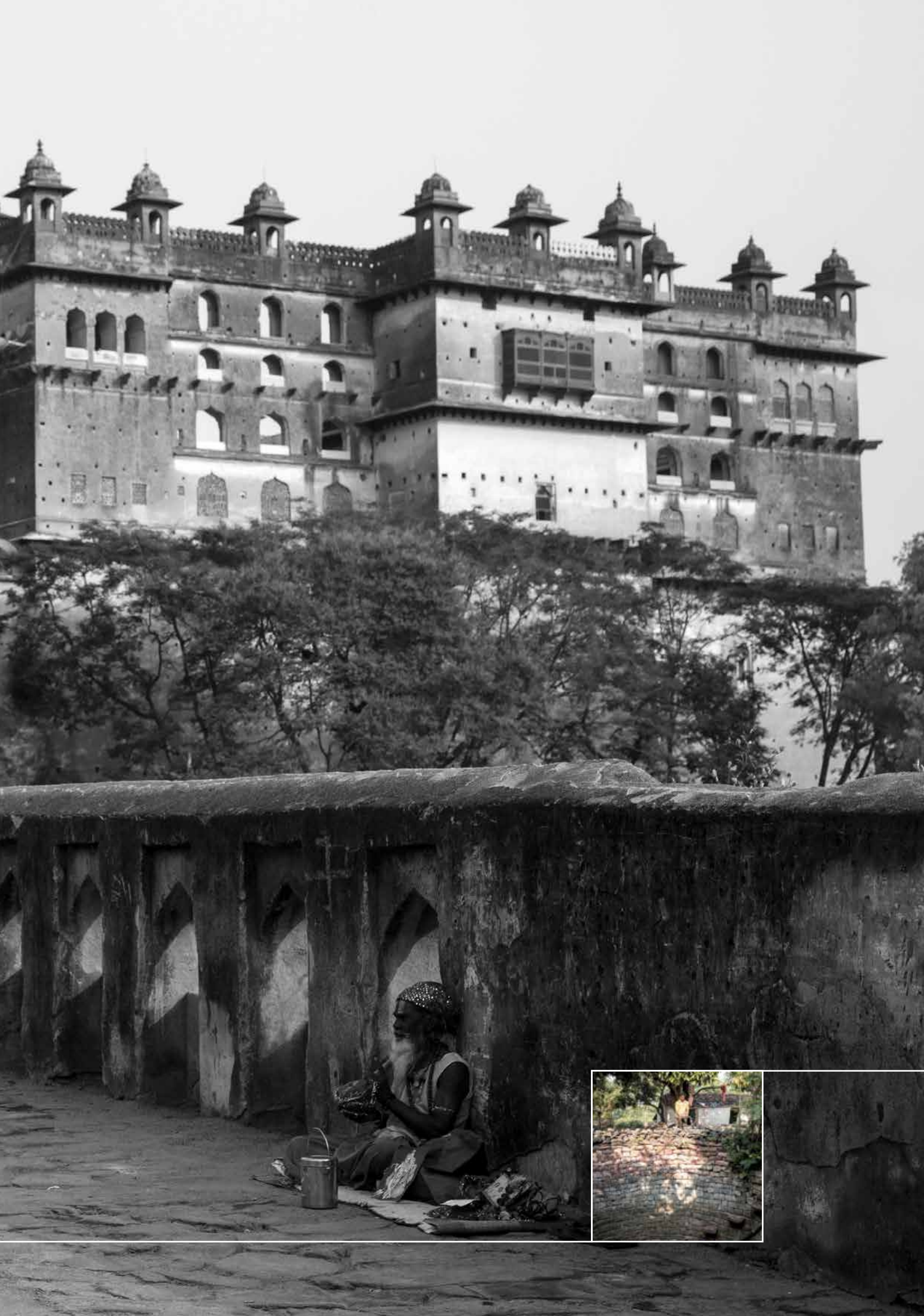
schools. Greater school level supervision, a sustained campaign for regularity in the attendance of teachers and teaching is required. Ensuring that girls move onto post-school education will require that more colleges be opened. The flashpoints in gender and caste discrimination and the environment fault lines also need to be dealt with carefully, but with aggressive intent. In addition, Government needs to support and encourage the on-going women's empowerment initiatives, strengthen gender sensitization among the police and enforce the domestic violence act.

- The Government will need to revisit all its service delivery platforms to remove caste-based discrimination, focus on local facilities to become SC and ST friendly, insist on greater accountability of forest regulatory authorities in the tribal-NTFP interface, and ensure the strictest action in cases of violence and discrimination against SCs and STs, including in cases of discrimination and violence against STs by forest and police officials.

- Special efforts are required to detect and remove cases of semi-bonded labour in quarries, small factories and child labour. Accountability and regulation-adherence in mining and quarrying, and the banning of all illegal mining is required.

- Planning needs to look at smaller regions, within Bundelkhand, to be effective. Specific projects and initiatives in agriculture, water management, connectivity, environment protection, etc. need to be prepared for the sub-regions so as to ensure better results.

- Ensure that the spirit of the Panchayati Raj Institutions and local self-government is brought into the functioning of all agencies.



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Technical Note

1. Methodology and Indicators:

The UNDP methodology adopted prior to HDR 2010 has been used for estimating district level HDI for the Bundelkhand region. Additionally, owing to data constrains, certain deviations were made primarily in the choice of indicators and goalposts selected.

The HDI is a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development:

- A long and healthy life, as measured by life expectancy at birth.
  To compute health index for districts of the Bundelkhand region, Infant Mortality Rate is used instead of life expectancy at birth.
- Knowledge, as measured by the adult literacy rate (with two-thirds weight) and the combined primary, secondary and tertiary gross enrolment ratio (with one-third weight). To compute education index for districts of the Bundelkhand region, Literacy Rate (with two-thirds weight) and the Net Enrollment Rate at the primary level (with one-third weight) are used.
- A decent standard of living, as measured by GDP per capita in purchasing power parity (PPP) terms of US dollars.
  To compute income index for districts the Bundelkhand region, average of Per Capita Income for three years at current prices (2009-10 to 2011-12) has been used. Reason for using three year average is to smooth out annual fluctuations that may take place in district incomes estimation.

Before the HDI itself is calculated, an index is created for each of these dimensions. To calculate these indices – the life expectancy, education and GDP indices – minimum and maximum values (goalposts) are chosen for each underlying indicators.

Performance in each dimension is expressed as value between 0 and 1 by applying the following general formula:

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

In the HDI income serves as a surrogate for measuring a decent standard of living. Income is adjusted because achieving a respectable level of human development does not require unlimited income. Accordingly, the logarithm of income is used. Additionally, Income Index has been estimated for each of the three years, and an arithmetic mean of the three incomes indices has been used for estimating the HDI.

For calculating the health index for the Bundelkhand region, since IMR is a deprivation indicator, following formula is used:

Health Index = 1- [(actual value – minimum value) / (maximum value – minimum value)]
The HDI is then calculated as a simple average of the dimension indices.
HDI=1/3 (Health index) + 1/3 (Education Index)+1/3 (Income Index)

2. Goalposts:

Goalposts for calculating the HDI

Indicators	Maximum Value	Minimum Value
Literacy Rate (%)	100	20
Primary Net Enrolment Rate (%)	100	20
Infant Mortality Rate (per 1000 live births)	100	05
Per Capita Income (INR)	1,49,164 (2009-10)	12,000 (2009-10)
	1,68,024 (2010-11)	15,000 (2010-11)
	2,11,570 (2011-12)	18,000 (2011-12)

The goalposts for Literacy Rate and Primary Net Enrollment Rate are based on the observed maxima and minima across all districts of Indian States as per Census data for literacy rate and District Information System for Education for the Indicator Primary Net Enrollment Rate. The goalposts for Infant Mortality Rate is based on observed maxima and minima across districts in nine states for which comparable data are available through the Annual Health Survey. The maximum goalpost for income is based on observed maximum across Indian States as reported by the Ministry of Statistics and Programme Implementation. The minimum for income goalpost is a normative value.

3. Data Sources:

1. Literacy Rate – Census 2011, Registrar General of India
2. Primary Net Enrollment Rate – Elementary Education in India - where do we stand? District Report Cards 2011-2012; National University of Educational Planning and Administration
3. Infant Mortality Rate – Annual Health Survey 2012-2013, Registrar General of India
4. Per Capita Income – Government of Uttar Pradesh and Government of Madhya Pradesh

District Profile

District Name : Banda

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.465	0.464	0.632

Rank in Bundelkhand - HDI	6

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	4,460	70,537	3,287,240
Share in Bundelkhand's Area (%)	6.32	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,799,410	18,335,044	1,210,569,573
Share in region's Population (%)	9.81	-	-
Decadal Growth in Population (%)	17.0	18.0	17.7
Urban Population (%)	15.3	22.4	31.2
Density of Population	403	260	382
Scheduled Caste Population (%)	21.6	23.5	16.6
Scheduled Tribe Population (%)	0	23.5	8.6
Sex Ratio - Total	863	885	943
Child Sex Ratio (0-6 years)	902	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	55	63	44
Child Morality Rate	96		56
Number of District Hospitals	2	19	722
Number of CHCs	5	73	4833
Number of PHCs	51	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	66.7	69.0	74.0
Male Literacy (%)	77.8	79.1	82.1
Female Literacy (%)	53.7	57.6	65.5
Rural Male Literacy (%)	76.0	76.6	78.6
Rural Female Literacy (%)	50.2	52.9	58.8
Urban Male Literacy (%)	87.1	87.1	89.7
Urban Female Literacy (%)	71.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	64.1	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	39.0	41.3	39.0
Rural Work participation Rate (%)	40.4	43.5	41.8
Urban Work participation Rate (%)	31.1	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	24,540	29,021	54,042
Share of Main Workers (%)	68.87	70.68	77.80
Share of Marginal Workers (%)	31.13	29.32	22.20
Total Employment – Agriculture Sector (%)	75.00	70	-
Total Employment – Non Agriculture Sector (%)	25.00	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-12.17	-1.88	5.14
	2010-11	3.56	0.58	8.60
Secondary (%)	2005-06	30.56	9.90	1.31
	2010-11	32.03	11.16	6.54
Tertiary (%)	2005-06	9.00	4.74	10.91
	2010-11	15.15	12.89	9.67

District Name : Chitrakoot

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.399	0.464	0.632

Rank in Bundelkhand - HDI	12

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	3,164	70,537	3,287,240
Share in Bundelkhand's Area (%)	4.49	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	991,730	18,335,044	1,210,569,573
Share in region's Population (%)	5.41	-	-
Decadal Growth in Population (%)	29.40	18.0	17.7
Urban Population (%)	9.7	22.4	31.2
Density of Population	313	260	382
Scheduled Caste Population (%)	26.9	23.5	16.6
Scheduled Tribe Population (%)	0	23.5	8.6
Sex Ratio - Total	879	885	943
Child Sex Ratio (0-6 years)	907	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	67	63	44
Child Morality Rate	119	-	56
Number of District Hospitals	1	19	722
Number of CHCs	3	73	4833
Number of PHCs	30	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	65.0	69.0	74.0
Male Literacy (%)	75.8	79.1	82.1
Female Literacy (%)	52.7	57.6	65.5
Rural Male Literacy (%)	74.9	76.6	78.6
Rural Female Literacy (%)	51.0	52.9	58.8
Urban Male Literacy (%)	84.0	87.1	89.7
Urban Female Literacy (%)	67.6	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	81.0	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	39.7	41.3	39.0
Rural Work participation Rate (%)	41.0	43.5	41.8
Urban Work participation Rate (%)	28.5	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	24,011	29,021	54,042
Share of Main Workers (%)	71.69	70.68	77.80
Share of Marginal Workers (%)	28.31	29.32	22.20
Total Employment – Agriculture Sector (%)	79.00	70.00	-
Total Employment – Non Agriculture Sector (%)	21.00	30.00	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-9.46	-1.88	5.14
	2010-11	-10.75	0.58	8.60
Secondary (%)	2005-06	20.49	9.90	1.31
	2010-11	26.07	11.16	6.54
Tertiary (%)	2005-06	11.61	4.74	10.91
	2010-11	13.53	12.89	9.67

District Name : Hamirpur

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.511	0.464	0.632

Rank in Bundelkhand - HDI	3

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	4,282	70,537	3,287,240
Share in Bundelkhand's Area (%)	6.07	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,104,285	18,335,044	1,210,569,573
Share in region's Population (%)	6.02	-	-
Decadal Growth in Population (%)	5.8	18.0	17.7
Urban Population (%)	19	22.4	31.2
Density of Population	258	260	382
Scheduled Caste Population (%)	21.8	23.5	16.6
Scheduled Tribe Population (%)	0	23.5	8.6
Sex Ratio - Total	861	885	943
Child Sex Ratio (0-6 years)	886	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	45	63	44
Child Morality Rate	66	-	56
Number of District Hospitals	2	19	722
Number of CHCs	4	73	4833
Number of PHCs	33	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	68.8	69.0	74.0
Male Literacy (%)	79.8	79.1	82.1
Female Literacy (%)	55.9	57.6	65.5
Rural Male Literacy (%)	78.5	76.6	78.6
Rural Female Literacy (%)	53.1	52.9	58.8
Urban Male Literacy (%)	85.1	87.1	89.7
Urban Female Literacy (%)	67.8	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	94.20	99.0	99.9
Net Upper Primary Enrolment (%)	64.60	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	40.2	41.3	39.0
Rural Work participation Rate (%)	42.1	43.5	41.8
Urban Work participation Rate (%)	32.1	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	26,941	29,021	54,042
Share of Main Workers (%)	65.45	70.68	77.80
Share of Marginal Workers (%)	34.55	29.32	22.20
Total Employment – Agriculture Sector (%)	70.00	70.00	-
Total Employment – Non Agriculture Sector (%)	30.00	30.00	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	7.88	-1.88	5.14
	2010-11	-2.13	0.58	8.60
Secondary (%)	2005-06	2.67	9.90	1.31
	2010-11	11.31	11.16	6.54
Tertiary (%)	2005-06	6.07	4.74	10.91
	2010-11	13.53	12.89	9.67

District Name : Jalaun

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.473	0.464	0.632

Rank in Bundelkhand - HDI	4

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	4,565	70,537	3,287,240
Share in Bundelkhand's Area (%)	6.47	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,689,974	18,335,044	1,210,569,573
Share in region's Population (%)	9.22	-	-
Decadal Growth in Population (%)	16.2	18.0	17.7
Urban Population (%)	24.8	22.4	31.2
Density of Population	370	260	382
Scheduled Caste Population (%)	27.7	23.5	16.6
Scheduled Tribe Population (%)	0	23.5	8.6
Sex Ratio - Total	865	885	943
Child Sex Ratio (0-6 years)	881	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	65	63	44
Child Morality Rate	97	-	56
Number of District Hospitals	2	19	722
Number of CHCs	5	73	4833
Number of PHCs	48	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	73.7	69.0	74.0
Male Literacy (%)	83.5	79.1	82.1
Female Literacy (%)	62.5	57.6	65.5
Rural Male Literacy (%)	83.2	76.6	78.6
Rural Female Literacy (%)	59.8	52.9	58.8
Urban Male Literacy (%)	84.2	87.1	89.7
Urban Female Literacy (%)	70.1	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	98.30	99.0	99.9
Net Upper Primary Enrolment (%)	66.80	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	36.7	41.3	39.0
Rural Work participation Rate (%)	38.9	43.5	41.8
Urban Work participation Rate (%)	30.2	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	29,476	29,021	54,042
Share of Main Workers (%)	67.70	70.68	77.80
Share of Marginal Workers (%)	32.30	29.32	22.20
Total Employment – Agriculture Sector (%)	71	70.00	-
Total Employment – Non Agriculture Sector (%)	29	30.00	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-6.38	-1.88	5.14
	2010-11	1.12	0.58	8.60
Secondary (%)	2005-06	1.98	9.90	1.31
	2010-11	-0.16	11.16	6.54
Tertiary (%)	2005-06	3.42	4.74	10.91
	2010-11	11.91	12.89	9.67

District Name : Jhansi

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.592	0.464	0.632

Rank in Bundelkhand - HDI	1

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	5,024	70,537	3,287,240
Share in Bundelkhand's Area (%)	6.47	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,998,603	18,335,044	1,210,569,573
Share in region's Population (%)	12.86	-	-
Decadal Growth in Population (%)	14.5	18.0	17.7
Urban Population (%)	41.70	22.4	31.2
Density of Population	398	260	382
Scheduled Caste Population (%)	28.1	23.5	16.6
Scheduled Tribe Population (%)	0.20	23.5	8.6
Sex Ratio - Total	890	885	943
Child Sex Ratio (0-6 years)	866	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	41	63	44
Child Morality Rate	59	-	56
Number of District Hospitals	2	19	722
Number of CHCs	6	73	4833
Number of PHCs	45	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	75.0	69.0	74.0
Male Literacy (%)	85.4	79.1	82.1
Female Literacy (%)	63.5	57.6	65.5
Rural Male Literacy (%)	83.2	76.6	78.6
Rural Female Literacy (%)	55.7	52.9	58.8
Urban Male Literacy (%)	88.4	87.1	89.7
Urban Female Literacy (%)	74.1	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	95.80	99.0	99.9
Net Upper Primary Enrolment (%)	71.30	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	40.8	41.3	39.0
Rural Work participation Rate (%)	45.4	43.5	41.8
Urban Work participation Rate (%)	34.4	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	37,999	29,021	54,042
Share of Main Workers (%)	68.72	70.68	77.80
Share of Marginal Workers (%)	31.28	29.32	22.20
Total Employment – Agriculture Sector (%)	59	70.00	-
Total Employment – Non Agriculture Sector (%)	41	30.00	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-8.71	-1.88	5.14
	2010-11	-3.15	0.58	8.60
Secondary (%)	2005-06	5.57	9.90	1.31
	2010-11	3.24	11.16	6.54
Tertiary (%)	2005-06	5.71	4.74	10.91
	2010-11	11.77	12.89	9.67

District Name : Lalitpur

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.417	0.464	0.632

Rank in Bundelkhand - HDI	10

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	5,039	70,537	3,287,240
Share in Bundelkhand's Area (%)	7.14	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,221,592	18,335,044	1,210,569,573
Share in region's Population (%)	6.66	-	-
Decadal Growth in Population (%)	24.94	18.0	17.7
Urban Population (%)	14.36	22.4	31.2
Density of Population	242	260	382
Scheduled Caste Population (%)	19.7	23.5	16.6
Scheduled Tribe Population (%)	5.9	23.5	8.6
Sex Ratio - Total	906	885	943
Child Sex Ratio (0-6 years)	916	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	73	63	44
Child Morality Rate	114	-	56
Number of District Hospitals	2	19	722
Number of CHCs	4	73	4833
Number of PHCs	29	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	63.5	69.0	74.0
Male Literacy (%)	75.0	79.1	82.1
Female Literacy (%)	50.8	57.6	65.5
Rural Male Literacy (%)	72.6	76.6	78.6
Rural Female Literacy (%)	46.8	52.9	58.8
Urban Male Literacy (%)	88.2	87.1	89.7
Urban Female Literacy (%)	73.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	77.2	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	41.2	41.3	39.0
Rural Work participation Rate (%)	42.6	43.5	41.8
Urban Work participation Rate (%)	32.6	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	28,989	29,021	54,042
Share of Main Workers (%)	70.93	70.68	77.80
Share of Marginal Workers (%)	29.07	29.32	22.20
Total Employment – Agriculture Sector (%)	79.00	70.00	-
Total Employment – Non Agriculture Sector (%)	21.00	30.00	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	8.40	-1.88	5.14
	2010-11	8.78	0.58	8.60
Secondary (%)	2005-06	-31.16	9.90	1.31
	2010-11	-8.60	11.16	6.54
Tertiary (%)	2005-06	7.06	4.74	10.91
	2010-11	17.50	12.89	9.67

District Name : Mahoba

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.538	0.464	0.632

Rank in Bundelkhand - HDI	2

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	2,884	70,537	3,287,240
Share in Bundelkhand's Area (%)	4.09	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	875,958	18,335,044	1,210,569,573
Share in region's Population (%)	4.78	-	-
Decadal Growth in Population (%)	23.6	18.0	17.7
Urban Population (%)	21.2	22.4	31.2
Density of Population	304	260	382
Scheduled Caste Population (%)	25.2	23.5	16.6
Scheduled Tribe Population (%)	0.1	23.5	8.6
Sex Ratio - Total	878	885	943
Child Sex Ratio (0-6 years)	892	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	46	63	44
Child Morality Rate	73	-	56
Number of District Hospitals	2	19	722
Number of CHCs	3	73	4833
Number of PHCs	21	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	65.3	69.0	74.0
Male Literacy (%)	75.8	79.1	82.1
Female Literacy (%)	53.2	57.6	65.5
Rural Male Literacy (%)	74.3	76.6	78.6
Rural Female Literacy (%)	50.1	52.9	58.8
Urban Male Literacy (%)	81.6	87.1	89.7
Urban Female Literacy (%)	64.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	72.3	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	39.9	41.3	39.0
Rural Work participation Rate (%)	42.5	43.5	41.8
Urban Work participation Rate (%)	30.2	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	34,661	29,021	54,042
Share of Main Workers (%)	68.27	70.68	77.80
Share of Marginal Workers (%)	31.73	29.32	22.20
Total Employment – Agriculture Sector (%)	70	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-23.69	-1.88	5.14
	2010-11	-2.51	0.58	8.60
Secondary (%)	2005-06	77.16	9.90	1.31
	2010-11	19.36	11.16	6.54
Tertiary (%)	2005-06	-2.41	4.74	10.91
	2010-11	23.81	12.89	9.67

District Name : Chhatarpur

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.425	0.464	0.632

Rank in Bundelkhand - HDI	9

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	8,687	70,537	3,287,240
Share in Bundelkhand's Area (%)	12.32	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,762,375	18,335,044	1,210,569,573
Share in region's Population (%)	9.61	-	-
Decadal Growth in Population (%)	19.5	18.0	17.7
Urban Population (%)	22.6	22.4	31.2
Density of Population	203	260	382
Scheduled Caste Population (%)	23.0	23.5	16.6
Scheduled Tribe Population (%)	4.2	23.5	8.6
Sex Ratio - Total	883	885	943
Child Sex Ratio (0-6 years)	900	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	63	63	44
Child Morality Rate	79	-	56
Number of District Hospitals	1	19	722
Number of CHCs	10	73	4833
Number of PHCs	37	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	63.7	69.0	74.0
Male Literacy (%)	72.7	79.1	82.1
Female Literacy (%)	53.6	57.6	65.5
Rural Male Literacy (%)	68.9	76.6	78.6
Rural Female Literacy (%)	48.1	52.9	58.8
Urban Male Literacy (%)	85.1	87.1	89.7
Urban Female Literacy (%)	71.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	73.3	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	42.7	41.3	39.0
Rural Work participation Rate (%)	45.5	43.5	41.8
Urban Work participation Rate (%)	33.0	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	23,799	29,021	54,042
Share of Main Workers (%)	73.67	70.68	77.80
Share of Marginal Workers (%)	26.33	29.32	22.20
Total Employment – Agriculture Sector (%)	72	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-1.34	-1.88	5.14
	2010-11	8.70	0.58	8.60
Secondary (%)	2005-06	11.16	9.90	1.31
	2010-11	13.44	11.16	6.54
Tertiary (%)	2005-06	3.56	4.74	10.91
	2010-11	11.58	12.89	9.67

District Name : Damoh

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.437	0.464	0.632

Rank in Bundelkhand - HDI	8

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	7,306	70,537	3,287,240
Share in Bundelkhand's Area (%)	10.36	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,264,219	18,335,044	1,210,569,573
Share in region's Population (%)	6.90	-	-
Decadal Growth in Population (%)	16.6	18.0	17.7
Urban Population (%)	19.8	22.4	31.2
Density of Population	173	260	382
Scheduled Caste Population (%)	19.5	23.5	16.6
Scheduled Tribe Population (%)	13.2	23.5	8.6
Sex Ratio - Total	910	885	943
Child Sex Ratio (0-6 years)	928	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	71	63	44
Child Morality Rate	106	-	56
Number of District Hospitals	1	19	722
Number of CHCs	6	73	4833
Number of PHCs	14	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	69.7	69.0	74.0
Male Literacy (%)	79.3	79.1	82.1
Female Literacy (%)	59.2	57.6	65.5
Rural Male Literacy (%)	76.6	76.6	78.6
Rural Female Literacy (%)	54.5	52.9	58.8
Urban Male Literacy (%)	89.8	87.1	89.7
Urban Female Literacy (%)	77.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	74.5	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	45.5	41.3	39.0
Rural Work participation Rate (%)	47.6	43.5	41.8
Urban Work participation Rate (%)	36.7	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	27,999	29,021	54,042
Share of Main Workers (%)	67.87	70.68	77.80
Share of Marginal Workers (%)	32.13	29.32	22.20
Total Employment – Agriculture Sector (%)	63	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	7.98	-1.88	5.14
	2010-11	-7.33	0.58	8.60
Secondary (%)	2005-06	16.04	9.90	1.31
	2010-11	14.63	11.16	6.54
Tertiary (%)	2005-06	4.16	4.74	10.91
	2010-11	11.31	12.89	9.67

District Name : Datia

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.443	0.464	0.632

Rank in Bundelkhand - HDI	7

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	2,691	70,537	3,287,240
Share in Bundelkhand's Area (%)	3.82	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	786,754	18,335,044	1,210,569,573
Share in region's Population (%)	4.29	-	-
Decadal Growth in Population (%)	18.5	18.0	17.7
Urban Population (%)	23.1	22.4	31.2
Density of Population	292	260	382
Scheduled Caste Population (%)	25.5	23.5	16.6
Scheduled Tribe Population (%)	1.9	23.5	8.6
Sex Ratio - Total	873	885	943
Child Sex Ratio (0-6 years)	856	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	73	63	44
Child Morality Rate	94	-	56
Number of District Hospitals	1	19	722
Number of CHCs	3	73	4833
Number of PHCs	10	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	72.6	69.0	74.0
Male Literacy (%)	84.2	79.1	82.1
Female Literacy (%)	59.4	57.6	65.5
Rural Male Literacy (%)	83.3	76.6	78.6
Rural Female Literacy (%)	55.9	52.9	58.8
Urban Male Literacy (%)	87.2	87.1	89.7
Urban Female Literacy (%)	70.7	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	82.1	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	40.8	41.3	39.0
Rural Work participation Rate (%)	43.2	43.5	41.8
Urban Work participation Rate (%)	33.0	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	29,307	29,021	54,042
Share of Main Workers (%)	76.98	70.68	77.80
Share of Marginal Workers (%)	23.02	29.32	22.20
Total Employment – Agriculture Sector (%)	77	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	13.04	-1.88	5.14
	2010-11	5.32	0.58	8.60
Secondary (%)	2005-06	9.47	9.90	1.31
	2010-11	8.76	11.16	6.54
Tertiary (%)	2005-06	2.98	4.74	10.91
	2010-11	11.10	12.89	9.67

District Name : Panna

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.347	0.464	0.632

Rank in Bundelkhand - HDI	13

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	7,135	70,537	3,287,240
Share in Bundelkhand's Area (%)	10.12	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,016,520	18,335,044	1,210,569,573
Share in region's Population (%)	5.54	-	-
Decadal Growth in Population (%)	18.7	18.0	17.7
Urban Population (%)	12.3	22.4	31.2
Density of Population	142	260	382
Scheduled Caste Population (%)	20.5	23.5	16.6
Scheduled Tribe Population (%)	16.8	23.5	8.6
Sex Ratio - Total	905	885	943
Child Sex Ratio (0-6 years)	914	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	85	63	44
Child Morality Rate	127	-	56
Number of District Hospitals	1	19	722
Number of CHCs	6	73	4833
Number of PHCs	15	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	64.8	69.0	74.0
Male Literacy (%)	74.1	79.1	82.1
Female Literacy (%)	54.4	57.6	65.5
Rural Male Literacy (%)	72.4	76.6	78.6
Rural Female Literacy (%)	51.8	52.9	58.8
Urban Male Literacy (%)	85.9	87.1	89.7
Urban Female Literacy (%)	72.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	70.1	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	42.5	41.3	39.0
Rural Work participation Rate (%)	43.8	43.5	41.8
Urban Work participation Rate (%)	33.1	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	23,170	29,021	54,042
Share of Main Workers (%)	64.04	70.68	77.80
Share of Marginal Workers (%)	35.96	29.32	22.20
Total Employment – Agriculture Sector (%)	77	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	11.36	-1.88	5.14
	2010-11	12.76	0.58	8.60
Secondary (%)	2005-06	0.60	9.90	1.31
	2010-11	6.12	11.16	6.54
Tertiary (%)	2005-06	3.25	4.74	10.91
	2010-11	11.23	12.89	9.67

District Name : Sagar

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.466	0.464	0.632

Rank in Bundelkhand - HDI	5

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	10,252	70,537	3,287,240
Share in Bundelkhand's Area (%)	14.53	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	2,378,458	18,335,044	1,210,569,573
Share in region's Population (%)	12.97	-	-
Decadal Growth in Population (%)	17.6	18.0	17.7
Urban Population (%)	29.8	22.4	31.2
Density of Population	232	260	382
Scheduled Caste Population (%)	21.1	23.5	16.6
Scheduled Tribe Population (%)	9.3	23.5	8.6
Sex Ratio - Total	893	885	943
Child Sex Ratio (0-6 years)	925	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	69	63	44
Child Morality Rate	92	-	56
Number of District Hospitals	1	19	722
Number of CHCs	11	73	4833
Number of PHCs	27	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	76.5	69.0	74.0
Male Literacy (%)	84.8	79.1	82.1
Female Literacy (%)	67.0	57.6	65.5
Rural Male Literacy (%)	81.8	76.6	78.6
Rural Female Literacy (%)	61.0	52.9	58.8
Urban Male Literacy (%)	91.8	87.1	89.7
Urban Female Literacy (%)	80.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	99.3	99.0	99.9
Net Upper Primary Enrolment (%)	74.9	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	42.3	41.3	39.0
Rural Work participation Rate (%)	44.5	43.5	41.8
Urban Work participation Rate (%)	37.1	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	29,028	29,021	54,042
Share of Main Workers (%)	77.44	70.68	77.80
Share of Marginal Workers (%)	22.56	29.32	22.20
Total Employment – Agriculture Sector (%)	58	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	3.22	-1.88	5.14
	2010-11	-0.32	0.58	8.60
Secondary (%)	2005-06	14.76	9.90	1.31
	2010-11	14.52	11.16	6.54
Tertiary (%)	2005-06	3.45	4.74	10.91
	2010-11	10.13	12.89	9.67

District Name : Tikamgarh

HUMAN DEVELOPMENT INDICES	District Profile (2011)	Bundelkhand (2011)	India (2011)
Human Development Index (HDI)	0.412	0.464	0.632

Rank in Bundelkhand - HDI	11

DISTRICT INFORMATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Area (km^2)	5,048	70,537	3,287,240
Share in Bundelkhand's Area (%)	7.16	-	-

DEMOGRAPHY	District Profile (2011)	Bundelkhand (2011)	India (2011)
Total Population	1,445,166	18,335,044	1,210,569,573
Share in region's Population (%)	7.88	-	-
Decadal Growth in Population (%)	20.1	18.0	17.7
Urban Population (%)	17.3	22.4	31.2
Density of Population	286	260	382
Scheduled Caste Population (%)	25.0	23.5	16.6
Scheduled Tribe Population (%)	4.7	23.5	8.6
Sex Ratio - Total	901	885	943
Child Sex Ratio (0-6 years)	892	899	919

HEALTH	District Profile (2012)	Bundelkhand (2012)	India (2012)
Infant Mortality Rate (per 1000 live births)	61	63	44
Child Morality Rate	84	-	56
Number of District Hospitals	1	19	722
Number of CHCs	7	73	4833
Number of PHCs	20	380	24049

EDUCATION	District Profile (2011)	Bundelkhand (2011)	India (2011)
Literacy (percent) : Total	61.4	69.0	74.0
Male Literacy (%)	71.8	79.1	82.1
Female Literacy (%)	50.0	57.6	65.5
Rural Male Literacy (%)	69.5	76.6	78.6
Rural Female Literacy (%)	46.4	52.9	58.8
Urban Male Literacy (%)	82.2	87.1	89.7
Urban Female Literacy (%)	66.5	73.0	79.9
Enrolment Rates	**District Profile (2010-11)**	**Bundelkhand (2010-11)**	**India (2010-11)**
Net Primary Enrolment (%)	100.0	99.0	99.9
Net Upper Primary Enrolment (%)	77.1	-	61.8

EMPLOYMENT (2010-11)	District Profile (2010-11)	Bundelkhand (2010-11)	India (2010-11)
Total Work participation Rate (%)	45.3	41.3	39.0
Rural Work participation Rate (%)	47.4	43.5	41.8
Urban Work participation Rate (%)	35.6	33.6	35.3
Other Employment Indicators	**District Profile (2011)**	**Bundelkhand (2011)**	**India (2011)**
Per capita DDP (Rs.)	21,502	29,021	54,042
Share of Main Workers (%)	71.79	70.68	77.80
Share of Marginal Workers (%)	28.21	29.32	22.20
Total Employment – Agriculture Sector (%)	81	70	-
Total Employment – Non Agriculture Sector (%)	42	30	-

ECONOMIC GROWTH BY SECTOR AT CONSTANT PRICES (2004-05)	Year	District Profile	Bundelkhand	India
Primary (%)	2005-06	-1.20	-1.88	5.14
	2010-11	-9.69	0.58	8.60
Secondary (%)	2005-06	7.09	9.90	1.31
	2010-11	8.86	11.16	6.54
Tertiary (%)	2005-06	3.50	4.74	10.91
	2010-11	11.29	12.89	9.67

Glossary

Aanganwadi- Courtyard shelters set up by the government under the Integrated Child Development Services Scheme
Adivasis- Heterogeneous set of ethnic and tribal groups
Akhil Bhartiya Samaj Sewa Sansthan- All India Social Service Institute
Anjan- *Hardwickia Binata.* It is a medium or large deciduous tree, the seeds of which are used as minor forest produce
Aonla- *Phyllanthus Emblica*
Awadhi- Language spoken in the erstwhile region of Awadh
Babul- *Acacia Indica.* It is a minor forest produce
Bagheli- Eastern Hindi language spoken in the Baghelkhand region of Central India
Bahera- *Terminalia Bellirica*
Bajjika- A dialect spoken in Bihar
Bajra- Pearl millet
Bakri Aahar- Diet for Goats
Bakri Palan Samooh- Goat Rearing Group
Bank Mitr- Business Correspondent
Basod- A Scheduled Caste
Bel- *Aegle Marmelos*
Beldar- Mason
Ber- Zizyphus varieties
Bhil, Gond, Kol, Saur, Khairwar, Bharia Bumia, Sahariya - Tribal communities from Central India
Bhojpuri- A language spoken largely in Western Bihar and Eastern Uttar Pradesh
Bidi- Local cigarette rolled with the *Tendu* leaf
Bija- *Pterocarpusmarsupium*
Brahmin- A *Hindu* caste and a *Varna*
Bundela- The dynasty that ruled Bundelkhand from 14th century AD to 16th century AD
Chabootra- Tower-like structures with octagonal or pentagonal shaped enclosures at the top
Chana- Chickpea
Chandela- Rajput clans, perhaps of Gond origin, that ruled over the region of Bundelkhand between the 9th and 13th centuries AD
Chappati- Indian bread
Chedi- An ancient Central Indian kingdom
Chhoothpratha/ Annapratha- The practice where animals are free to roam after the rabi crops are harvested
Chhuaachhoot- The practice of untouchability
Chiraunji/Chironji/Achaar- Seeds produced by the *Buchnania Lanzan* tree. It is a minor forest produce
Chowkidar- Guard
Dabang- Strong men
Dadus- Local strongmen of the erstwhile ruling families
Dalits- Members of the lowest caste in the Indian caste system. Previously, they were considered as 'untouchables'
Dandaka- Son of *Ikshawaku*

Darbar- A formal meeting
Desi Makka- Indigenous variety of maize
Dhaan- Paddy
Dhaba- A roadside food stall
Dharmshala- A small hotel with basic facilities
Dhau, Dhak and Dhawda- Anogeissus *Latifolia*
Dheemar- A Hindu caste, mostly found in Central India. Their traditional occupation is fishing
Dona and Pattal- Small containers and plates made from *Tendu* and *Palash* leaves
Duba- A type of grass, the botanical name of which is *Cynodon Dactylon*
Ghout- *Ziziphus Xylopyra*
Gond- *Choclospermum Gossypium.* The English name is Tragacanth. It is a natural gum and a minor forest produce
Got – It is a type of folk song performed through the night to seek good health for all the cattle in the village
Gram Sabha- It is a constitutional body consisting of all persons registered on the electoral rolls of a village Panchayat
Gram- Village
Gudbel- *Pueraria Tuberosa*
Gulabi Gang- Pink Gang
Gular- *Ficus Racemosa*
Gunj- *Lannea Coromendelica*
Gurjar Pratihara- Imperial dynasty that ruled large parts of North India around the 8th century AD
Gutka- Tobacco
Harra- *Terminlia Chebula*. It is a nationalized minor forest produce
Hindustani- A group of Indic dialects spoken across Northern and Central India. The language is largely a mixture of Hindi and Urdu
Hori- It is the most popular type of Dhrupad sung on the festival of Holi
Hun- The second imperial dynasty of China
Ikshawaku- One of the earliest Aryan kings
Imli- Popularly known as tamarind, it is a minor forest produce
Jal Saheli- Friends of Water
Jamun- *Syzygium Cumini* and is also called the Java plum or the Malabar plum
Jan Kendrit Vikas Mahasamiti- Committee on People-Centric Development
Jan-Dhan Yojana- National Mission for Financial Inclusion
Janani Suraksha Yojana- Safety Plan for Mothers
Jhola Chaap Doctors/ Jhola Doctors- Unqualified and unlicensed doctors, often operating in the villages that lack medical facilities
Kabar- Clay loom black soil in Bundelkhand
Kacchiyahi – It is a type of folk song and dance performed by the Kacchi people
Kahar- A lower caste in the Hindu caste system. Originally palanquin bearers, they later began to perform the function of carrying water for the upper castes
Kahri- Folk songs sung to welcome the rain
Kajri- A popular and well known form of folk music and is often sung by classical and semi classical musicians
Kakun- Foxtail Millet
Kalachuri- Central Indian ruling dynasty that existed between 10th to 12th century AD
Kapildhara Yojana- A sub-scheme of the NREGS, for providing irrigation facility to the farmers

Karaundha- *Carissa Spinarum*
Kardhai- *Anogeissus Pendulai*
Karonda- *Carissa Carandas*
Kasba- A small settlement
Katai- *Flacourtia Indica*
Khair- *Acacia Catechu*. It is a minor forest produce
Kharif- Indian cropping season that begins in July and ends in October
Khayal- One of the most popular Hindustani vocal styles in contemporary times
Kingdom of Orchha- Established by Bundela Rajput King, Rudra Pratap Singh, in Central India
Kisan- Farmer
Kodo- Little millet
Kol- Tribal group in Madhya Pradesh
Krishi Vigyan Kendra- Agricultural Science Centre
Kutki and Sama- Varieties of millet
Lamtera- Type of folk music sung in honour of Ganesha and Shakti
Mahabharata- Ancient Indian mythological Sanskrit epic that deals with the war between the *Pandavas* and *Kauravas* in the kingdom of *Kurukshetra*
Mahua- *Mahuca Indica*
Mandal- An administrative division
Mandi- A big market
Mar- Fine clayey black soil in Bundelkhand
Maratha- Warrior group from the western Deccan region
Masoor- *Lens Culinaris*
Mauryas- An ancient Indian dynasty that ruled over India, founded by Chandragupta Maurya in 320 BC
Mentha- Common Mint
Mistry- Craftsman/ Mason
Mohalla- An area of a town or village
Moong- Green gram
Mughal- The dynasty that ruled over the Indian Subcontinent during the later medieval period
Murrah- An indigenous breed of buffalo
Naak-Katwana- A Hindi phrase, which means, 'losing face'
Naga- Ancient kingdom of Central India between the 3rd and 4th centuries AD
Neem- *Azadirachta Indica*
Nishad- The name fo the traditional boatmen and ethnic group of North India
Nullah- Seasonal stream/drain
Oudh/Awadh- This is the region that is the centre of modern day Uttar Pradesh. It was ruled by the Nawabs of Awadh/Oudh during the 18th and 19th centuries
Paan- Betel leaves
Paani Panchayat- Water Council
Pahunai- A type of folk song and dance which is performed to welcome guests
Palash- *Butea Monosperma*
Palmarosa- *Cymbopogon Martinii*
Panchayat- Village Council
Panchayati Raj- The system of local self-government
Panchmahanad- At the confluence of five rivers
Parua- Coarse-grained grey to greyish brown soil in Bundelkhand
Pashu Sakhi- Friends of Animals

Pat- A sense of honour
Pav- A weighing unit, equal to approximately 1.2 kilograms
Phag- A type of folk song sung in Uttar Pradesh
Pradhan/ Sarpanch- Village Head
Pucca homes- Permanent dwellings made of bricks, cement and concrete or timber
Purdah system- The practice in certain religions and cultures of screening women from men, often by way of a curtain
Rabi- Indian cropping season that begins in October and ends in March
Ragat- *Pterocarpus Santalinus*
Rahu, bhadur, mrigal, tingar, singahi, mangur, awda, baam, sooja, sinni and mahasir- Varieties of fresh water fish
Raj Mistry- Master craftsman/ Expert mason
Rakar- Coarse-grained reddish-brown soil in Bundelkhand
Rama- A deity. He is also the Central figure of the epic Ramayana.
Rashtriya Krishi Vikas Yojana- National Agriculture Development Scheme
Rogi Kalyan Kendra- Patient Welfare Centre
Rogi Kalyan Samiti- Patient Welfare Committee
Sabha- Public meeting/ assembly
Sachiv- Village-level Secretary
Sahukar- Moneylender
Salai- *Boswellia serrata* – a plant that produces Indian frankincense (an aromatic resin)
Salbeaj- Sal seeds. It is minor forest produce
Sarkanda- A type of grass
Sarva Shiksha Abhiyan- Education For All
Seesham- *Dalbergia sissoo*
Seja- *Lagerstroemia Parviflora*
Semal- *Salmalia malabarica*
Shakarkandi- Sweet potato
Shatavar- *Asparagus Racemosus*
Siari- *Nyctanthes Arbor tristis*
Talab/ Talaab- Lake
Tambura bhajans- Songs set to *Kabir's* bhajans
Teak- *Tectona Grandis*
Tehsil- An administrative unit
Tendu- *Diospyros melanoxylon*
Thakur- An Indian mid-level caste, usually landowning
Tinsa- *Ougenia dal bergioides*
Tur or Arhar- Pigeon pea
Urad- Black gram
Vakataka- Indian dynasty that is believed to have originated in the Deccan in the 4th century AD
Valmiki- A *Dalit* community
Vigyan Shikshan Kendra- Science Resource Centre
Zaid- Indian cropping season that begins in April and ends in June-July
Zamindar- A landowner who leases land to tenant farmers

NITI Aayog-UNDP Project on
Human Development: towards Bridging Inequalities
NITI AAYOG
Sansad Marg
New Delhi 110001
Website: www.niti.gov.in

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