EQUITY ANALYSIS REPORT FOR THE STATE OF MADHYA PRADESH

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Planning and Policy Support Unit Society

State Planning Commission, Government of Madhya Pradesh

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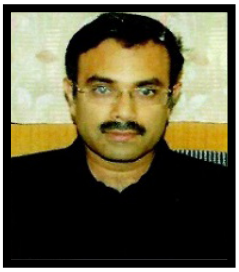
FOREWORD



Early investment in the lives of deprived population will lead to a reduction in inequality in both the short and long run. Inequality is not inevitable and henceforth, the prevailing scenario of gross inequality needs a change, which is clearly defined in the 2030 Agenda for Sustainable Development, here is a need to change the dominant development paradigm and progressively move towards a sustainable, inclusive and long-term economic, social and environmental approach centred around concerns for human rights and social equity.

The result of multiple inequities and deprivations since early years, it lasts not only throughout the life cycle of the present generation and replicates continuously.

This report stated that in lack of equity in access to and enjoyment of the rights to human development are not isolated facts. Both the inequality and inequity in social services are linked to wider economic, social, cultural or environmental contexts that impede access and enjoyment of the rights to the most deprived or vulnerable population, especially the tribal population in our State.

Thus, this report also identifies an urgent need for reliable data, solid evidence and validated knowledge based to improve planning and decision-making processes in social development. This will also allow planners to design and implement widespread, inclusive and sustainable policies to address situations of deprivation, vulnerability and risks mainly affecting the poorest population in Madhya Pradesh.

I would like to place on record the efforts of Planning and Policy Support Unit of State Planning Commission, to leverage the support of UNICEF and Centre for Public Policy and Research (CPPR), Kerala.

I hope that the publication of this report will help the MP State Planning Commission and the departments to achieve clearly about the subject dimensions and higher-level results we want to achieve; to develop and act on strategies to achieve those results; to use systematically lessons drawn from studies to make decisions; and, ultimately, to improve the contribution to the advancement of human development in the state.

Aniruddhe Mukerjee
Principal Secretary, Planning Economics and Statistics, Govt. of MP

PREFACE

Recent decades have seen rising inequality and inequities, which in turn are partly responsible for the increasing disparity in wealth distribution in the globe thus conversely undermining efforts geared towards the attainment of Sustainable Development Goals (SDGs). While the rise in inequality may be driven largely by worldwide competing processes such as globalization, competition and competitiveness of various economies, others are caused by the impact of climate change and man-made factors and policies. Rising inequity is a problem that can and should be tackled by all stakeholders and therefore, more assertively be placed on the agenda for sustainable development 2030 with tagline of **"No one should be left behind, and no human right ignored".**

Globally, UNICEF is mandated by the United Nations General Assembly to advocate for the protection of rights of children to help meet their basic needs and to expand their opportunities to reach their full potential. As such, UNICEF and other development partners are providing technical assistance in priority setting of national development agenda and in sync with Madhya Pradesh State Vision/SDG 2030. Remarkably, the equity analysis report based on the secondary sources would provide viable-framework for strategic planning and priority setting in addressing critical deprivations impacting women and children as well as will inform child-centric budgeting to ensure inclusive social development with child lenses.

This equity analysis report reflects that though great efforts were made to improve the lives of children in the State of Madhya Pradesh, the disadvantaged children continue to lack access to basic services due to geographic, social, economic and political constraints. This report highlights challenging issues of the various sectors such as health, nutrition, education, water, sanitation and hygiene and protection which are closely interconnected and have impact on the overall development of children and women in the State.

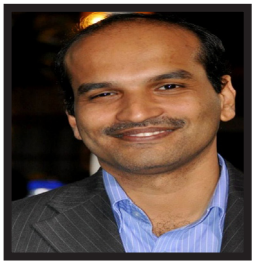
District-wise analysis revealed that districts with higher rates of urbanization, such as Bhopal, Indore, Gwalior, etc. have performed better in the realization of both health and education outcomes. Moreover, increased levels of urbanization in certain districts have led to an increase in the per capita income as well. In addition, it has also underlined a uniquely differentiated relationship between literacy rates and nutritional levels as it was found that prevalence of anemia in women was more influenced by male literacy than female literacy. In such male dominated societies, it is thus crucial that maternal and child health interventions along with strategies for nutritional improvements, be tailored to both sexes to maximize benefits and help reduce under-nutrition.

The report also has revealed that due to the existence of separate entities like education and tribal development boards to oversee school management which largely have created administrative and managerial challenges in the education sector, and as such, inevitably require vertical integration and synchronization of the entities to enhance improved productivity, seamless functioning and better education outcomes. Moreover the involvement of local self-governance in the delivery of key services like water and sanitation and provision of oversight functions with active participation of local communities is crucial for sustainability of the projects. Uniquely, the report underlined that the use of latest technology in the generation of required data for real time analysis is critical for ensuring effective monitoring and improved accountability.

Overall, the equity analysis report has highlighted key issues, and gaps impacting children and women across the State within the framework of vertical and horizontal equity, which would enable the planners and decision-makers in the Government to rethink and synchronize their existing programmes and schemes to enhance better inclusivity and reduced exclusion of the most deprived women and children in order to achieve inclusive social-economic development in accordance with the underlying principles of SDGs/Vision 2030 of Madhya Pradesh State.

Michael Steven Juma
Chief, UNICEF Madhya Pradesh

ACKNOWLEDGEMENTS



I would like to thank all the individuals for their cooperation and support in completing the report. It is to be emphasised that the report is the result of persistent and concerted efforts of many individuals.

I am grateful to the members of the Planning and Policy Support Unit (PPSU), State Planning Commissionfor their support throughout the study. The authors would like specifically thank Mr Ramesh Srivastava and Dr Rajendra Mishra for their coordination and support in completing the report. I would also like to thank Dr. Yogesh Mahor, Mr. S.P.Bhatra, and Ms. Swati Parihar and Mr. Alok Asthana for providing us with data and critical comments at various stages of developing the report.

We would like to extend our gratitude to the officials of UNICEF Bhopal- Mr. Sujan Sarkar, Mr. JitendraPandit and Mr. B Azhaganathan for their valuable suggestions in developing the report.

I am thankful to the officials of Rajya Siksha Kendra, Directorate of Public Instruction, Women and Child Development, Integrated Child Development Services (ICDS), Public Health and Family Welfare, Public Health Engineering, National Health Mission Tribal Welfare, and Social Justices for providing us with data and valuable insights. I am also thankful to the officials of the above departments for their active participation in Focus Group Discussions.

At the organisation, I would like to thank all the members of CPPR for their support in successfully completing the report.

Dr. D Dhanuraj
Chairman, Centre for Public Policy Research

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Chapter 1

Introduction

Equity means individuals should have equal opportunities to pursue a life of their choosing and be spared from extreme deprivation in outcomes (World Development Report, 2006). Equity is thus the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically (WHO). Greater equity is imperative for poverty reduction: through potential beneficial effects on aggregate long-run development and through greater opportunities for poorer groups within any society.

When one part of society is excluded from the development process, it will lead to widening disparities with its impact felt across society. Excluding parts of society from reaping the fruits of development undermines the nation's continuous efforts across the social, economic and political spectrum. The inequities, prevalent in society, thus undercut its economic growth as well as its poverty reducing potential.

Inequity, also leads to poor health and education outcomes. There exists a positive relationship between economic inequity and poor health. Economic inequity leads to shorter, unhealthier and unhappier lives, and to higher rates of teenage pregnancy, obesity, violence, addiction and imprisonment, and the consequences are felt by all members of society, not just poor people (Wilkinson and Pickett, 2009). The need to focus on equity therefore goes far beyond economic benefits.

1.1 Achieving equity- From MDG to SDG

The Millennium Development Goals (MDGs) were a manifestation of the Millennium Declaration (2000), an international pledge to create a more tolerant, peaceful and equitable world. A central aspect of MDG was equity, justifiable allocation and division of resources. The goals intended to look at development beyond the conventional economic factors and incorporated indicators of health, education, gender equity and environment. Although significant achievements have been made on many of the MDG targets worldwide, progress has been uneven across regions and countries, leaving significant gaps (MDG Report, 2015).

The lessons from the MDGs were subsequently used to forge a new path to a more sustainable future. The Sustainable Development Goals (SDGs) were born in 2012 at the United Nations Conference

SDG Goals

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages
4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

on Sustainable Development, Rio de Janeiro. The monitoring framework and indicators for the SDGs are developed based on the successes and failures of its predecessor – the MDGs. It offers a universal, holistic framework for development through three main dimensions - economic development, social inclusion and environmental sustainability. The SDGs "seek to realise the human rights of all and to achieve gender equality and the empowerment of all women and girls." Towards this end, a set of 17 Sustainable Development Goals and 169 accompanying targets with 234 indicators were proposed.

The new agenda under SDG goes far beyond the MDGs in encompassing issues related not only to economic, social and cultural rights but also civil rights, political rights and the right to development. Hence, it effectively mirrors the human rights framework. It is grounded in the Universal Declaration of Human Rights and other international instruments such as the Declaration on the Right to Development. It intends to realize a world free of poverty, hunger and disease, and a world of universal respect for human rights and human dignity, of justice and equality. SDGs address availability, accessibility, affordability

and quality of education, health, water and other services related to those rights.

1.2 Madhya Pradesh- Moving from MDG to SDG

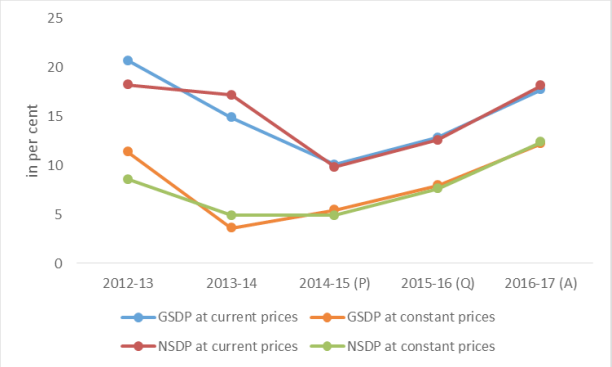
The world's most populous countries China and India have played a central role in the global reduction of poverty (MDG Report, 2015). Although, India has made significant strides in achieving MDG targets, widespread deprivation and inequity still remain. As per India's MDG framework, over 40 per cent of the targets were achieved while the remaining was either 'in progress' or 'nearly achieved'. Various reports reiterate the achievements in poverty eradication and access to primary education while stating the difficulties in meeting the targets of maternal and child mortality, sanitation and also reducing the proportion of underweight children.

Madhya Pradesh is one among the Indian states that has been performing below the national average in terms of achieving MDG goals. Madhya Pradesh was one among the states with the highest poverty head count ratio and poverty gap ratio, compared to the MDG targets in 2015. There exists visible inequity in terms of different social indicators among the women and children in Madhya Pradesh. High levels of women mortality are seen in terms of key women related survival indicators in Madhya Pradesh. Gender inequity is also a major area of concern in the state that denies women their rights and freedom to choose and avail the required services in the state.

1.3 State of the Economy

The Gross State Domestic Product (GSDP) of Madhya Pradesh in 2016-17 is US $ 99.4 billion, which has increased significantly at a growth rate of 15.21 per cent from 2011-12 .The Net State Domestic Product (NSDP) increased significantly at a growth rate of 15.16 per cent between 2011-12 and 2016-17 to US $ 88.77 billion. In 2016-17, the state registered a double digit GSDP growth rate of 14 per cent against the national average of 7.1 per cent. Per capita GSDP of the state increased from 3.9 per cent in 2014-15 to 10.6 per cent in 2016-17 at ₹59,052.

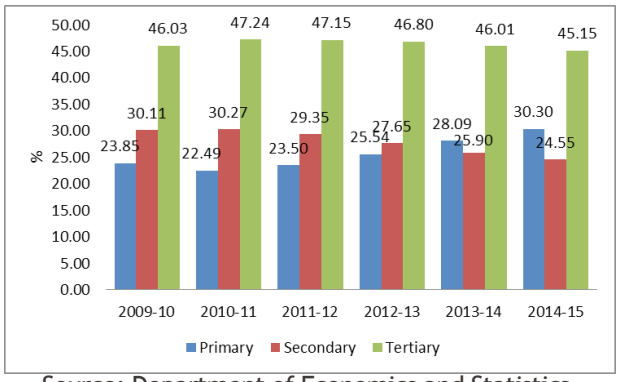
Figure 1:1 GSDP and NSDP growth rate



Source: Department of Economics and Statistics, Madhya Pradesh

The main contributor to the state's economy is the primary sector- largely agriculture, fishing and forestry. Agriculture and allied activities play an important role in the state's economy with a steady rise in its sectoral share while there has been a decline in the shares of industrial and service sectors.

Figure 1:2 Sector wise shares in GSDP (per cent)



Source: Department of Economics and Statistics, Madhya Pradesh

The growth in agriculture sector increased from 3.7 per cent in 2014-15 to 20.4 per cent in 2016-17. The state registered double digit growth rate in agriculture when the national average was 4.9 per cent.

1.4 State of Development

Though Madhya Pradesh has registered a remarkable performance by achieving higher GSDP growth rate, its achievement in terms of human development indicators is among the lowest in India.

Table 1:1 Madhya Pradesh Development Indicators

Indicators	MP	All India
Literacy Rate (in per cent) (Census 2011)	70.60	74.00
Male Literacy Rate (in per cent) (Census 2011)	80.53	82.14
Female Literacy Rate (in per cent) (Census 2011)	60.02	65.46
Youth Literacy Rate (in per cent) (Census 2011)	83.71	86.14
Infant Mortality Rate (NFHS-4)	51.00	41.00
Maternal Mortality Rate in 2011-13 (SRS Bulletin)	221.00	167.00
Prevalence of Underweight Children under five years of age (in per cent) (NFHS-4)	42.80	35.70
Poverty Head Count Ratio,2009-10 (in per cent) (Planning Commission)	36.70	29.80

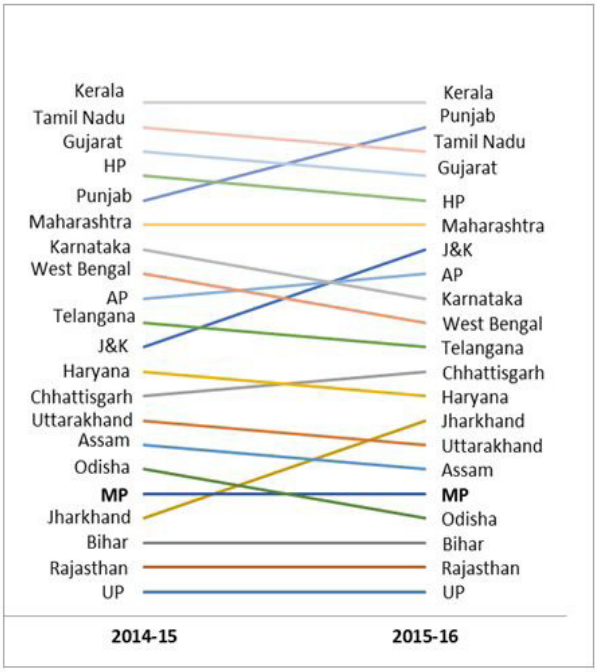
Source: Census, 2011; NFHS-4; SRS Bulletin

Madhya Pradesh has shown an improving trend in its health indicators, but it is still one of the lowest performing states in the country. The Infant Mortality Rate (IMR) of the state has been declining since 2006 but it is still one of the highest in India (Government of India, 2015). As per the latest National Family Health Survey Data (NFHS-4, 2015-16) the IMR in the state is 51 per 1000 live births, showing improvement from the previous NFHS-3 (70 per 1000 births) in 2005-06. The survey also shows a higher rate of infant mortality and under-five mortality in rural areas when compared with urban areas. The share of underweight children below three years is found to be highest (57.9 per cent) in Madhya Pradesh among the Indian states (NFHS-4).

In an attempt to bring out transformational change in the health outcomes across states, NITI Aayog has developed a Health Index to measure states' performances and track incremental changes. The index comprises health outcomes like MMR, U5MR, TFR, institutional deliveries, immunization coverage etc., governance and information aspects such as data integrity and key inputs or processes including proportion of functional PHCs and vacant healthcare provider positions.

Madhya Pradesh is classified as one of the 'Aspirant' states forming the lowest one-third of the list. In terms of incremental performance, the state was found to be one of the least improved with a single point increase, and maintaining its rank at 17.

Figure 1:3 Health Index



Source: Healthy States, Progressive India-2018

In education, the state's performance is below the national average in terms of the outcome indicators. The adult literacy rate (15 years and above) as per the Census 2011 is 64 per cent while the national adult literacy rate is 69 per cent. There is a high disparity between the literacy levels of men and women in the state clearly evident from the difference of 20 points. Mothers' education level is known to improve child nutrition, reduce chances of both maternal and child deaths, and hasten demographic transition to lower birth rates (UNESCO Girls' Education Fact Sheet, 2013).

The state has made significant progress in providing access to drinking water and sanitation facilities to the households, but it still lags behind other states in the country. Based on a survey conducted by the National Sample Survey Office in 2016, open defecation is among the highest in Madhya Pradesh, higher than the national average in both urban and rural areas (Government of India, 2016). This trend is evident even among the richer households in the state (World Bank, 2016).

For the achievement of SDG there is a need to focus on critical sectors such as education, health, water, sanitation and nutrition. These sectors are key areas prioritised by the government along with UN agencies. They are known to have multiplier effects and could jump start SDG target attainments.

With this background, the present report addresses the following objectives:

- To analyze the trends and patterns in the health, education, nutrition, and water and sanitation development outcome indicators across districts and social groups.
- To determine the social, political and institutional factors that hamper the realization of children's and women's rights.
- To identify the challenging factors that constrain the implementation of pro equity policies in the state.
- To strengthen the knowledge base of the state for designing differential policies and programs with equity lenses and to ensure sustainable development.

1.5 Framework of the Study

Equity has been recognized globally as an important contributing factor to development and has been the focus of programming by many development agencies. Equity is taken as a starting point for arguments for the intrinsic value of greater equality (Melamed and Samman, 2013). In the 2010 Human Development Report of Equality, United Nations Development Program (UNDP) repeated the definition of human development, signaling the importance accorded to equity (UNDP, 2010). Defining and measuring 'equity' is a difficult task and hence an attempt has been made to develop a framework for understanding equity as it exists in MP across districts.

In the first phase, the study analyses the status quo of health, education, nutrition, and water, sanitation and hygiene (WASH) sectors in Madhya Pradesh. Secondly, district wise analysis is carried out to understand the various factors influencing the outcome indicators. Thirdly, an index for each sector for all the districts has been developed to identify the strategies to be implemented across the districts. A composite index has been developed to understand the position of the districts in terms of attainment of SDGs.

The policies along with central/ state schemes focussing on sectors such as education, health, nutrition, WASH and tribal development will be reviewed. Attention will be given to understand the impact of existing policies/schemes and to determine the gaps in the existing system. Recommendations will be provided to confirm that the strategies and policies will be able to address those bottlenecks.

1.6 Data Sources

The study is largely based on secondary data. Through focus group discussion some relevant information has been collected to fill the gap

and to substantiate the findings. Various census reports, various NSSO Rounds, CSO data, Planning Commission (MP) District Information for Education (DISE), National Family Health Survey (NFHS), District Level Household and Facility Survey (DLHS) of Ministry of Health and Family Welfare, Annual Health Survey, City Development Plans (CDPs), City Sanitation Plans (CSPs) etc. are the main sources of secondary data.

1.7 Structure of the Report

The report is organized as follows. After discussing the relevance and scope of the study in the first chapter, the second chapter discusses the demographic profile of the state. In the third chapter, the district wise development in the state in terms of health and nutrition are discussed. The fourth chapter makes a district wise analysis of the education sector. In the fifth chapter, analysis will focus on WASH.

The sixth chapter discusses the situation of Social and Child Protection in the state. In the seventh chapter, the status of infrastructure development is discussed. The seventh chapter also discusses the readiness for SDG attainments with the focus on intra state issues. Recommendation on various issues relating to Health, Education, WASH and nutrition are discussed in the eighth chapter. The ninth chapter summarises and concludes the study.

Chapter 2

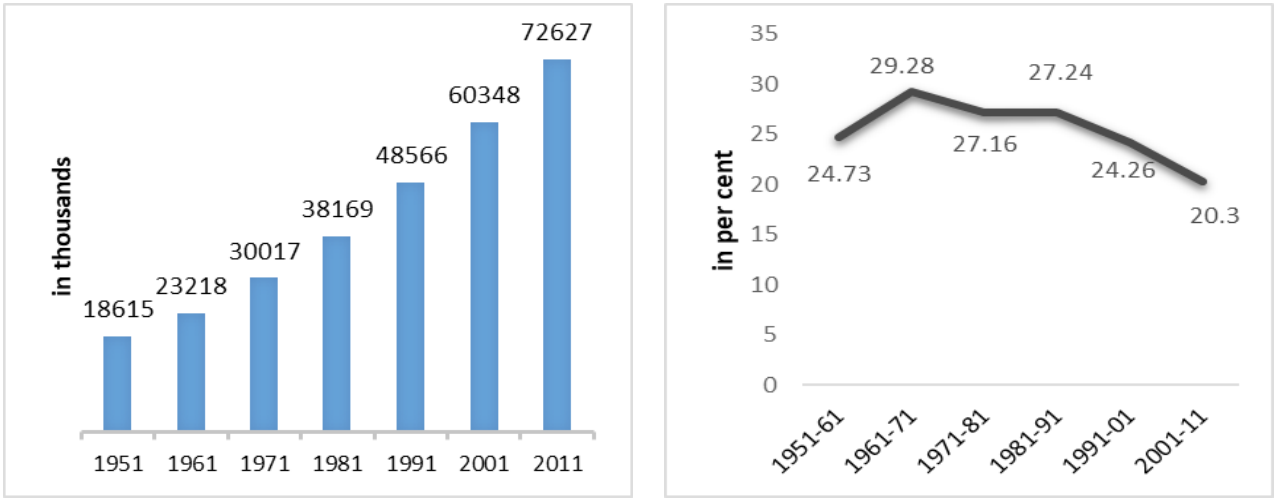
Demographics

*"Our demographic dividend is our strength. The youth have what it takes to engage with latest technology" - **Narendra Modi, Prime Minister of India***

Demographic characteristics provide an overview of population size, its growth rate and composition, territorial distribution, birth and death rates, expectancy of life etc. Madhya Pradesh, called the '*heart of India*' covers 9.4 per cent of the total land area of the country, and comprises 6 per cent of the total population of India. As per Census 2011, the total population of Madhya Pradesh is 72,626,809 of which male and female constitute 51.8 per cent and 48.2 per cent respectively.

The population growth rate in the state is more than the national average. During 2001-2011, the state registered a growth rate of 20.3 per cent against the national growth rate of 17.7 per cent. But the decadal growth rate has declined from 27.24 per cent during 1981-91 to 20.3 per cent during 2001-11. Thus from 1981-91 onwards a declining trend is visible in the decadal growth rate of population.

Figure 2:1 Total Population (in thousands) and Decadal Growth Rate in Population (in per cent)



Source: Handbook of Statistics on Indian States, RBI

2.1 Rural-Urban Divide

Rural population has a share of 72.37 per cent whereas the urban population accounts for 27.63 per cent. At the all India level, the number stands at 68.9 per cent and 31.1 per cent respectively. During 2001-2011, the state registered urban population growth rate of 25.06 per cent. During the same period, rural population registered a decadal growth rate of 18.42 per cent. Among the Empowered Action Group (EAG) states, Madhya Pradesh holds the second position next to Uttar Pradesh (30.23 per cent) in terms of share of urban population to the total population. The eight socioeconomically backward states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttaranchal and Uttar Pradesh are referred to as the EAG states.

Table 2:1 Per cent of Urban Population in EAG states

States	Per cent of urban population
Bihar	11.30
Chhattisgarh	23.24
Jharkhand	24.05
Madhya Pradesh	27.63
Orissa	16.69
Rajasthan	24.87
Uttarakhand	22.27
Uttar Pradesh	30.23

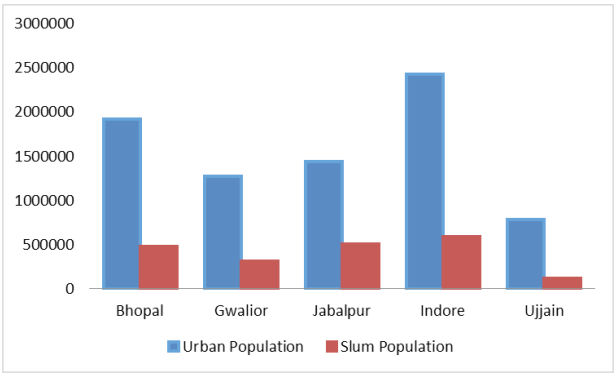
Source: Handbook of Statistics on Indian States, RBI

Increasing rate of urbanisation has also led to a corresponding increase in the slum population.

Bhopal, Indore, Gwalior, Jabalpur and Ujjain account for around 39 per cent of the total urban population in the state. Rewa, Dhar and Satna have the highest share of rural population. The three districts account for around 10 per cent of the total rural population in the state.

As per census 2011, 28 per cent of the urban population in the state lives in slum areas. It was reported that in the states of Andhra Pradesh, Chhatisgarh, Madhya Pradesh, Orissa and West Bengal more than 1 in 5 urban households lives in a slum.In 2001, there were 339 statutory towns in Madhya Pradesh with 142 slum reported towns in 2001. As per census 2011, number of statutory towns in the state has increased to 364 with 303 slum reported towns. Indore (Municipal Corporation) registers the highest slum population at 590,257. But when it comes to the share of slum population to the total urban population, Jabalpur has the highest share at 35 per cent. Bhopal holds the second position with a share of 25 per cent followed by Gwalior, Indore and Ujjain (Figure 2:2).

Figure 2:2 Urban Population vs Slum Population

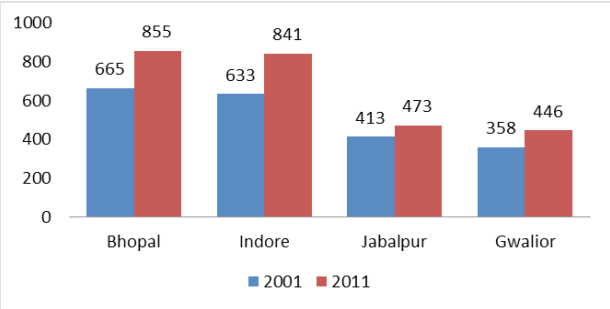


Source: Census, 2011

2.2 Density of Population

The density of population in Madhya Pradesh has increased from 156 per sq km in 1991 to 236 per sq km in 2011. Among the districts, density of population is found to be higher in the urbanised districts of the state. Density of population is highest in Bhopal with 855 per sq km and Indore is second with 841 per sq km. Over the past decade a rapid increase in the density of population has been witnessed in the urban districts of Bhopal, Indore, Jabalpur and Gwalior. The increasing density of population in the above districts can be attributed to increasing migration to urban districts.

Figure 2:3 Density of Population (per sq km)



Source: Census, 2011

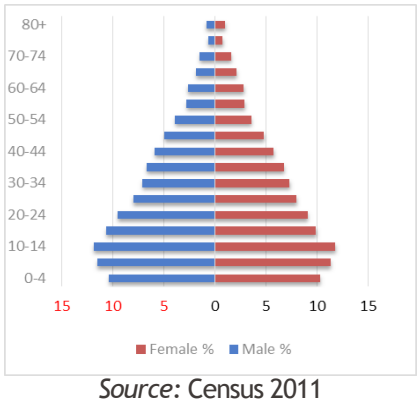
2.3 Demographic Dividend - Driver for Economic Growth

The age composition of the population in Madhya Pradesh is given in the figure below. It shows that majority of the population belongs to the working population group 15 to 59 years, in both 2001 and 2011. The share of the working age group (labor force) increased from 54.11 per cent in 2001 to 58.56 per cent in 2011 in the state.

Next to the share of working age group comes the share of the young population in both 2001 and 2011. The share of young population in the state is greater than the national average in both periods. The old age group represents only a small share of the population while it has increased slightly in 2011 compared to 2001.

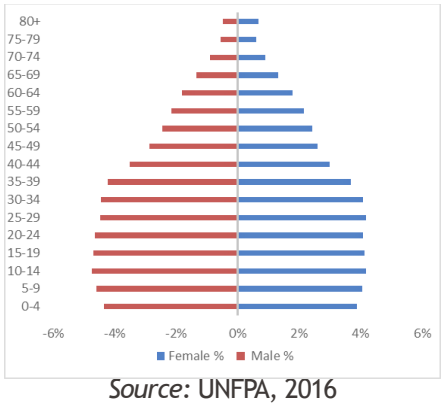
Population growth and the associated labour force is considered to be a major potential for the country's economic growth. By 2025, India is poised to become one of the most populous nations with a population of 1.4 billion. Around 64 per cent of India's population is expected to be in the age group of 15-59 years by 2026- this could be of great consequence for the economic growth of the country. Around 60 per cent of the population

Figure 2:4 Age Pyramid - 2011



Source: Census 2011

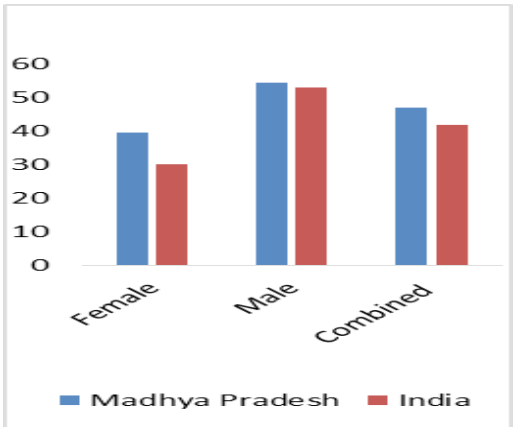
Figure 2:5 Age Pyramid (2026)



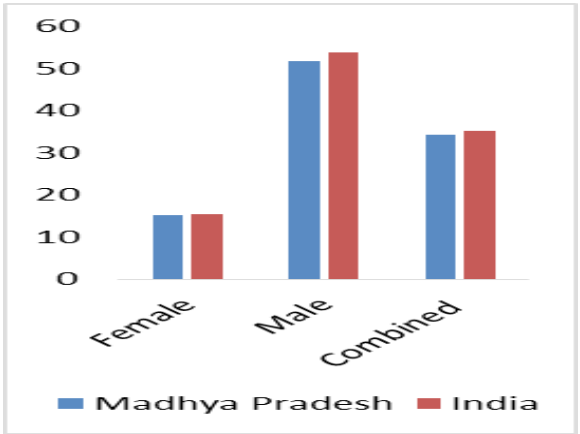
Source: UNFPA, 2016

Figure 2:6 Workforce Participation Rate (in per cent)

Rural



Urban



Source: Census 2011

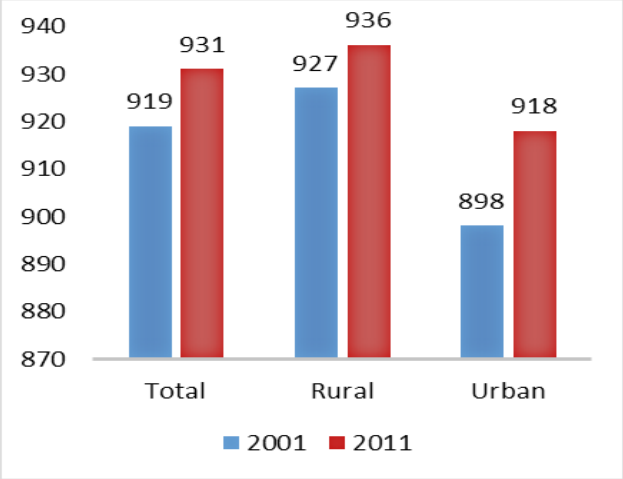
increase in India would come from Madhya Pradesh, Bihar, Uttar Pradesh and Rajasthan. As per Census 2011, median age of Madhya Pradesh stands at 23, whereas the median age of India is at 24. The young median age suggests a positive impact on the economic growth of the state.

The workforce participation rate for rural areas is higher in Madhya Pradesh both for males and females than the national average (Figure 2:6). But in urban areas, workforce participation rate in the state is less than the national average. By 2026, working age group (20-64) is going to have a share of 58 per cent to the total population in the state. The state will be able to reap its demographic dividend only if it can generate skilful working population and step up its workforce participation rate.

2.4 Sex Ratio

Madhya Pradesh has a low sex ratio of 931 compared to the national average of 940. The sex ratio of the state has improved from 919 in 2001 to 936 in 2011. The state also follows the national trend with sex ratio in urban areas lower than the rural areas. The low sex ratio in urban areas could be attributed to the increasing migration of men than women to the urban areas.

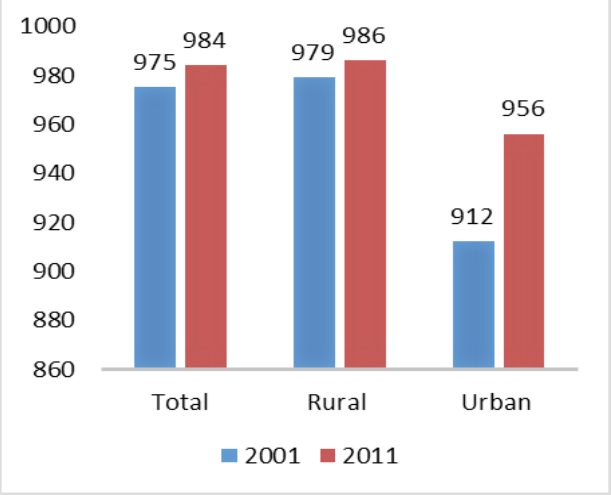
Figure 2:7 Sex Ratio



Source: Census, 2011

The districts registering high sex ratio in the states are Balaghat (1021), Alirajpur (1011), Mandla (1008), Dindori (1002). It should be noted that districts

Figure 2:8 Sex Ratio among STs



Source: Census, 2011

with a high proportion of rural population register higher sex ratio than their urban counterparts. Madhya Pradesh is also the state with the highest share of tribal population, accounting for 14.7 per cent of the total ST population in the country. It

Table 2:2 Per cent of ST population and Sex Ratio

Districts	Per cent of ST population	Sex Ratio
Alirajpur	89.00	1011
Jhabua	87.00	990
Barwani	69.40	982
Dindori	64.70	1002
Mandla	57.90	1008
Dhar	55.90	964
Anuppur	47.90	976
Umaria	46.60	950
Shahdol	44.70	974
Betul	42.30	971
Khargone (West Nimar)	39.00	965
Seoni	37.70	982
Chhindwara	36.80	964
Khandwa (East Nimar)	35.00	943
Singrauli	32.60	920
Burhanpur	30.40	951
Ratlam	28.20	971
Harda	28.00	933
Sidhi	27.80	957

Source: Census, 2011

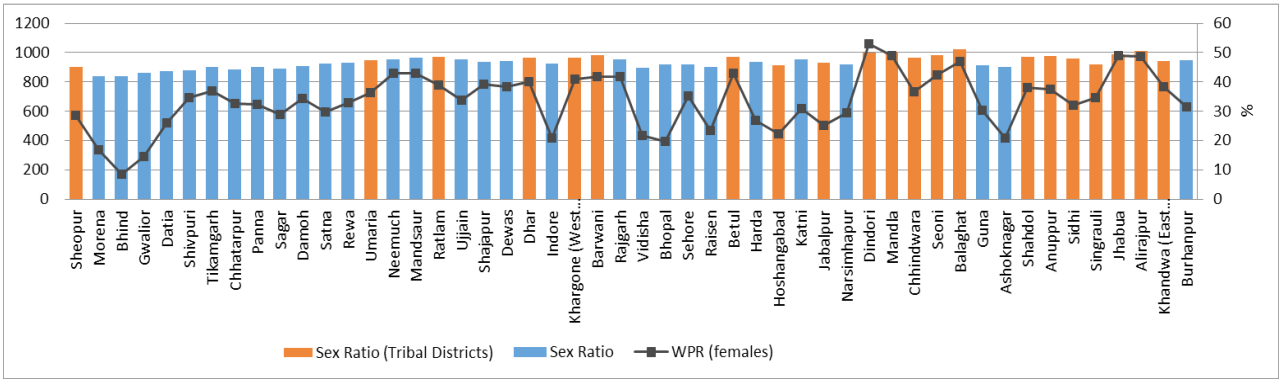
is interesting to note, apart from Balaghat, all the three districts registering sex ratio above 1000 are tribal districts. Similarly districts with more than 25 per cent of tribal population register sex ratio greater than the state average (except Singrauli).

There exists a positive correlation (0.83) between sex ratio and workforce participation rate among females (Figure 2:9). Districts registering high female workforce participation rate also register high sex ratio. Bhind registers the lowest sex ratio in the state at 837 and it also has the lowest workforce participation rate (female) of 8.4 per cent. Similarly the worst performing districts such as Morena (16.8), Gwalior (14.5), Datia (26) register low workforce participation rate among females. Districts with sex ratio above 1000 register higher work force participation rate for females: Balaghat (47), Alirajpur (48.6), Mandla (49) and Dindori (52.9).

When the child sex ratio is taken into account, it can be seen that it declined from 932 in 2001 to 918 in 2011 (Figure 2:10). It should be noted that the decline in child sex ratio is more prominent in rural areas than in urban areas. The decline in child sex ratio is also more prominent among the STs compared to the overall decline in child sex ratio in the state (Figure 2:10).

The districts registering highest decline in child

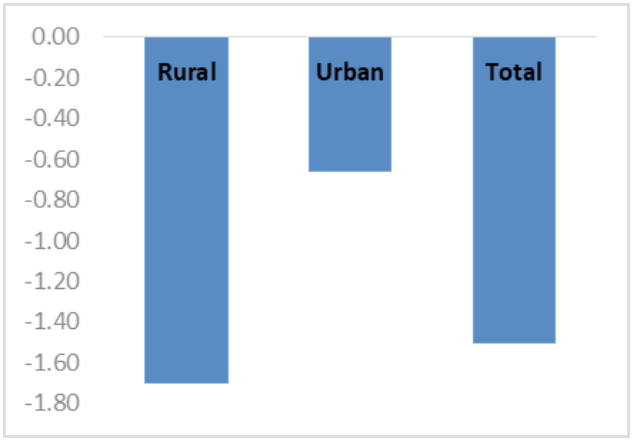
Figure 2:9 Sex Ratio vs Workforce Participation Rate, females (in per cent) *



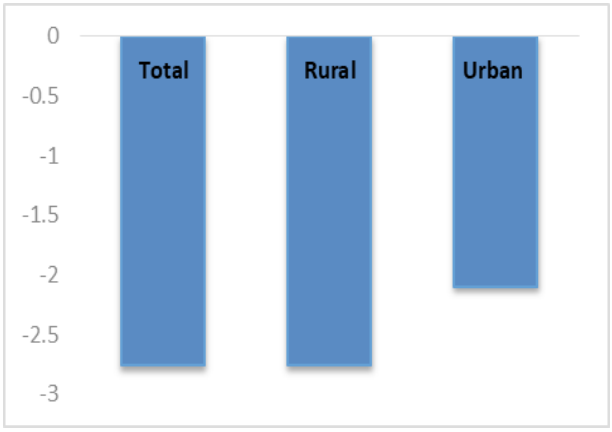
Source: Census, 2011

Figure 2:10 Variation in Child Sex Ratio (0-6 years) from 2001 to 2011

Madhya Pradesh



STs in Madhya Pradesh



Source: Census, 2011

* 50 districts represented in the graph

sex ratio are Rewa, Sidhi, Sheopur, Singrauli and Annupur. All the above districts have a high share of rural population. The declining child sex ratio reveals the preference for a male child over female.

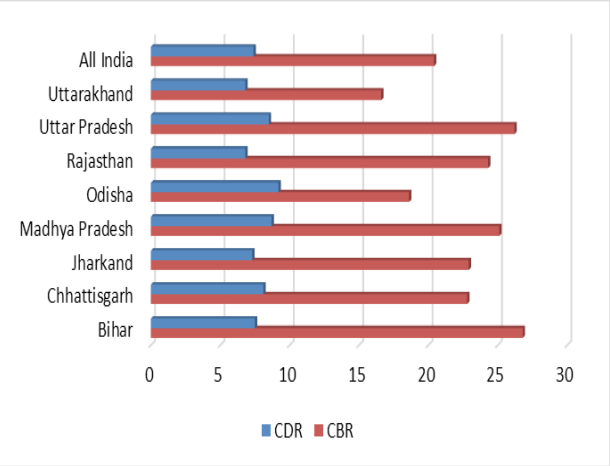
2.5 Crude Birth Rate (CBR) and Crude Death Rate (CDR)

Crude birth rate is the average annual number of live births during a year per 1,000 persons in the population at midyear. Crude birth rate in the state of Madhya Pradesh has fallen from 37.1 in 1990 to 25.1 in 2016. Despite this, the crude birth rate in the state is consistently higher than the national average, registering the third highest birth rate in the country. CBR in rural areas is higher than in urban areas with the state registering CBR of 26.7 and 19.8 respectively.

Crude death rate, which is the average annual number of deaths during a year per 1,000 persons in the population at midyear, measures the risk of mortality in a population. The crude death rate declined from 12.6 in 1990 to 7.1 in 2016 in Madhya Pradesh. Though there has been a significant decline in crude death rate in the state, its CDR is higher than the national average. Like CBR, CDR is higher in rural MP than in urban MP at 18.2 and 13.7 respectively.

An inter-district analysis shows that districts with high per capita income perform well in terms of CBR and CDR. There exists a negative correlation between CBR, CDR and per capita income (Figure 2:12). Districts such as Bhopal, Indore and Gwalior with the highest per capita income register low birth rate and death rate. A similar inverse relation can be seen in districts with low per capita income registering high birth rate and death rate.

Figure 2:11 CBR and CDR (in per cent)among EAG states

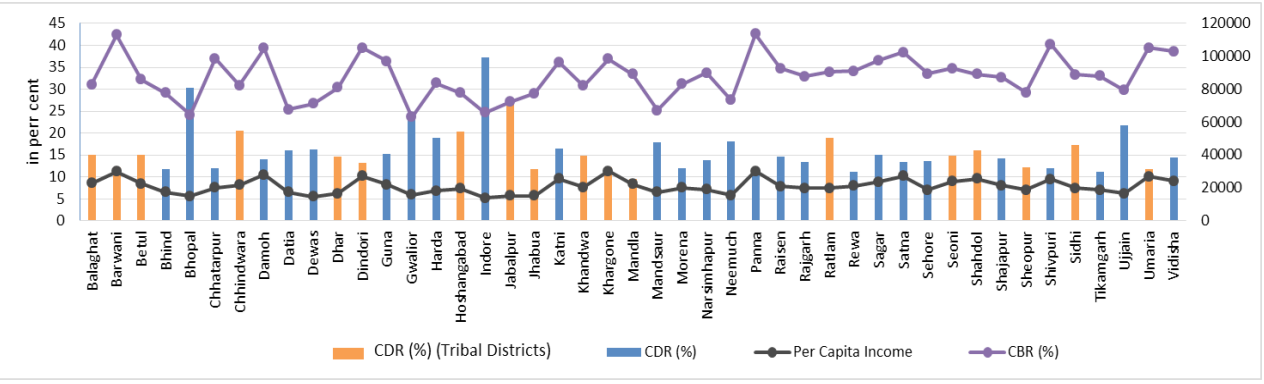


Source: Annual Health Survey, 2012-13

2.6 Life Expectancy

Life expectancy at birth, which is the number of years, a person would be expected to live, reflects

Figure 2:12 CBR, CDR vs Per Capita Income*



Source: Annual Health Survey, 2012-13

* 45 districts represented in the graph

a population's overall mortality and thus the quantity of life, across all age groups. Life expectancy in the state of Madhya Pradesh has increased from 55.4 years to 64.8 years in the period 1993-97 to 2011-115. Yet the state has the lowest life expectancy in the country with the national average being 68.3 years. Life expectancy at birth of women has increased compared to that of men in the state. But it still remains the lowest when compared with the other Indian states.

2.7 Summing Up

The state will be able to reap its demographic dividend only by enabling the youth to acquire skills required in the job market. The state government has initiated schemes like 'MP Skill and Quality Improvement Programme' for skill development that would add to the employment generation in the state. The scheme aims to have at least one Skill Development Centre (SDC) in all the 313 blocks of the state. Madhya Pradesh should develop into a globally competitive destination by opening up its economy. This will enable the state to attract more investors and create more opportunities. The state should create a conducive environment to attract investment- the encouragement of English education is an important step. More linkages to the market will lead to more access, which in turn can have a positive impact across sectors.

Chapter 3

Health and Nutrition

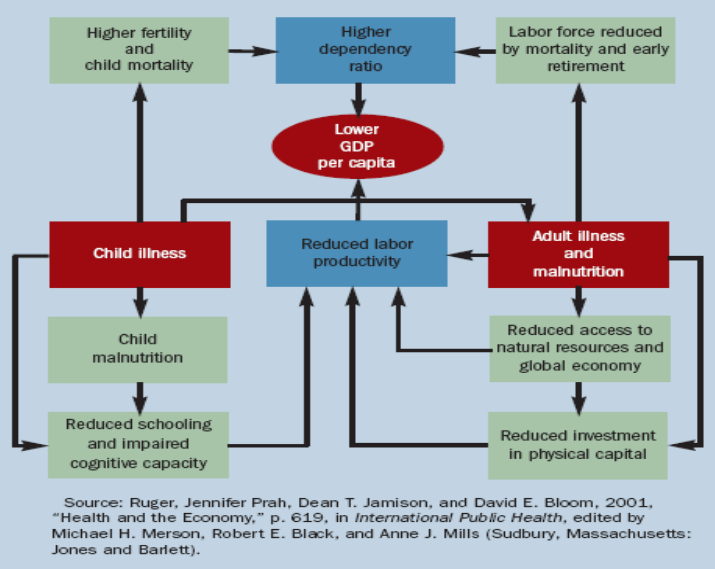
*"Better health is central to human happiness and well-being. It also makes an important contribution to economic progress, as healthy populations live longer, are more productive, and save more."- **World Health Organisation***

*"Nutrition is both a maker and a marker of development. Improved nutrition is the platform for progress in health, education, employment, empowerment of women and the reduction of poverty and inequality, and can lay the foundation for peaceful, secure and stable societies" - **Ban Ki-Moon, 8th Secretary General of UN***

Health and nutrition exert great influence on each other. Poor health can lead to poor nutrition, and vice-versa, which in turn reduces GDP per capita by reducing labour productivity and the relative size of labour force. According to World Bank estimates India loses 6 per cent annually due to premature deaths and preventable diseases. The cost of malnutrition to Indian GDP is estimated to be 4 per cent[1].

On both the health and nutrition front, Madhya Pradesh is among the lowest performers in the country. As per the Health Composite Index (2018), Madhya Pradesh was one of the worst performing

Figure 3:1 Health links to GDP



Source: Ruger, Jennifer Prah, Dean T. Jamison, and David E. Bloom, 2001, "Health and the Economy," p. 619, in *International Public Health*, edited by Michael H. Merson, Robert E. Black, and Anne J. Mills (Sudbury, Massachusetts: Jones and Barlett).

[1] *Assocham and EY.2017. Bridging the Gap: Tapping the Agriculture Potential for Optimum Nutrition*

states with a composite score of 40.09, compared to 76.55 for Kerala (best performer). Though the state was able to register a meagre improvement in the score, she was not able to improve her ranking, maintaining the position at 17. In Madhya Pradesh, 17 districts have been identified as high priority districts[2] by Ministry of Health and Family Welfare.

High Priority Districts -Raisen, Tikamgarh, Sidhi, Singrauli, Sagar, Damoh, Satna, Dindori, Shahdol, Anuppur, Umaria, Chhatarpur, Panna, Barwani, Mandla, Jhabua and Alirajpur

India has the largest share of undernourished children (around 50 per cent) in the world[3]. Within the country, Madhya Pradesh, Uttar Pradesh and Bihar account for the highest share of undernourished children. The Poshan Abhiyan Mission was started in 2017-18 to reduce stunting, wasting, low birth weight and anaemia in the country. It has identified 37 districts in Madhya Pradesh to be included in the mission. All the high priority districts are also included in the Poshan Abhiyan districts.

3.1 Health and Nutrition: Attaining SDGs

Though health had a prominent stake in the millennium development goals (MDGs), it was restricted to child and maternal mortality and communicable diseases. However, the discourse shifted to ensuring good health and wellbeing with emphasis on social determinants of health. The third goal, ensuring health and wellbeing, encompasses the following nine targets that need to be achieved by 2030 (Sustainable Development Goals).

The MP Planning Commission sets targets to be achieved across various sectors including health and nutrition. These targets cover indicators of both maternal and child health.

The latest maternal and child health indicators show an improvement in the performance of indicators such as infant mortality and maternal mortality, as per SRS Bulletin and NFHS 2015-16.

Figure 3:2 Maternal and Child Health Targets

- Reduce Maternal Mortality Ratio to 125 per 100,000 live births
- Reduce Infant Mortality Rate to 35 per 1,000 live births
- Reduce Total Fertility Rate to 2.1
- Reduce malnourishment to 20 per cent and anaemia to 25 per cent

Source: MP XII Five Year Plan (2012-2017)

3.2 Indicators for Health Monitoring

Figure 3:3 Maternal and Child Health Indicators

- Infant Mortality Rate 51
- Maternal Mortality Ratio 221
- Under 5 mortality Rate 65
- Total Fertility Rate 2.8
- Children under 5 years who are stunted 42 per cent
- Children under 5 years who are wasted 25.8 per cent
- Children under 5 years who are underweight 42.8 per cent
- Women who are anaemic 52.5 per cent

Source: SRS Bulletin, NFHS, 2015-16

SDG Targets - Health and Nutrition

- Reduce Global Maternal Mortality to less than 70 per 100,000 live births
- Reduce Neonatal Mortality to at least 12 per 1,000 live births and under five mortality to 25 per 1,000 live births
- Reduce stunting in children under-5 by 40 per cent
- Reduce anaemia in women of reproductive age by 50 per cent
- Reduce prevalence of low-birthweight babies by 30 per cent
- Increase the rate of exclusive breastfeeding, up to first 6 months, to at least 50 per cent
- Reduce and maintain childhood wasting to less than 5 per cent

[2] *Bottom 25per cent districts within a State taken according to ranking based on Composite Index) plus LWE or Tribal districts falling in bottom 50per cent*

[3] *Assocham and EY.2017. Bridging the Gap: Tapping the Agriculture Potential for Optimum Nutrition*

Input Indicators	Output Indicators	Outcome Indicators
• Number of PHCs/ SHCs • Number of beds in District Hospitals • Number of Health Personnel • Number of ASHA workers • Number of Anaganwadi Centres	• Antenatal Care • Births attended by Skilled Personnel • Institutional Deliveries • Immunisation Coverage • Family Planning • Breastfeeding • Access to supplements	• Total Fertility Rate • Maternal Mortality Rate • Neonatal Mortality Rate • Under-5 Mortality Rate • Stunting • Wasting • Low Birth-Weight • Anaemia

The health status of a society is often monitored through a set of performance indicators viz. mortality rates, disease burden. However, only tracking the performance of these outcome indicators is not sufficient as it does not clarify the factors that affected the performance.

This analysis examines the health status of Madhya Pradesh through three main indicator categories - input, output and outcome. The outcome indicators are the conventional performance indicators used while discussing health and nutrition. Improvements in outcome indicators are dependent on the better performance of the output indicators, which are in turn impacted by the robustness of input indicators.

3.3 Outcome Indicators

3.3.1 Total Fertility Rate

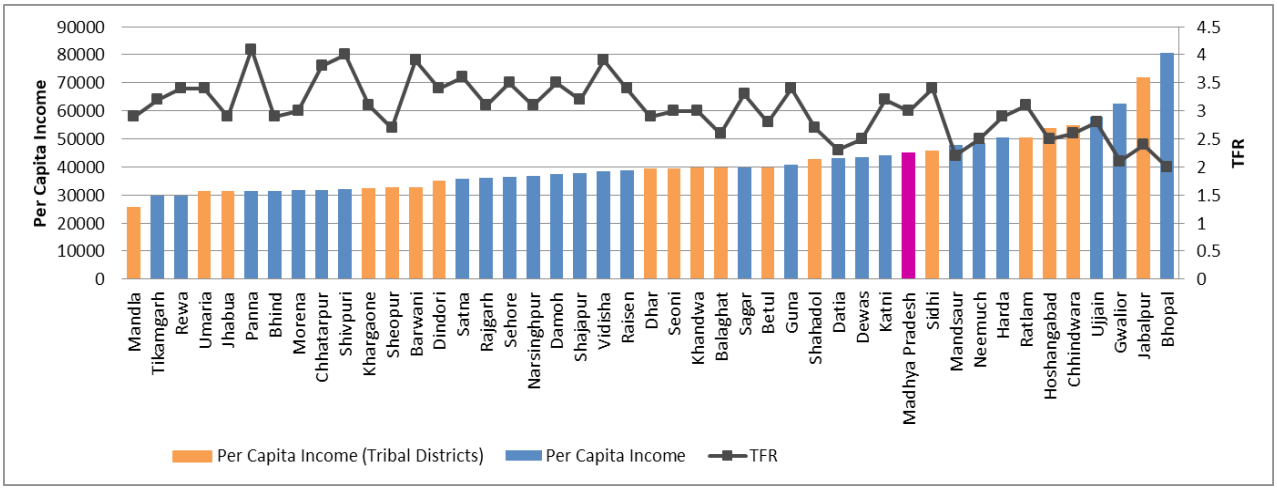
The average number of children a woman would have by the end of her childbearing years if she bore children at the current age-specific fertility rates.

Total Fertility Rate (TFR) in Madhya Pradesh has shown a declining trend from 3.1 (2005-06) to 2.3 (2015-16). The NFHS-4 Report also found one of the greatest differentials in TFR exists in the case of schooling; women with no schooling would have 1.3 children more than women with 12+ years of schooling.

The subsequent analysis intends to look into the external factors that have significant implications for the fertility rates.

There exists a strong negative relationship (-0.638)

Figure 3:4 Per Capita Income and Total Fertility Rate*



Source: AHS, 2012-13

* 45 districts represented in the graph

between per capita income and fertility rates at the district level (Figure 3:4). Districts with highest per capita income were found to have lower levels of fertility rates. The districts registering highest per capita income in the state had already achieved the TFR target.

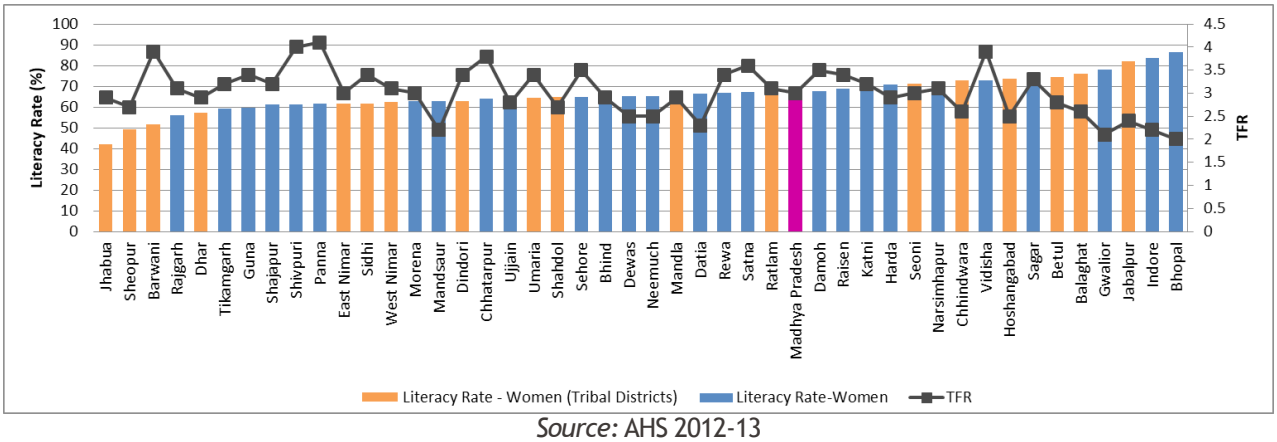
The analysis of district level data on female literacy and total fertility rate revealed a negative correlation (-0.403). Districts like Bhopal, Indore, Jabalpur and Gwalior with a higher share of literate women had the lowest level of TFR; while higher fertility rates were found in districts such as Jhabua, Barwani and Panna (Figure 3:5).

As per the SDG agenda, universal access to sexual and reproductive healthcare services is one of the targets to be achieved. The targets for total fertility rates were set by the XII Five Year Plan and only two districts - Bhopal and Gwalior - were at that level.

The results of NFHS 4 with that of its previous edition revealed that the share of married women aged 15-49, using some method of family planning fell from 56 per cent (2005-06) to 51 per cent (2015-16). However, data analysis also revealed a weak negative relationship (-0.121) between family planning services and total fertility rates at the district level (Figure 3:6). The correlations show stronger influence of other factors such as per capita income and female literacy, rather than family planning services.

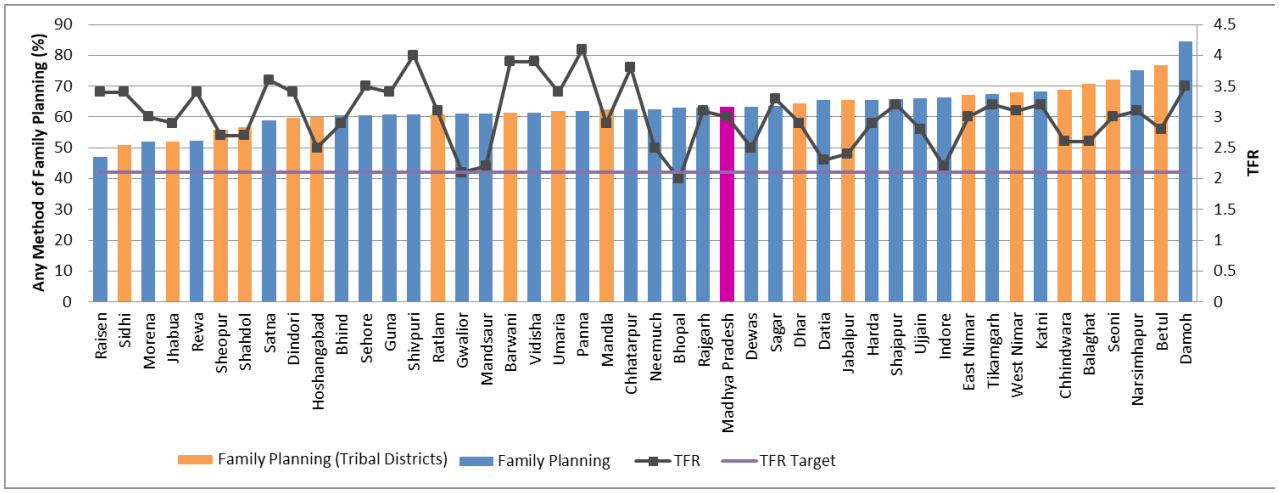
3.3.2 Infant Mortality Rate

Figure 3:5 Female Literacy and Total Fertility Rate*



Source: AHS 2012-13

Figure 3:6 Family Planning and Total Fertility Rate*



Source: AHS, 2012-13

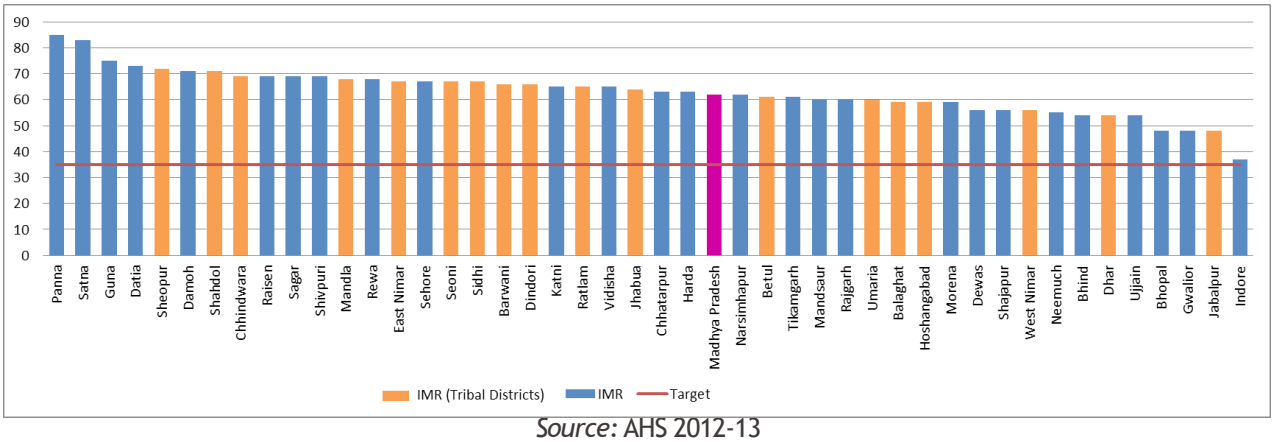
* 45 districts represented in the graph

IMR refers to the number of child deaths below 1 year of age per 1000 live births

Child mortality indicators are an important measure of an economy's socioeconomic development and quality of life. These broadly include infant mortality and under -5 mortality.

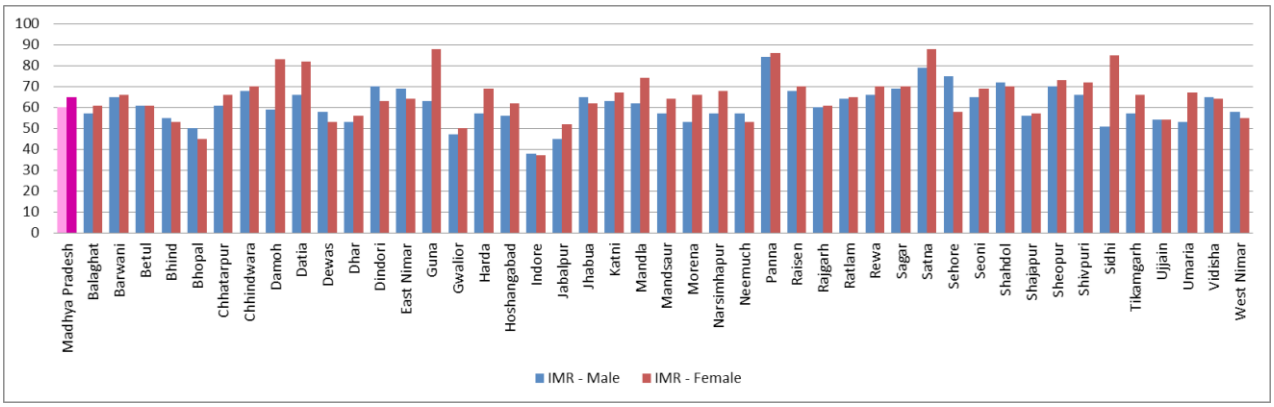
In Madhya Pradesh, following the national trend, IMR in rural areas is much higher than in urban areas. In the districts of Shahdol, Neemuch and Mandsaur, the rural IMR is more than double that of urban.

Figure 3:7 Infant Mortality Rate



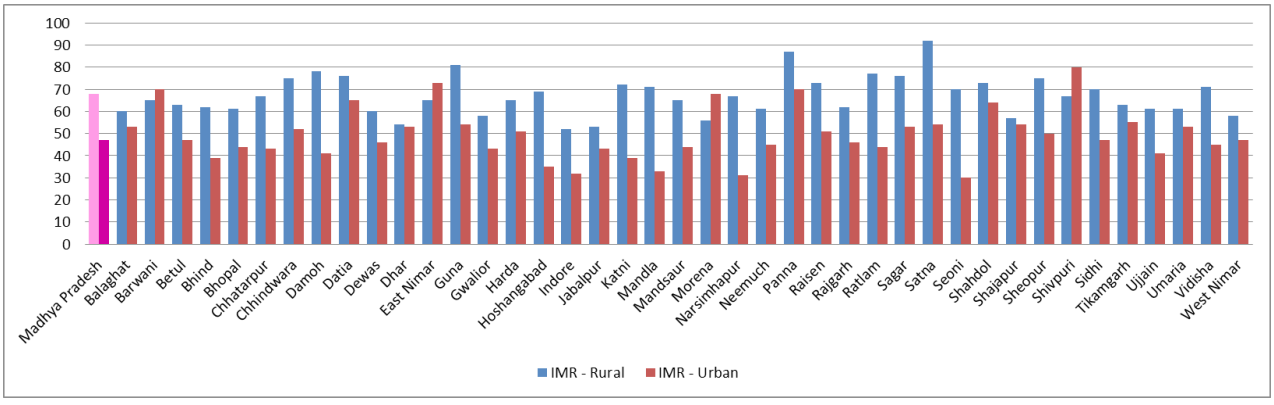
Source: AHS 2012-13

Figure 3:8 IMR - Males vs Females



Source: AHS 2012-13

Figure 3:9 IMR- Rural vs Urban



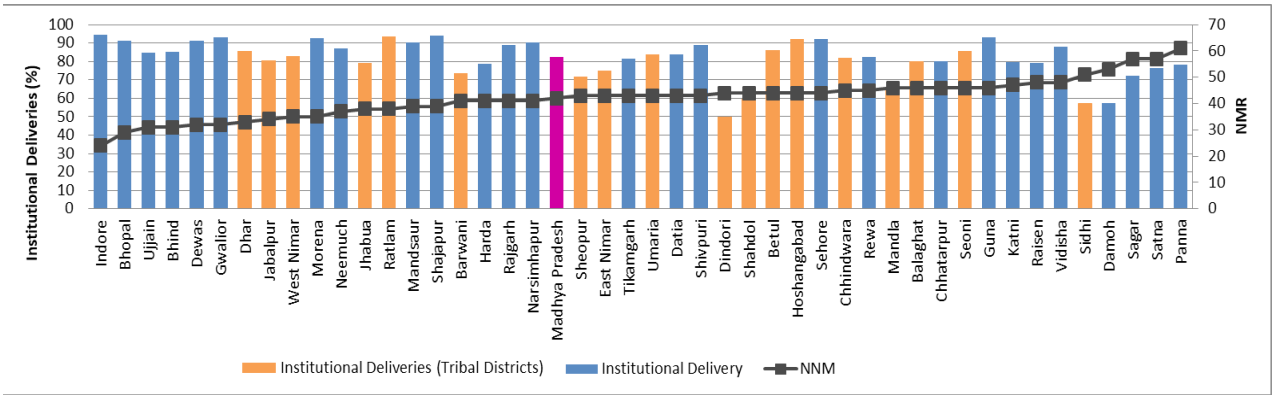
Source: AHS 2012-13
(Districts where IMR data of rural-urban separately are only included)

IMR has two main components- neonatal and post-natal mortality rate. The neonatal mortality rate of the state is at 34 per 1000 live births, whereas the post-natal mortality rate of the state stands at 16 per 1000 live births. In India, 68 per cent of infant deaths occur during the neonatal period. Madhya Pradesh registers one of the highest neonatal mortality rates in the country. It is thus important to understand the factors influencing neonatal deaths in the state.

In Madhya Pradesh, there has been significant improvement in institutional deliveries. Institutional deliveries have increased from 26.2 per cent in 2005-06 to 80.8 per cent in 2015-16. The graph above establishes a negative relationship (-0.484) between neonatal mortality and institutional deliveries in the districts (Figure 3:10). Districts with high rates of institutional deliveries were found to have the lowest neonatal mortality rates.

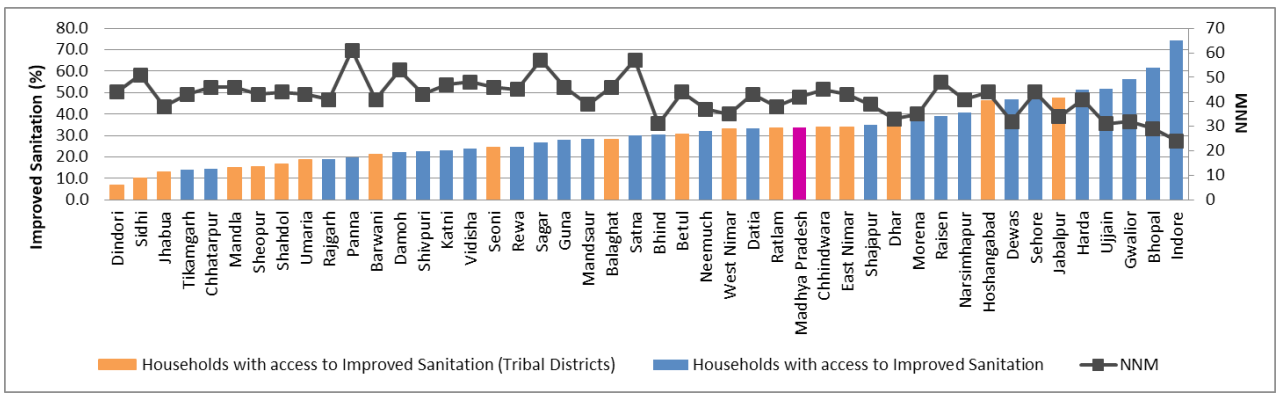
A research study conducted in tribal districts of Alirajpur, Barwani and Khandwa found out that 53.4 per cent deliveries were done in hospitals and rest at home. But only 21.9 per cent home deliveries were done by trained people. Moreover, the delivery practices were not safe as only 59.8 per cent of them used new blades to cut placenta. (Rajesh Mishra, 2017)

Figure 3:10 Institutional Delivery and Neonatal Mortality Rate



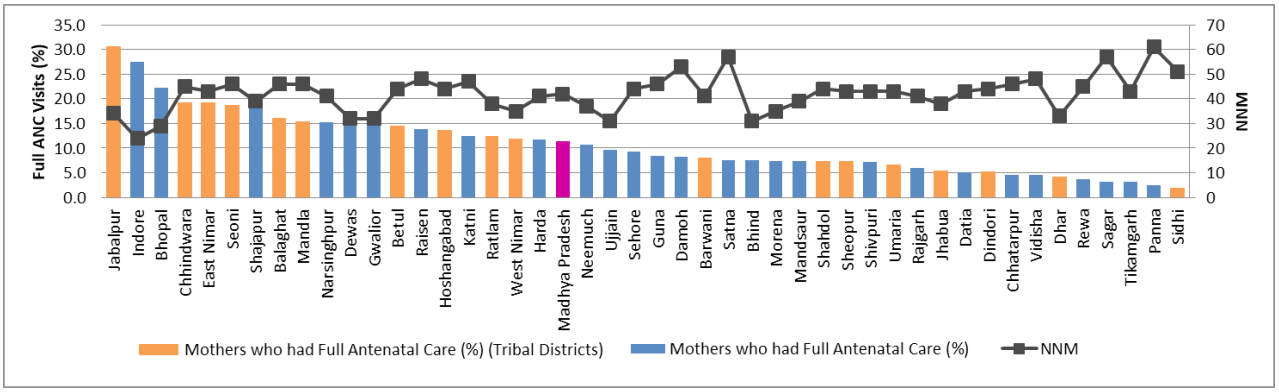
Source: AHS 2012-13

Figure 3:11 Sanitation Levels and Neonatal Mortality Rate



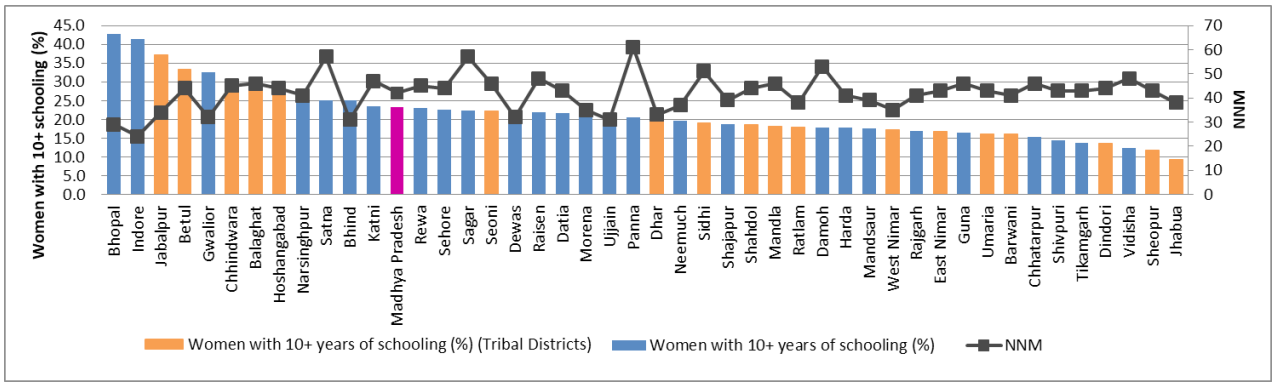
Source: AHS, 2012-13; NFHS, 2015-16

Figure 3:12 Full Antenatal Care and Neonatal Mortality Rate



Source: AHS, 2012-13; NFHS, 2015-16

Figure 3:13 Women's Education and Neonatal Mortality Rate



Source: AHS, 2012-13; NFHS, 2015-16

Districts with a larger share of households with improved sanitation were also found to have lower rates of neonatal mortality, indicating a strong negative correlation (-0.600). Districts such as Panna, Satna, Damoh etc. with low improved sanitation coverage had the highest neonatal mortalities, well above the state average (Figure 3:11). Mothers who received full antenatal care (ANC)[4] have increased from 4.7 per cent in 2005-06 to 11.4 per cent in 2015-16. A negative correlation (-0.453) was observed such that in districts where full ANC coverage was less, neonatal mortality rates were higher than the state average (Figure 3:12).

Janani Suraksha Yojana (JSY) was launched in April, 2005 with the aim of reducing IMR and MMR by promoting institutional deliveries among the poor population, through provision of referral, transport, and escort services. JSY provides cash assistance with delivery and post-delivery care for women. As per the national guidelines, all the pregnant women delivering in government institution or accredited private institutions are eligible for getting JSY benefits of Rs 1,400 in rural areas and Rs 1,000 in urban areas. JSY was able to make significant progress in increasing institutional deliveries in the state. But JSY beneficiaries in the state had to travel, on average, 10.4 km to reach the ultimate place of delivery. Women spent approximately one hour and eight minutes to arrange transport and reach the ultimate place of delivery, and another 31 minutes on average after reaching the institution on registration and administrative process and as waiting time until someone attended them (CORT, 2007).

[4] Full antenatal care is at least four antenatal visits, at least one tetanus toxoid (TT) injection and iron folic acid tablets or syruptaken for 100 or more days

Literature suggests that there exists a negative relationship (-0.348) between mother's level of education and child mortality rates (Figure 3:13). An analysis of the education level of women and the respective neonatal mortality rates at the district level shows a negative relationship between the two. At the state level, the share of women with more than 10 years of schooling is only 23.2 per cent (2015-16), although it has increased from 14 per cent in 2005-06.

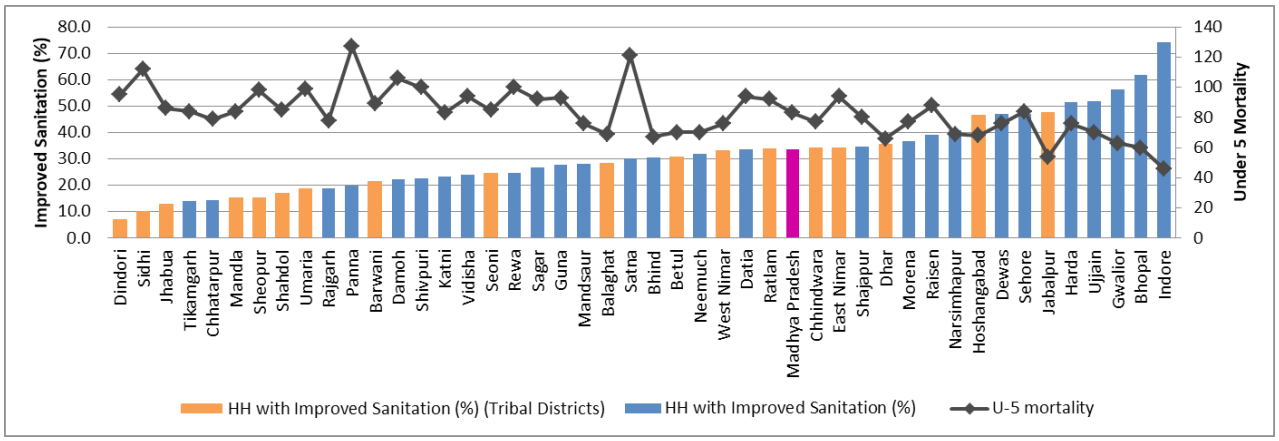
3.3.3 Under-5 mortality rate

Under-5 mortality rate is an important indicator of the development of a society since the first five years of life is considered one of the most vulnerable periods. The causes and determinants of child deaths also include preventable measures such as infection control measures, vaccinations and access to safe water and sanitation. Under-5 mortality rate in Madhya Pradesh has declined from 93 in 2005-06 to 65 in 2015-16 (NFHS-4). Though there is considerable improvement in the reduction of under-5 mortality rate, it still remains one of the highest in the country.

The following section discusses the important factors that influence U-5 mortality rate in the state.

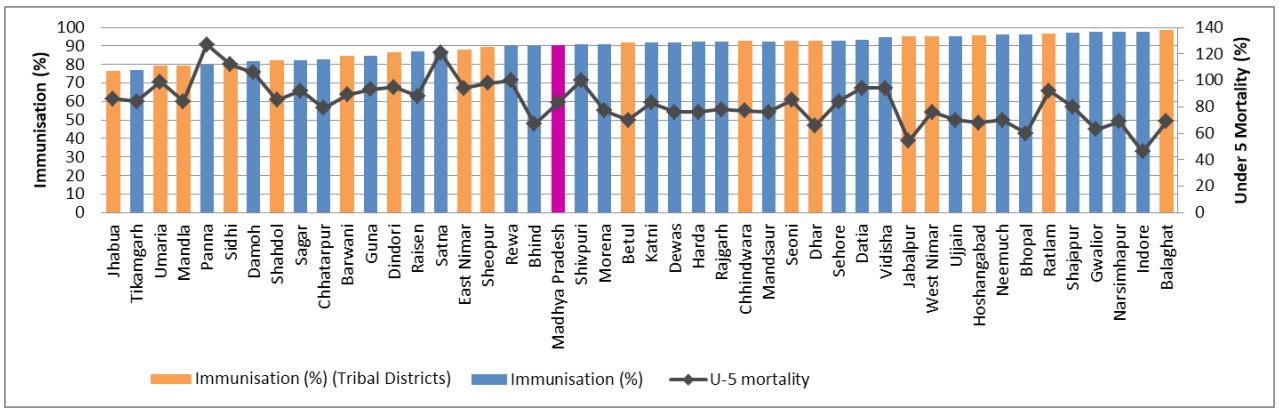
District wise comparison of under-5 mortality and sanitation levels show an evident negative relationship (-0.643). Districts such as Sidhi, Panna and Satna which struggle with low levels of sanitation facilities are also crippled by high rates

Figure 3:14 Sanitation Levels and Under-5 Mortality Rate



Source: AHS, 2012-13; NFHS, 2015-16

Figure 3:15 Immunisation and Under-5 Mortality Rate



Source: AHS, 2012-13

Total Fertility Rates and Under - 5 Mortality

Outcome indicators exert a strong influence on each other. Thus, targeted interventions and strategies towards one would have a spillover effect and create overall positive impacts.

For instance, data shows a strong positive correlation (0.705) between the total fertility rates and under-5 mortality at the district level. The causality could be explained from both sides. Higher fertility rates leads to larger family sizes which in many cases would lead to resource scarcities. This would have a detrimental impact on the health of women and children in particular. Alternatively, high levels of under-5 mortality could lead to increasing fertility rates as people tend to have more children than they need; evidenced in Pakistan, Nepal and Bangladesh (UN Economic and Social Commission for Asia and the Pacific, 1985).

of under-5 mortality. On the other hand, districts with high share of households having access to improved sanitation register low U-5 mortality rate (Figure 3:14).

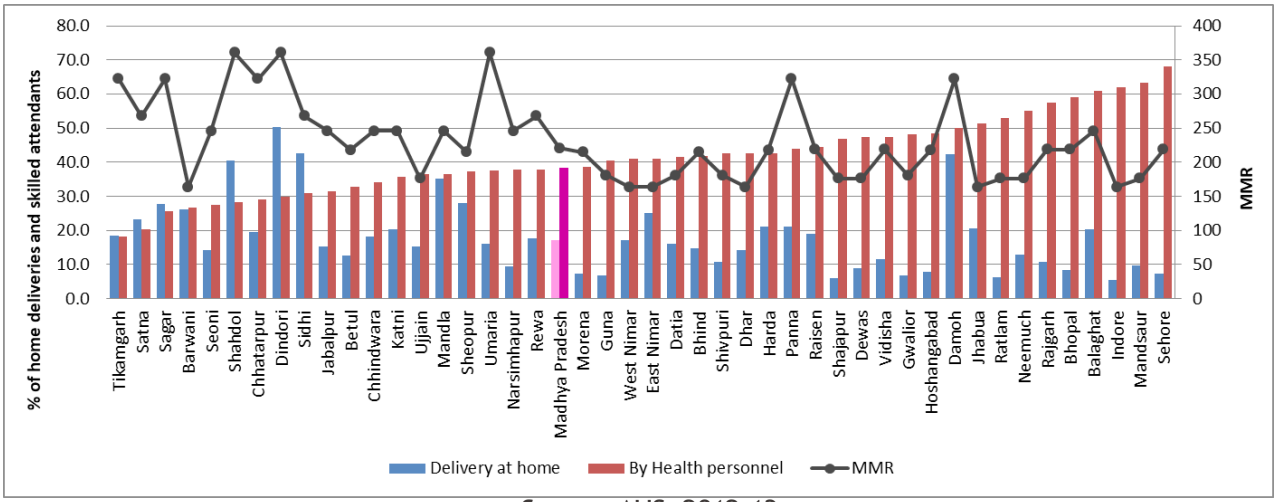
Immunisation coverage is an important aspect determining U-5 mortality rate (-0.596). Immunisation coverage (children aged 12-23 months fully immunised) in the state has increased from 40.3 per cent in 2005-06 to 53.6 per cent in 2015-16. Immunisation coverage is lowest in the districts of Jhabua, Tikamgarh, Mandla, Umaria and Panna (Figure 3:15). The low level of immunisation is also reflected in the U-5 mortality rate in the above districts being higher than the state average (AHS, 2012-13).

3.3.4 Maternal Mortality Rate

Maternal Mortality Ratio in Madhya Pradesh is 221 (SRS 2016-17) as against the national MMR of 178 in 2016. Over the years Madhya Pradesh was able to reduce its MMR, but it still remains more than triple the SDG target. According to UNFPA, important factors influencing maternal deaths are antenatal care, skilled birth attendance, emergency obstetric care and postnatal care with follow up of health workers.

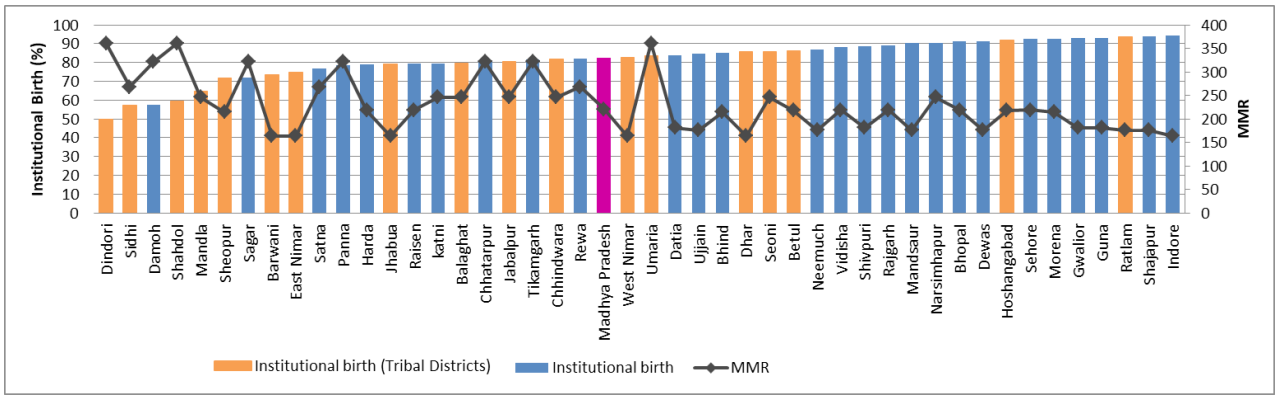
Analysis shows that maternal mortality rates have a positive correlation (0.591) with deliveries conducted at home and a negative correlation with the share of home deliveries attended by health professionals (-0.468) (AHS 2012-13). The districts with low share of deliveries at home are coupled with high percentage of these deliveries being attended by health personnel- Indore, Shajapur and Ratlam had lower maternal mortality. Conversely districts with low levels of

Figure 3:16 Home Deliveries and MMR



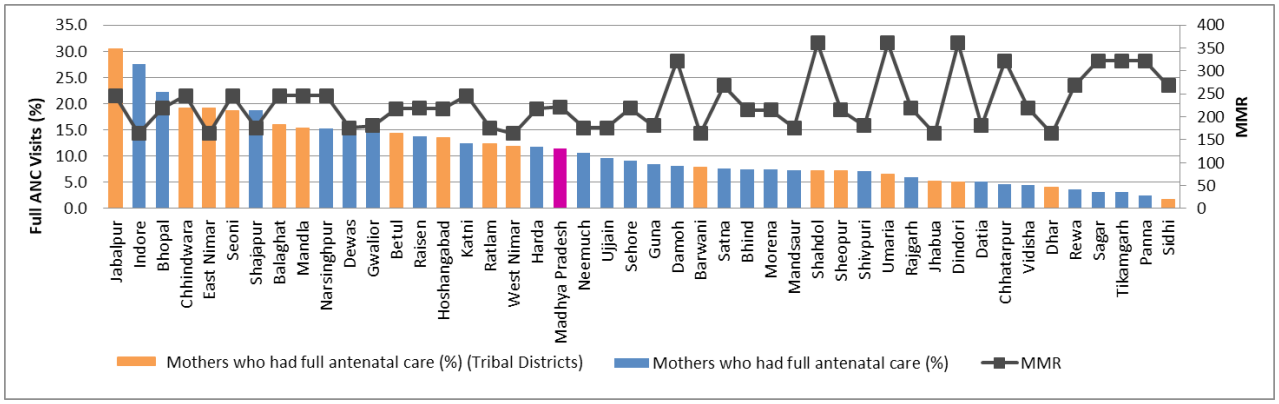
Source: AHS, 2012-13

Figure 3:17 Institutional Deliveries and MMR



Source: AHS, 2012-13

Figure 3:18 Antenatal Care and MMR



Source: AHS, 2012-13; NFHS, 2015-16

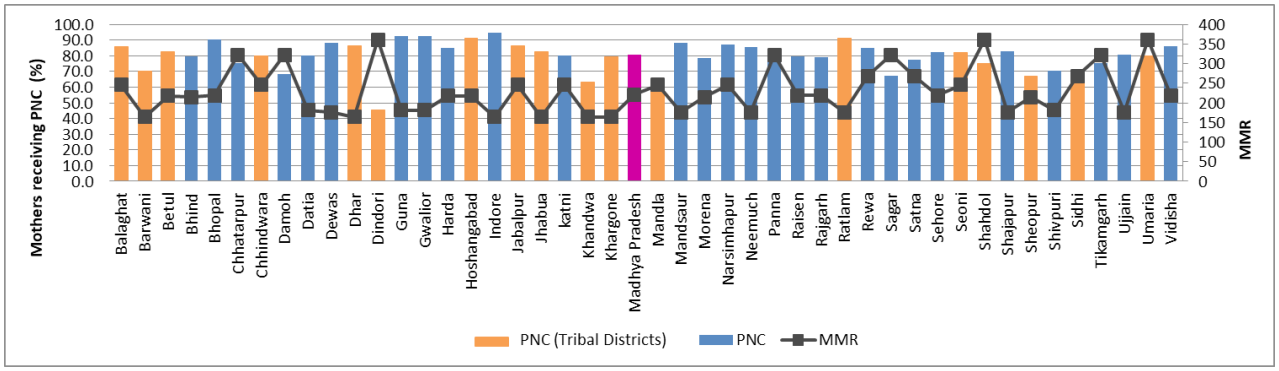
skilled health personnel during birth had the highest share of maternal mortality rate.

A strong negative correlation (-0.594) exists between institutional delivery and maternal mortality ratio (Figure 3:17). Districts such as Dindori and Shahdol with low rates of institutional births were found to have the highest maternal mortality.

Antenatal Care is a critical element of maternal health. A negative relationship (-0.317) is evident from the data. Districts with low share of women receiving full ANC - Sidhi Panna, Tikamgarh, Sagar, Dindori, Umaria and Shahdol - were found to have the highest maternal mortality (Figure 3:18).

In Madhya Pradesh the share of mothers receiving postnatal care (PNC) from health personnel increased from 24.9 per cent (2005-06) to 55 per cent (2015-16) (NFHS). The district wise analysis shows a negative correlation (-0.464) between

Figure 3:19 Postnatal Care and MMR



Source: AHS, 2012-13

postnatal care visits and maternal mortality. Districts struggling with high MMR have a low percentage of women receiving PNC within two days of delivery viz. Damoh, Sagar, Dindori etc (Figure 3:19).

3.3.5 Anaemia, Stunting and Wasting

The state has one of the highest levels of malnutrition in the country. Even more worrisome is the prevalence of anaemia, especially among pregnant women and young children.

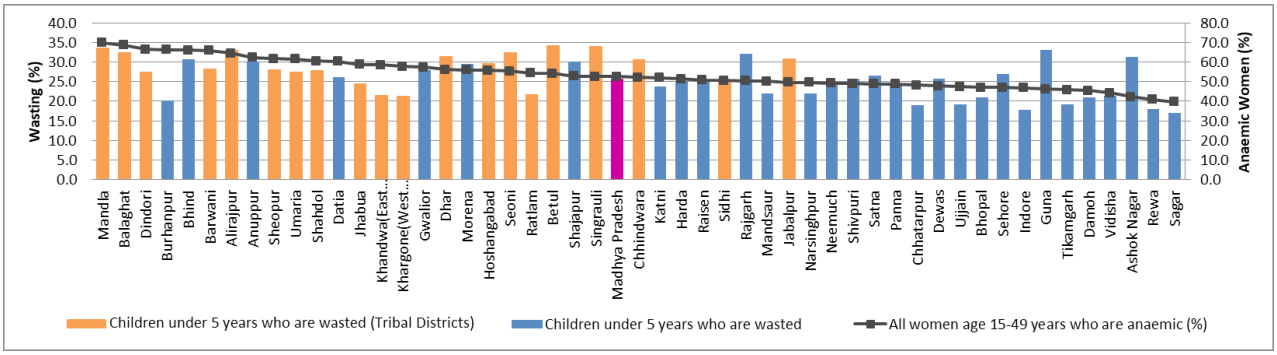
Although the share of women and children affected by anaemia has declined, 69 per cent of children (6 - 59 months) are still afflicted. The share of women affected is also a staggering 52.5 per cent, with a higher prevalence for pregnant women (NFHS 2015-16).

Stunting and wasting among children is also a serious concern although it has decreased from 50 per cent (2005-06) to 42 per cent (2015-16) and 35 per cent (2005-06) to 25.8 per cent (2015-16) respectively. The prevailing high levels of stunting and wasting found in the state have serious consequences for the health, learning outcomes and overall development of the child.

The district-level analysis exhibits a positive correlation (0.449) between the prevalence of anaemia among women and wasting in children (below 5 years). Districts such as Rewa and Sagar enjoy lower levels of both anaemia in women and wasting in children (Figure 3:20).

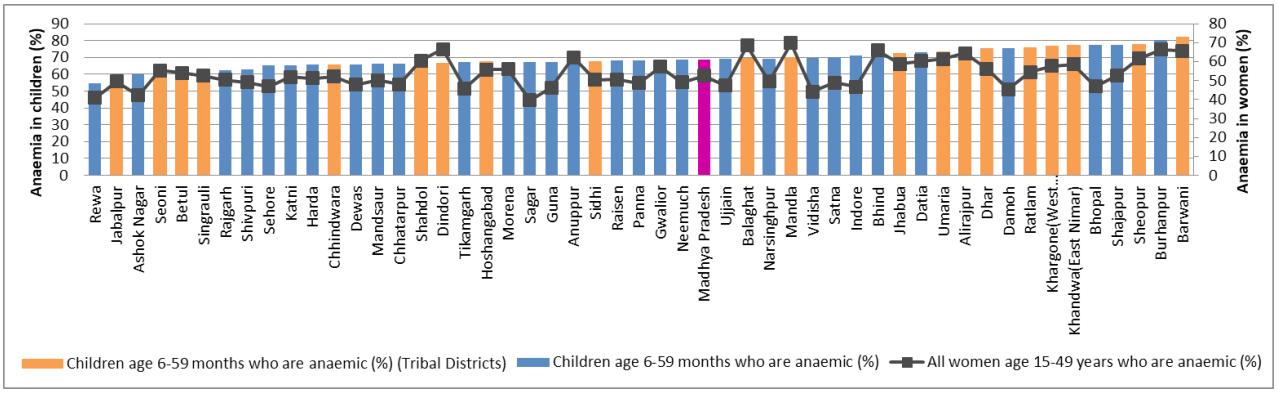
The analysis revealed a positive correlation between prevalence of anaemia among children and women (0.445). Those districts with a high prevalence for anaemia among women (Barwani, Burhanpur and Sheopur) were found to have a high prevalence among children as well (Figure 3:21). Conversely, in districts such as Rewa, Ashok Nagar and Jabalpur, lower levels of anaemia were found for both children and women.

Figure 3:20 Prevalence of Anaemia in Women and Wasting in Children



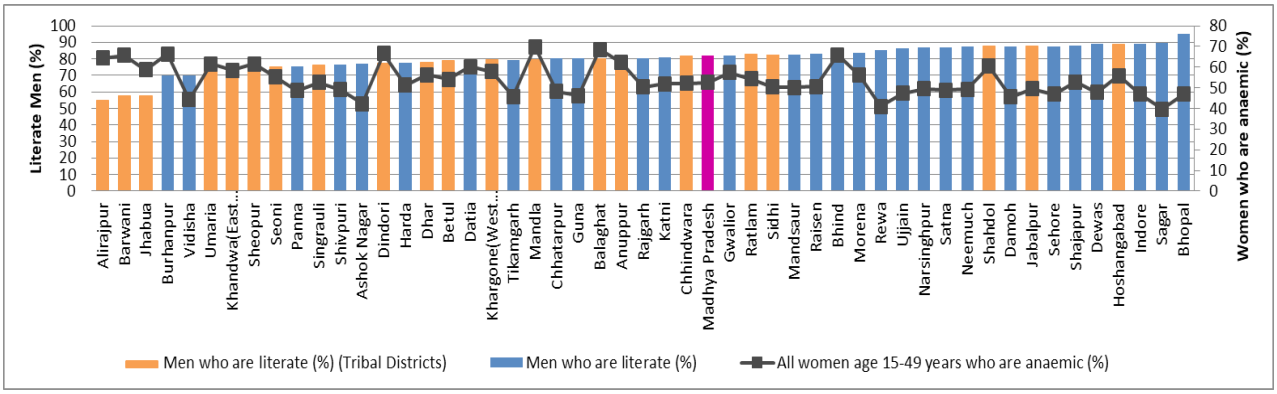
Source: NFHS, 2015-16

Figure 3:21 Prevalence of Anaemia in Women and Children



Source: NFHS, 2015-16

Figure 3:22 Male Literacy and Anaemia in Women



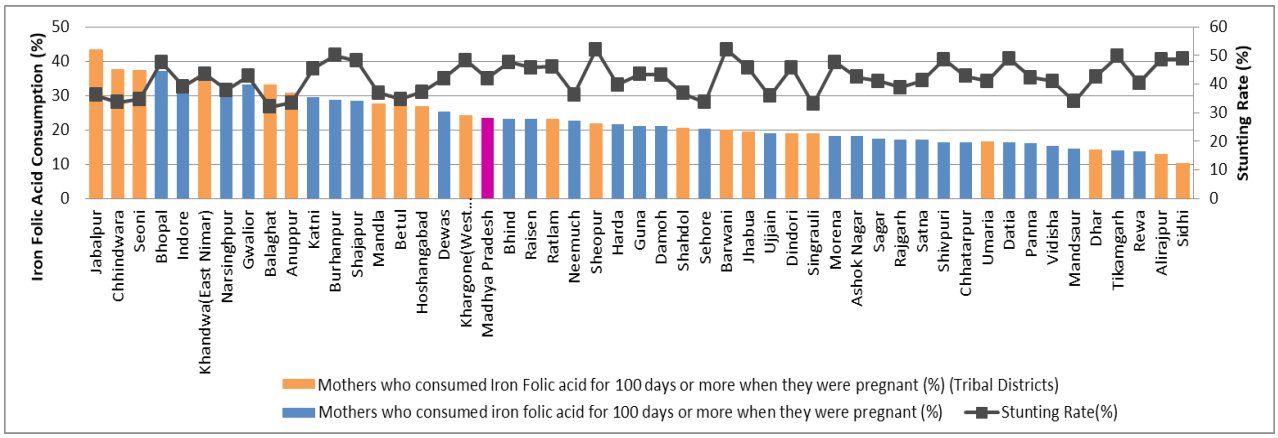
Source: NFHS, 2015-16

An analysis of the literacy rates of both men and women, at the district level, with the prevalence of anaemia in women revealed a stronger negative correlation with male literacy (-0.461) than female literacy (-0.235). This indicates that maternal and child health interventions and awareness strategies must not be only targeted towards women but must also be tailored for both sexes to achieve maximum benefits. In districts like Alirajpur, Barwani and Burhanpur, with the lowest male literacy rates, the prevalence of anaemia among women was found to be high, above 65 per cent. In districts like Bhopal, Sagar and Indore with higher male literacy, anaemia among women was lower than 47 per cent.

ICDS Program is an important program to ensure nutrition to a large section of the marginalized population. The program addresses malnutrition among small children, lactating mothers and pregnant women. ICDS is being implemented through 453 projects (278 rural, 73 urban and 102 tribal projects) in all 313 development blocks of Madhya Pradesh to reduce maternal mortality rate, infant mortality rate and malnutrition among children and women.

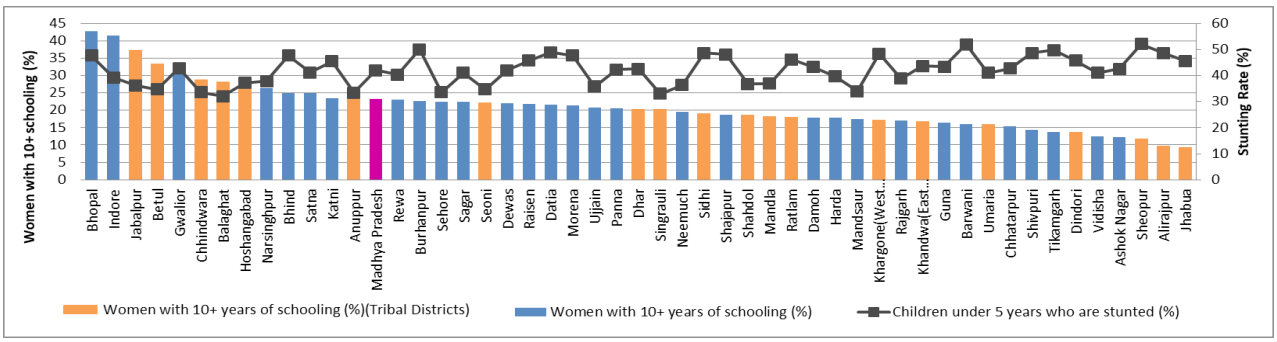
A total of 80,160 Anganwadi centers and 12,070 sub-anganwadi centers are sanctioned in 453 child development projects. Through these centers, about 97.68 lakh beneficiaries have been provided with ICDS.

Figure 3:23 Stunting Rate and Iron Folic Consumption



Source: NFHS, 2015-16

Figure 3:24 Women's Education and Stunting in Children



Source: NFHS, 2015-16

Stunting in children under-5 years was found to have a negative correlation (-0.301) with the percentage of mothers who consumed iron folic acid (Figure 3:23). Districts with the lowest share of mothers having taken iron folic acid (Tikamgarh, Alirajpur and Sidhi) showed high prevalence of stunting as well.

Prevalence of stunting in children under-5 and the level of women's education at the district level shows a negative correlation (-0.336). Districts with relatively higher rates of women with more than 10 years of education were found to have lower than state average prevalence of stunting - Indore, Jabalpur and Betul (Figure 3:24).

3.4 Health and Nutrition Indicators- Across Social Groups

The outcome/output indicators across the social groups will help to identify the most deprived group in the state. From the table given below, it is evident that the situation of the SC and ST population is a major cause of concern. Among the social groups, highest fertility and child mortality rates are registered by the ST community. These indicators are further assessed in terms of the output indicators.

Table 3:1 Health and Nutrition Indicators

	Total Fertility Rate	Neonatal Mortality Rate	Postnatal Mortality Rate	IMR	U-5 Mortality Rate	Height for Age	Weight for Height	Anaemia (Women)
SC	2.44	39.60	14.70	54.30	69.60	47.60	25.50	51.70
ST	2.73	43.10	15.80	58.90	78.50	48.20	30.20	64.00
OBC	2.24	37.00	14.60	51.70	62.60	39.70	24.90	49.90
Others	1.92	23.07	10.80	34.60	42.80	31.60	21.50	47.40

Source: NFHS-4

Table 3:2 Output Indicators

	Per cent women receiving ANC from a skilled provider	Per cent of women with PNC check up	Children receiving basic vaccines	Utilisation of ICDS services (Mother)	Utilisation of ICDS services (Children)
SC	69.9	60.0	51.6	74.2	64.9
ST	54.5	50.6	41.0	71.7	67.1
OBC	72.7	63.1	59.3	73.4	63.3
Others	78.6	66.5	58.8	58.0	56.3

Source: NFHS-4

3.5 Health Infrastructure

From the above analysis, it is clear that the state requires a strong health infrastructure to address both health and nutritional issues. In the urbanised districts, the private sector plays an important role in providing the necessary healthcare facilities. In other districts and in the rural areas, the public health sector still plays a dominant role. Each public health facility is established according to certain population norms set by Ministry of Health and Family Welfare, Government of India.

Sub Centre (SC): 1 per 5,000 population in general areas and 1 per 3,000 in difficult/tribal and hilly areas
Primary Health Centre (PHC): 1 per 30,000 population in general areas and 1 per 20,000 in difficult/tribal and hilly areas
Community Health Centre (CHC): 1 per 120,000 population in general areas and 1 per 80,000 in difficult/tribal and hilly areas

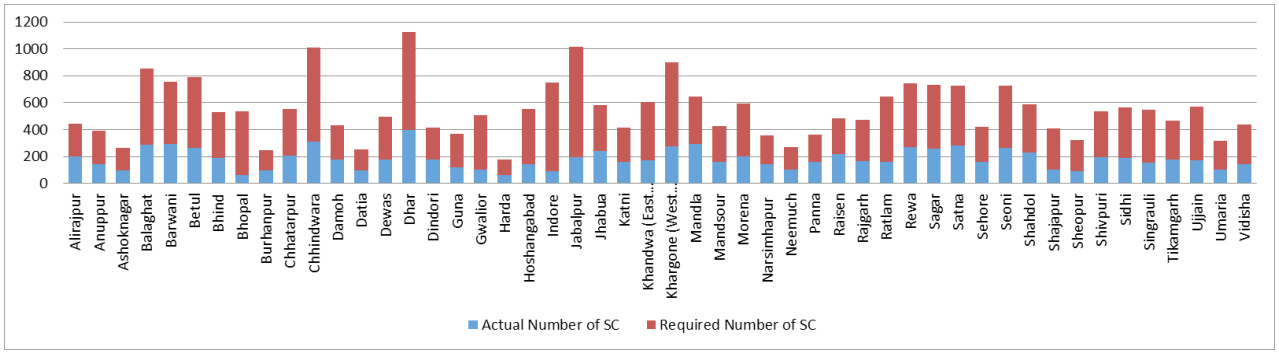
The jurisdiction of Sub Centres is maternal and child health which includes antenatal, intranatal and postnatal care, child health, family planning and contraception, counselling and referral for safe abortion, adolescent health care, assistance to school health services, control of locally endemic disease, disease surveillance, water quality monitoring, promotion of sanitation which encompasses proper garbage disposal and use of toilets and community needs assessment (Ministry of Health and Family Welfare, 2012).

Primary Health Centre's (PHC) jurisdiction is in accordance with *Alma Ata declaration* i.e. provision of medical care, maternal-child health including family planning, safe water supply and basic sanitation, prevention and control of locally endemic diseases, collection and reporting of vital statistics, education about health, referral services, training of health guides, health workers, local dais and health assistants and basic laboratory workers (Fiyas.BI, 2012).

SCs and PHCs have an important role in ensuring child and maternal health. In Madhya Pradesh, there are 9192 Sub Centres (SC), 1171 Primary Health Centres (PHC). From the graphs given below it can be inferred that there exists a wide gap between the required and actual number of PHC and SC in all the districts. It is interesting to note that the gap (both SC and PHC) is highest in urbanised districts such as Jabalpur, Indore and Bhopal. But the above districts perform well in terms of registering lowest IMR, U-5 mortality rate and MMR. This highlights the important role played by private clinics and hospitals in the urbanised districts. But the existing gap is a serious concern in tribal districts as well as in districts such as Panna, Sidhi (tribal district), Satna, Damoh and Shivpuri which register the worst child and maternal mortality indicators.

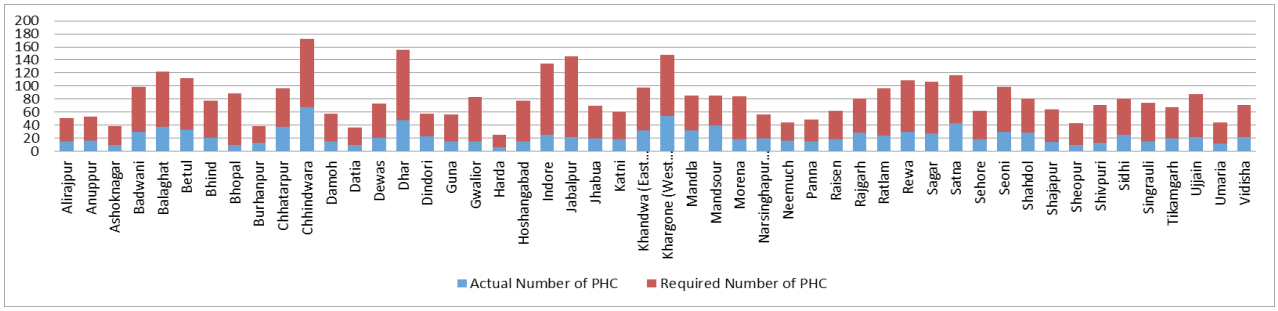
In addition to PHC and SC, Madhya Pradesh has 334 Community Health Centres (CHC), 66 sub divisional

Figure 3:25 Sub-Centres (Actual vs Required)



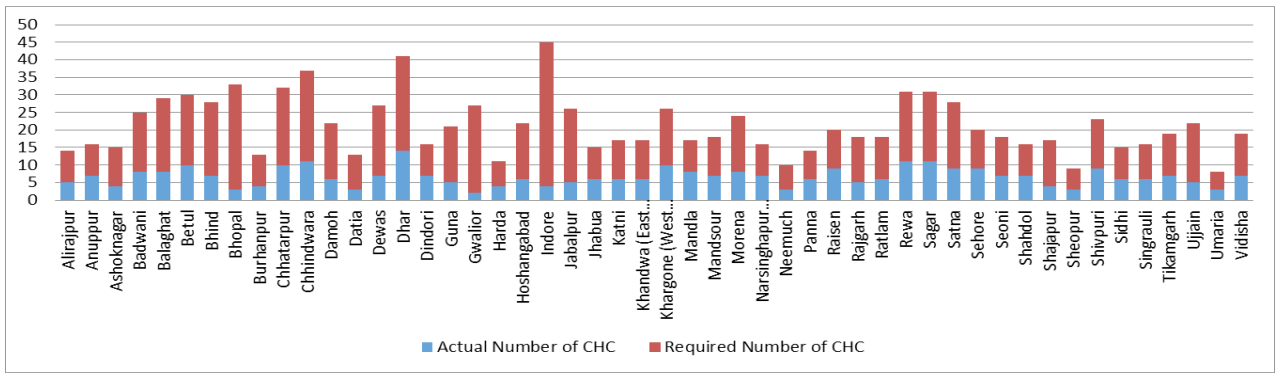
Source: RHS, 2015

Figure 3:26 Primary Health Centre (Actual vs Required)



Source: RHS, 2015

Figure 3:27 Community Health Centres (Actual vs Required)



Source: Rural Health Statistics, 2015

hospitals and 51 district hospitals. There also exists a significant gap between the actual and required number of CHCs across the districts. Inadequacy of health infrastructure in health institutions is a major problem hampering the efficient delivery of health services in Madhya Pradesh.

Though the state has adequate number of ANMs and ASHA workers as pointed out in a Focus Group Discussion (FGD), there exists a dearth in the available number of doctors/specialist. The below table highlights the inadequacy of manpower in PHC and SC across the state:

Table 3:3 Manpower in Health Institutions

	Required	In Position
Health Worker (Female)/ANM at SC	9192	11057
Health Worker (Female)/ANM at SC and PHC	10363	12412
Health Worker (Male) at SC	9192	4295
Surgeons at CHC	334	51
Obstetricians and gynaecologist at CHC	334	55
Physicians at CHC	334	72
Paediatricians at CHC	334	85
Nursing Staff at PHC	3509	3629

Source: RHS, 2015

CHC as referral units have an important role to play in ensuring child and maternal health. But in districts such as Sheopur, Datai, Tikamgarh, Panna, Damoh, Satna, Umaria, Shahdo, Sidhi, Mandsaur, Ujjain, Shajapur, Barwani, Rajgarh, Harda, Narsimhapur, Dindori, Mandal and Seoni, there is complete absence of obstetricians and gynaecologists at CHC (DLHS, 2012-13).

With a population of 7.33 crore, the state has only five government medical colleges with 620 MBBS and 311 PG seats[5]. This clearly shows that the education sector is insufficient to provide the required doctors and specialists, making it difficult for the state to achieve the WHO norm of 1 doctor per 1000 population.

3.6 Summing Up

From the analysis, it is clear that outcome indicators are greatly influenced by factors such as per capita income, literacy rate etc. Better results in these factors can positively influence the health outcome indicators. Inadequate supply of doctors, lack of quality infrastructure and improper functioning of the health units are the major issues plaguing the health sector in the state. Immediate steps need to be taken to address these issues. Accredited Social Health Activist (ASHAs) and Auxiliary Nurse Midwife (ANMs) had a positive impact on various output/ outcome indicators and it's time to introduce new initiatives involving ASHA workers and ANMs.

[5] *Madhya Pradesh Public Health Workforce.National Health System Resource Centre. http://nhsrcindia.org/sites/default/files/Madhya%20Pradesh%20Public%20Health%20Workforce%20Report.*

Chapter 4

Education

"Give a man a fish and he will eat for a day. Teach a man to fish and he will eat for life-time"

- Laozi, Ancient Chinese Philosopher

Education is a critical link in any socio-economic development framework. Literacy and educational attainments play a significant role in both individual development and overall societal welfare. Over and above the improvements in productivity and long term earning capacity of the individuals, there are indirect benefits that accrue to the community and economy as a whole.

World-over education is considered a basic human right that is pivotal to the economic development of the State. It is well established that investing in education leads to better pay-offs in the future, in terms of higher wages. However, in an increasingly knowledge based global economy the skills of the workforce are critical in ensuring each country a place in the global pecking order. An inclusive education system is the only gateway for countries to capitalise on the opportunities of global trade. This requires an ecosystem unfettered by institutional failure, poor governance and infrastructural inadequacies. Expanding educational opportunities also requires focused attention on quality and equity.

Equity in education primarily focuses on two aspects- *fairness* and *inclusion*. Fairness refers to the ability of individuals to achieve their educational potential irrespective of personal and social circumstances. Inclusion is ensuring basic minimum standard of learning outcomes for all.

The Annual Status of Education Report (ASER), released by Pratham Education Foundation, sheds light on the dismal state of education in Madhya Pradesh, specifically its learning outcomes. Some of the key findings from the survey (2016) conducted across the 51 districts of the state are:

- Madhya Pradesh is the state with the highest proportion of out-of-girls[6] aged 11-14 years (8.5 per cent), after Uttar Pradesh (9.9 per cent) and Rajasthan (9.7 per cent).
- Reading outcomes (proportion of students in a particular class capable of reading. Class II text) are significantly higher for private schools than government schools.
    - In 2016, the proportion of Class V students who can read Class II text was much higher in private schools (63.3 per cent) than government (31.3 per cent).
- Arithmetic outcomes in schools (government

[6] *Percentage of children not enrolled in school*

and private) have significantly fallen from 2010 to 2016.

  - The proportion of students in Class VIII who can do division dramatically declined from 80.1 per cent to 33.4 per cent.

- Arithmetic outcomes are better for private schools when compared with government schools.
  - In 2016, the proportion of Class VIII who could do division was considerably higher in private schools (51.5 per cent) than government schools (29.2 per cent).
- Proportion of children enrolled in private schools has been steadily increasing from 12.15 per cent (2006) to 25.90 per cent (2016).
- Proportion of girls enrolled in government schools is higher than boys' enrolment, except in the age group of 15 - 16 years.
- Proportion of boys enrolled in private schools are higher than girls' enrolment across all age brackets (7 - 16 years).

4.1 Attaining SDGs in Education

The Sustainable Development Goals place great emphasis on inclusive and equitable quality education. The targets set cover a host of areas including better literacy levels, higher completion rates, addressing barriers to access of these services and so on. India has performed well in universalising primary education along with improving enrolment and completion rates for girls. However, there still exists a need for ensuring equal access to opportunities and maintaining quality of education, while addressing relevant barriers such as gender inequalities, strong socio-cultural norms and low levels of economic development. The following targets encompass some of the main aspects that form the crux of the fourth goal.

In the XII Five Year Plan, the MP Planning Commission identified areas requiring focussed attention based on the previous years' performance. These include universal enrolment, gender gap in education and retention in schools.

Figure 4:1 Targets for Education

- Achieve 100 per cent literacy
- Reduce gender gap in literacy to almost zero
- Ensure Universal Enrolment
- No Out of School Children in age group 6-14 years
- Reduce Dropout Rate to less than 5 per cent by 2016-17
- Eliminate gender disparity in elementary education

Source: MP XII Five Year Plan (2012-17)

The DISE reports show the status of education in the state through indicators such as enrolment rates, dropout rates and overall literacy levels.

Figure: 4:2 Education Indicators

- Overall literacy 70.6 per cent
  - o Female 60 per cent
  - o Male 80.5 per cent
- Enrolment Ratio (Primary)
  - o Gross 94.47 per cent (GER)
  - o Net 79.83 per cent (NER)
- Ratio of Girls' to Boys' Enrolment - 0.90

Source: DISE, 2015 - 16

SDG Targets - Education

- Girls and Boys complete free, equitable and quality primary and secondary education
- All have access to quality early childhood development, care and pre-primary education
- Eliminate gender disparities and ensure equal access to all levels of education
- Substantially increase supply of qualified teachers
- Substantially increase the number of youths and adults with relevant skills for employment and entrepreneurship

4.2 Indicators for Monitoring Education

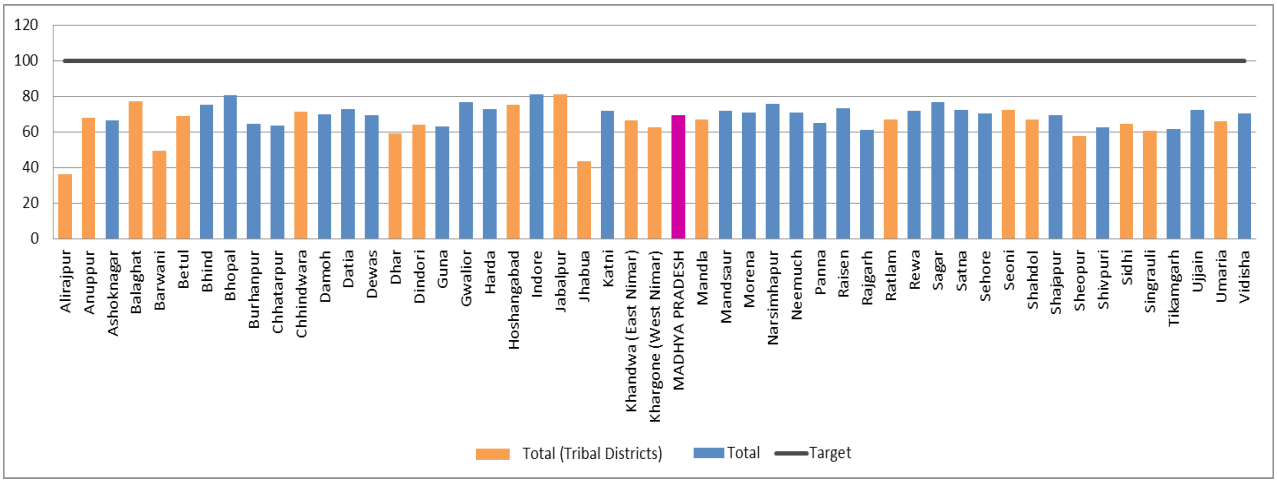
4.2.1 Literacy Rate

The literacy rate for the state of Madhya Pradesh has witnessed an increase of total literacy from 63.7 per cent (2001 Census) to 69.3 per cent (2011 Census). There is also improvement in literacy rate in all districts in 2011 as compared to 2001 census. The highest literacy rate was reported in Jabalpur with 81.1 per cent, followed by Indore (80.9 per cent) Bhopal (80.4 per cent), Gwalior (76.7 per cent), and Sagar (76.5 per cent) and the lowest was in Bharwani with 49.1 per cent followed by Sheopur (57.4 per cent), and Dhar (59 per cent). Only ten districts in the state have a literacy rate above the national average of 74 per cent in 2011.

There simultaneously exist districts with more than 80 per cent literacy (Indore, Bhopal and Jabalpur) and those with less than 50 per cent literacy (Barwani, Jhabua, and Alirajpur). Sheopur and Dhar join this group when less than 60 per cent literacy is considered.

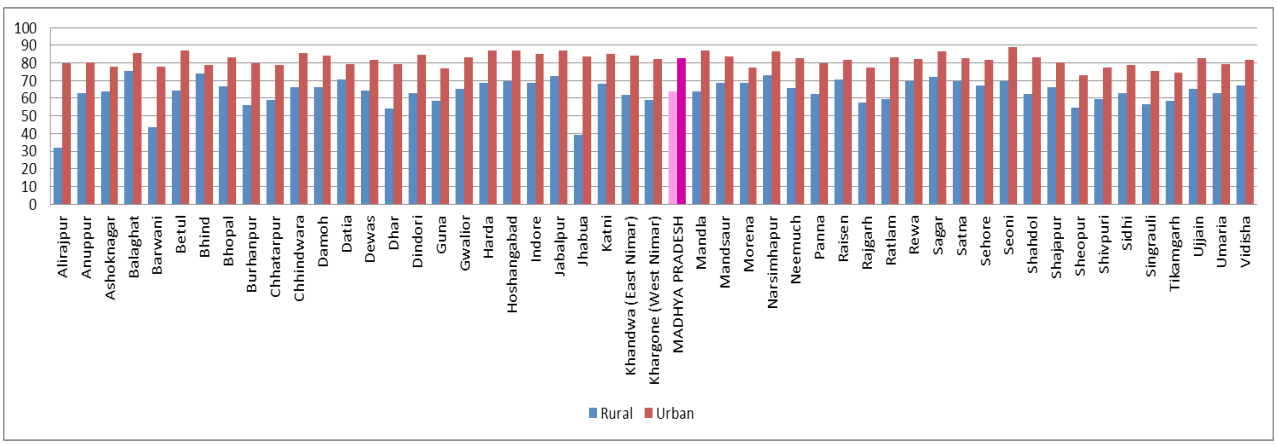
It is evident from the figure that the urban areas have higher literacy rates when compared with rural Madhya Pradesh (Figure 4:4). The greatest rural-urban divide was found in districts such as Alirajpur, Jhabua and Barwani. The average rural-urban literacy differential index analysed in the state was 0.27 point (Jhariya and Jain, 2014). This is highest in Alirajpur (1.28) district followed by Jhabua (1.00) Barwani (0.67) and Dhar (0.42) district.

Figure 4:3 Literacy Rate (per cent)



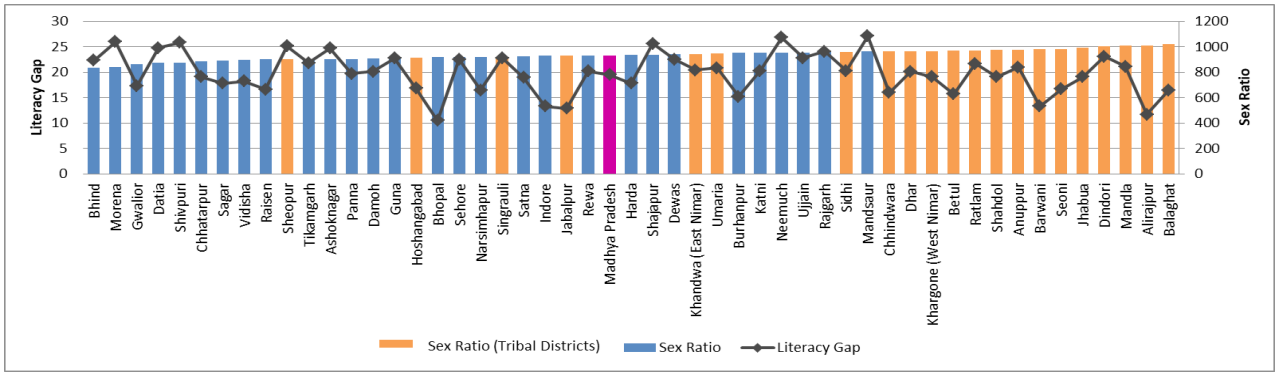
Source: Census 2011

Figure 4:4 Literacy Rate: Rural - Urban



Source: Census 2011

Figure 4:5 Sex ratio and Literacy Gap



Source: Census 2011

The analysis found that the districts with the lowest sex ratios (Bhind, Morena, Datia etc.) had a greater literacy gap than those with high sex ratios (Balaghat, Alirajpur, Seoni, Barwani etc.).

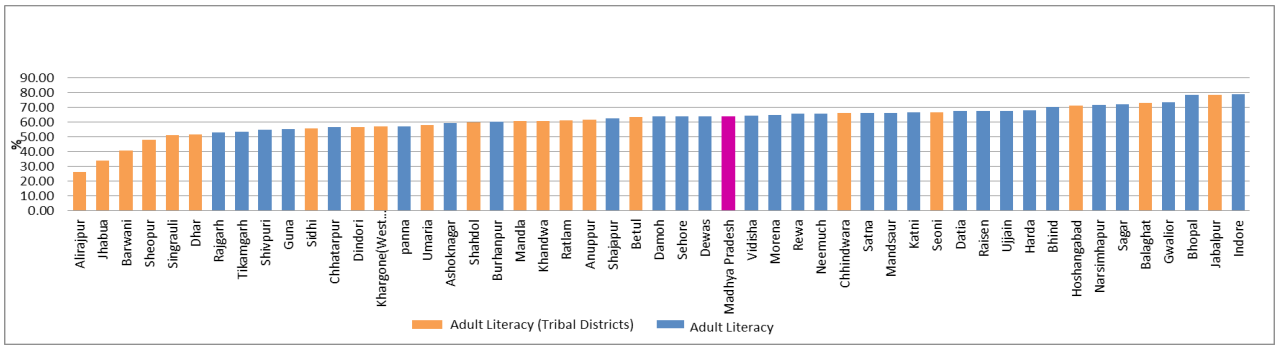
4.2.2 Adult Literacy Rate

Adult Literacy Rate is the share of literates in the age group of 15 and above

Adult literacy data show that all-district average is 61.7 per cent. There are 22 districts with adult literacy above state average, whereas 28 districts come under below state average. But it varies from 26.3 per cent in Alirajpur to 78.6 per cent in Jabalpur. While the range of general literacy is 32 per cent, the range of adult literacy in the state is 52.3 per cent. Considering this wide range it is very clear that the inequity is very high in respect of adult literacy across districts.

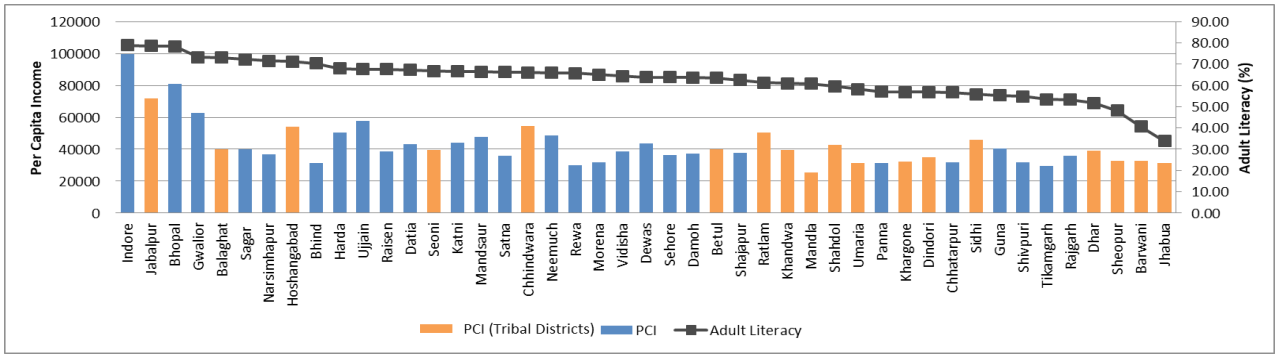
A strong positive relationship is clearly evident between adult literacy and per capita income (0.612). As adult literacy levels decreased across districts, the per capita income levels also declined (Figure 4:7).

Figure 4:6 Adult Literacy Rate (per cent)



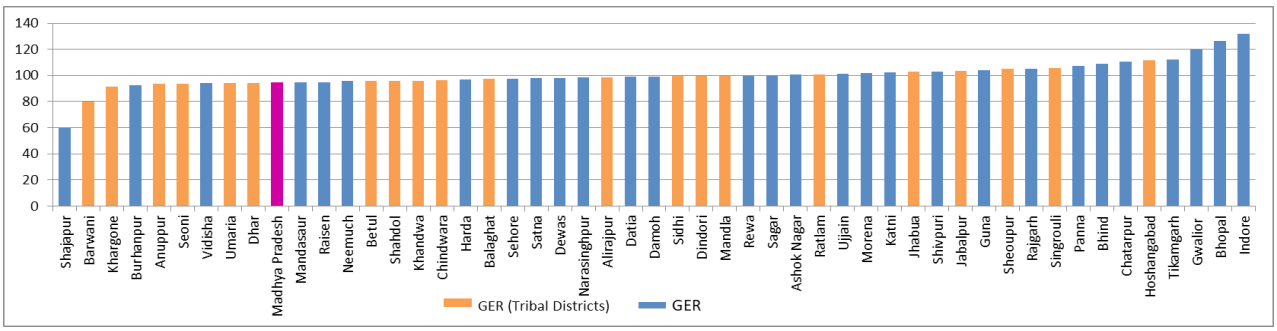
Source: Calculated from Census 2011

Figure 4:7 Adult Literacy and Per Capita Income



Source: Census 2011; Data.gov

Figure 4:8 Gross Enrolment Ratio



Source: DISE, 2015-16

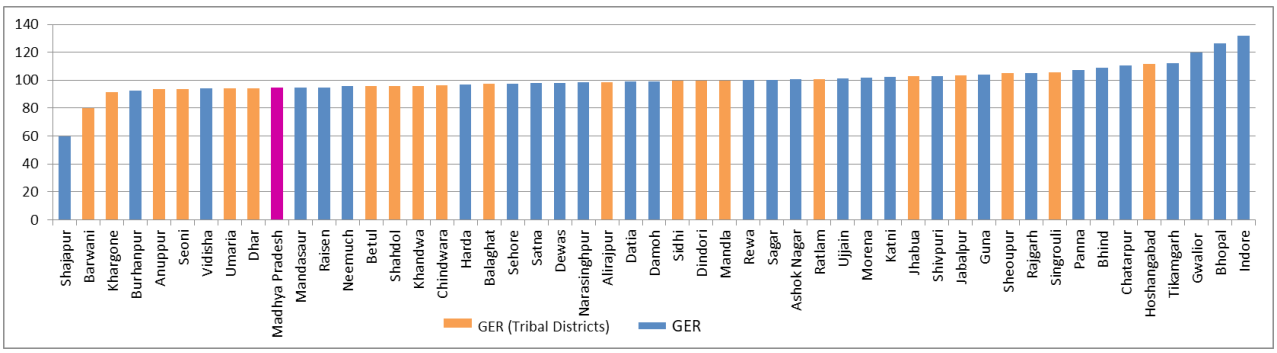
4.2.3 Enrolment

Gross Enrolment Ratio (GER) is the total enrolment in Grades I-V as a share of population aged 6 - 11

Madhya Pradesh has adopted the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) targets for secondary education, which is to achieve a Gross Enrolment Ratio (GER) of 75 per cent by 2012, 100 per cent by 2017 and universalization of secondary education by 2020. Still, the state has an average of 41.9 per cent schools with enrolment less than or equal to 50 student (DISE ,2015-16).

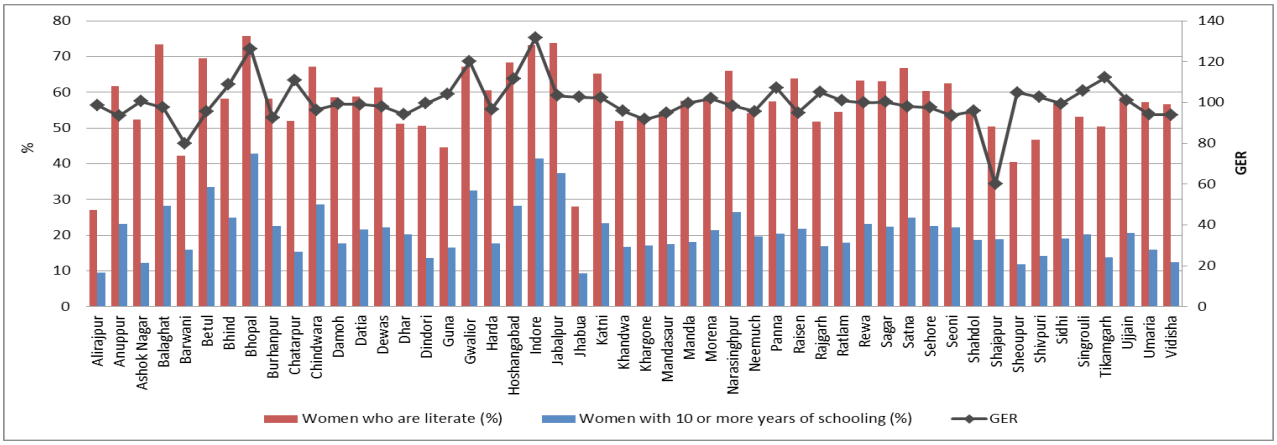
The district level analysis found a positive correlation between the GER with the per capita income levels (0.506). Districts such as Mandla and Rewa with lower levels of per capita income were also found to have lower GER (Figure 4:9).

Figure 4:9 GER and Per Capita income



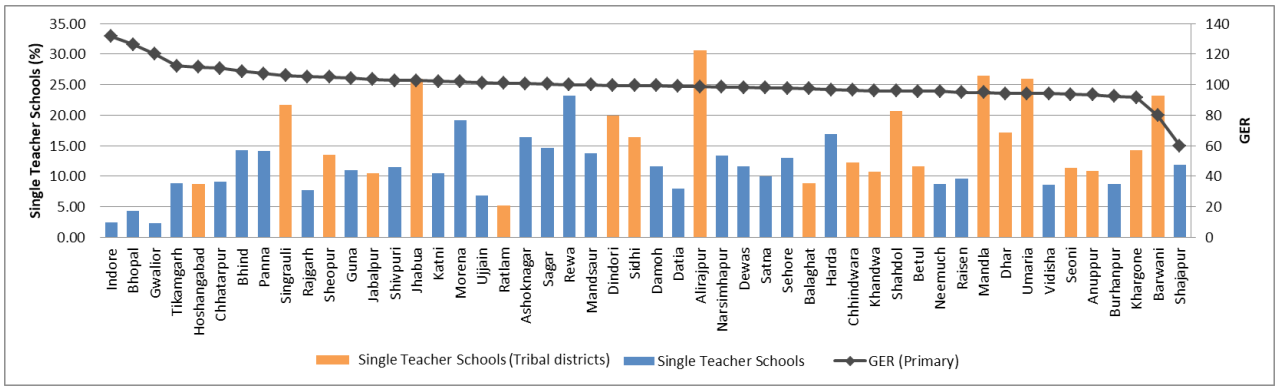
Source: DISE, 2015-16, data.gov.in

Figure 4:10 Women's Education and GER



Source: DISE, 2015-16, data.gov.in

Figure 4:11 GER and Type of School



Source: DISE 2015-16

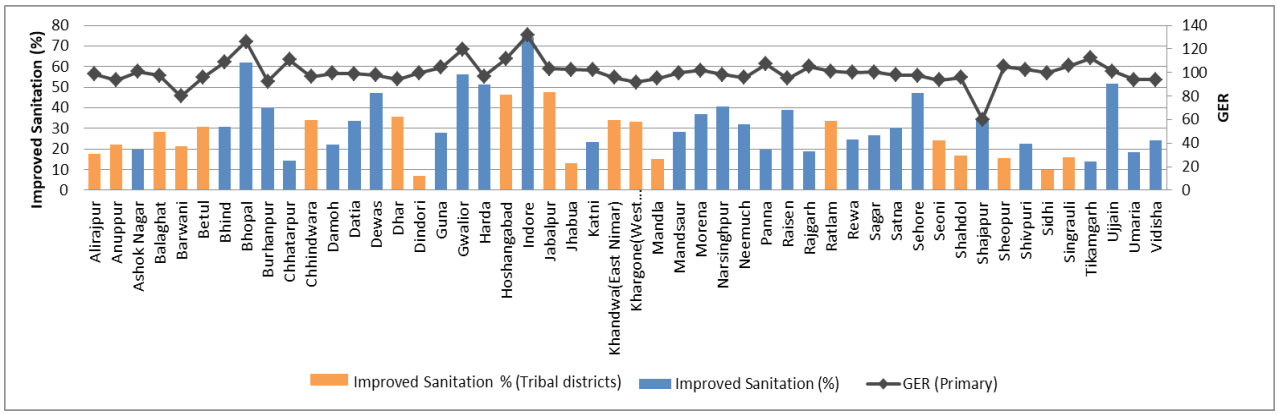
The districts with low rates of female literacy and low share of women with more than 10 years of schooling were found to have strong correlations with enrolment rates at the district level (0.279 and 0.424 respectively) (Figure 4:10).

The district wise analysis of single teacher schools and enrolment rates show a negative correlation (-0.349). Although not a strong correlation, it is evident that districts with fewer single teacher schools were found to have the highest enrolment rates - Indore, Bhopal and Gwalior (Figure 4:11).

The district level data shows a positive correlation between households having access to improved sanitation facilities and the enrolment levels (0.317). The access to sanitation was found to have a direct impact on the health and nutritional level of children (Figure 4:12).

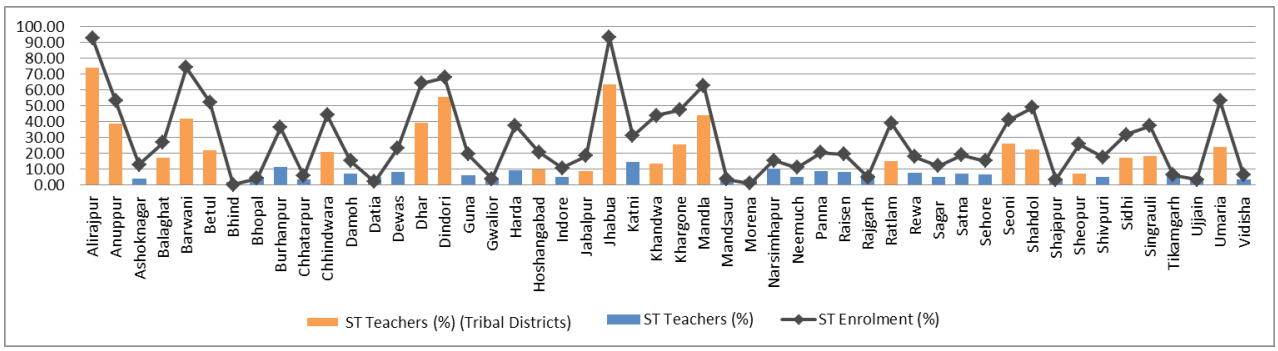
The study also revealed a high positive correlation between enrolment levels for ST students and the share of ST teachers (-0.935). Districts with a higher share of ST teachers- Alirajpur, Anuppur, Jhabua etc. were found to have higher ST enrolments (Figure 4:13).

Figure 4:12 GER and Households with Improved Sanitation



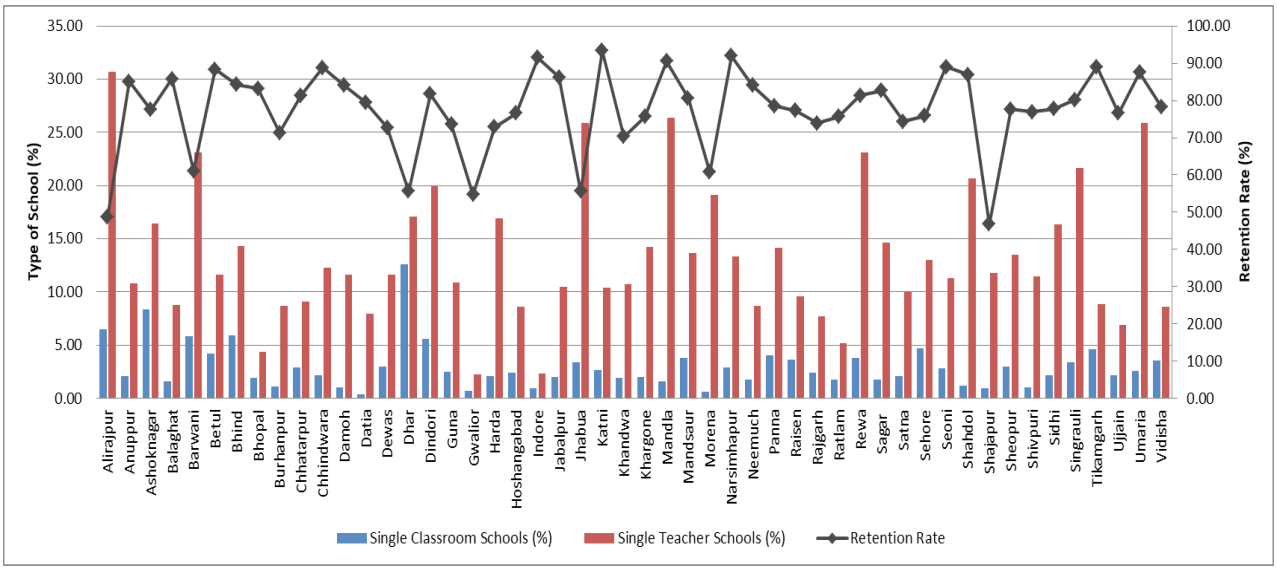
Source: DISE 2015-16

Figure 4:13 ST Teachers and ST Enrolment



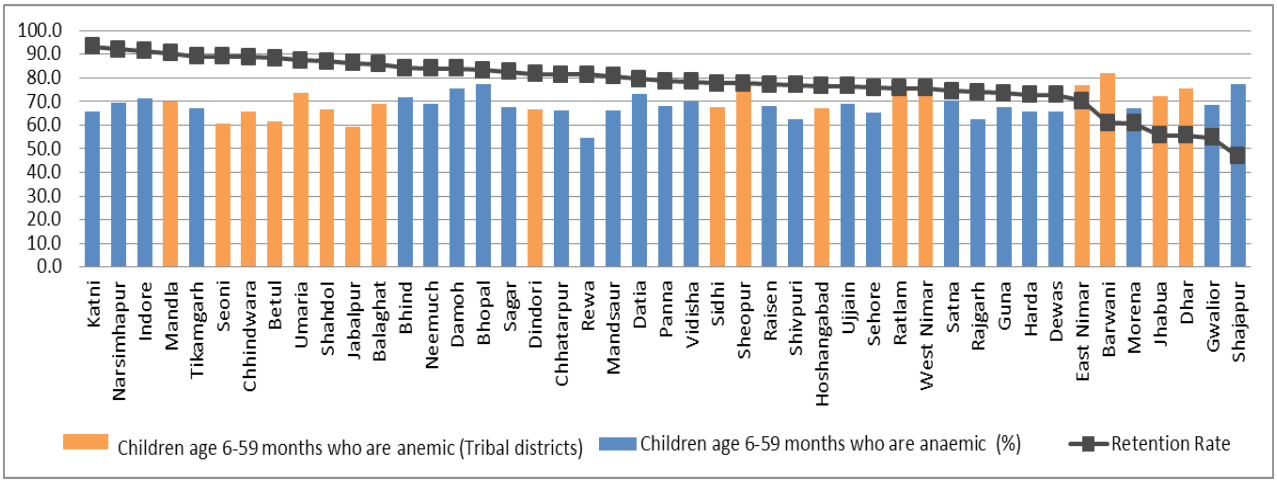
Source: DISE 2015-16

Figure 4:14 Retention rate and Type of School



Source: DISE 2015-16

Figure 4:15 Retention Rate and Anaemia in Children



Source: DISE 2015-16 and NFHS-4

4.2.4 Retention Rate

*(Enrolment in Grade V in year 't' - Repeaters in Grade V in year 't') / (Enrolment in Grade I in t-4 year) * 100*

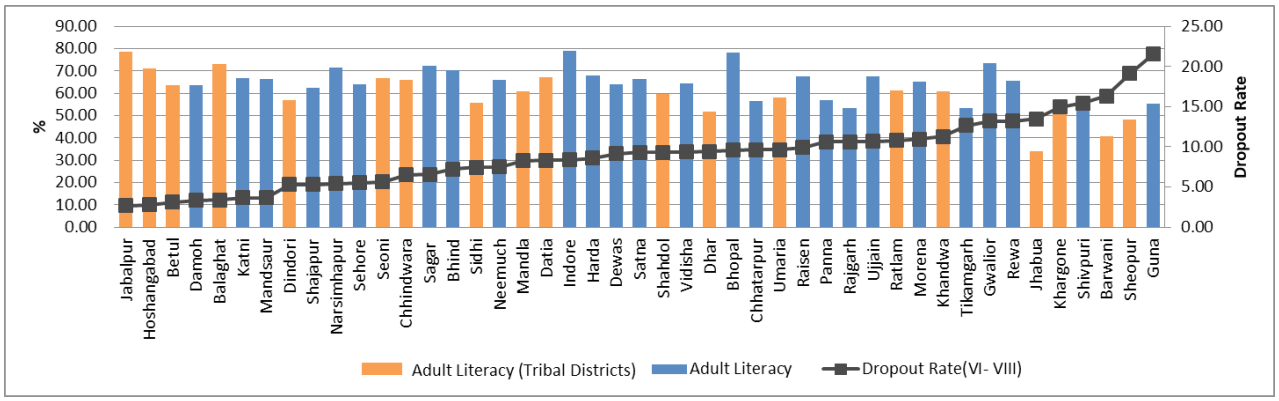
Retention Rate was found to have a weak negative relationship with type of school - single classroom schools and single teacher schools. Districts with a high percentage of single teacher schools such as Alirajpur, Jhabua and Morena had lower retention rates. The same correlation was found for districts with larger shares of single classroom schools - Dhar, Ashoknagar, Barwni and Alirajpur (Figure 4:14).

District wise analysis shows a negative correlation (-0.370) between retention rates and prevalence of anaemia in children. Retention rates are lower in districts with a higher share of children who are anaemic - Barwani, Jhabua, Dhar, Gwalior and Shajapur (Figure 4:15).

4.2.5 Dropout Rate

Number of students dropping out from a particular grade in a particular year as a share of total students in that grade in the same year.

Figure 4:16 Adult Literacy Rate and Dropout Rate

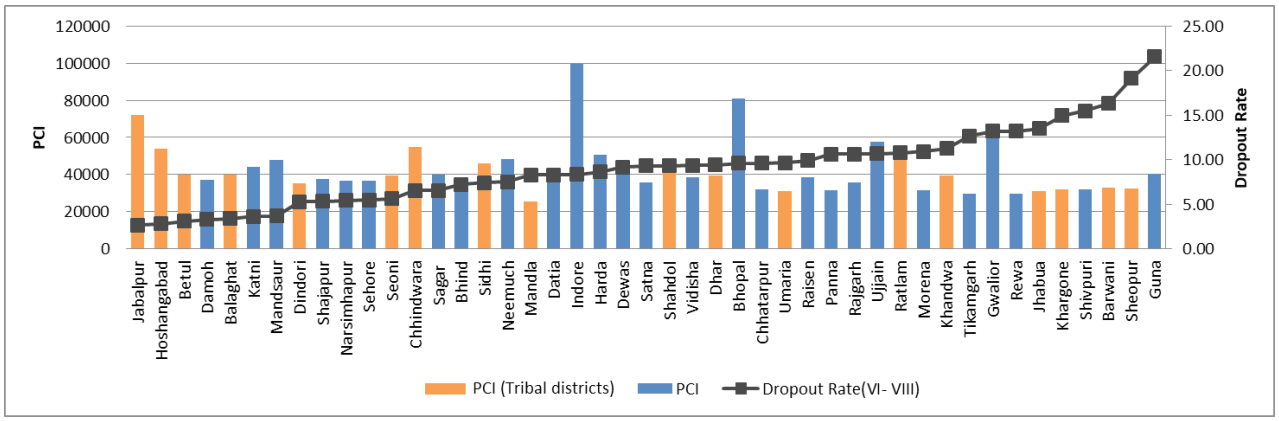


Source: DISE 2015-16

The district wise analysis of adult literacy (15+)and dropout rates shed light on the significant negative correlation between the two (-0.557). Districts with lower levels of adult literacy such as Jhabua, Barwani, Sheopur and Guna struggled with the highest dropout rates in the state (Figure 4:16).

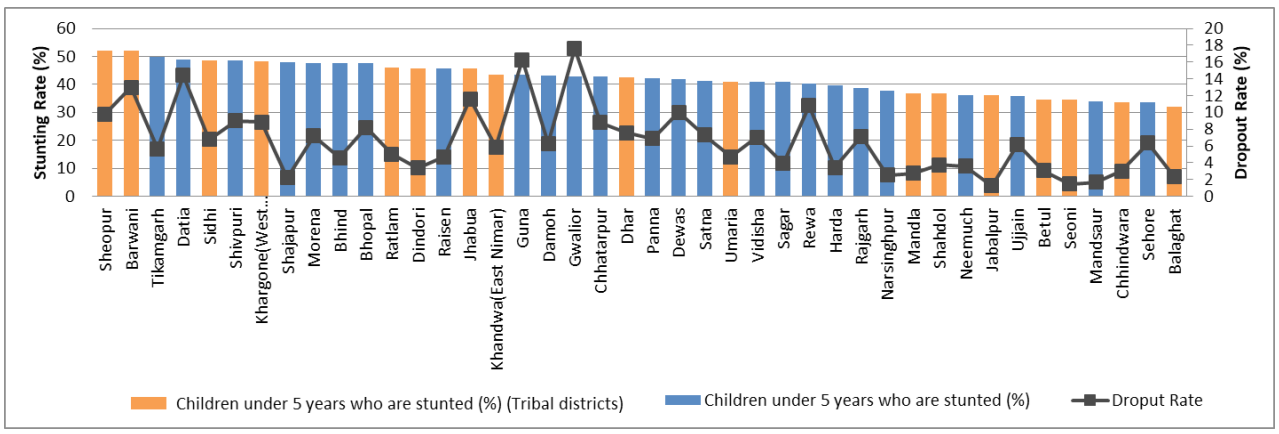
The analysis also revealed a negative relationship between dropout rates and the per capita income at the district level (-0.223). From the figure it is evident that the districts with lower per capita income levels also have higher dropout rates (Figure 4:17).

Figure 4:17 Per Capita Income and Dropout Rates



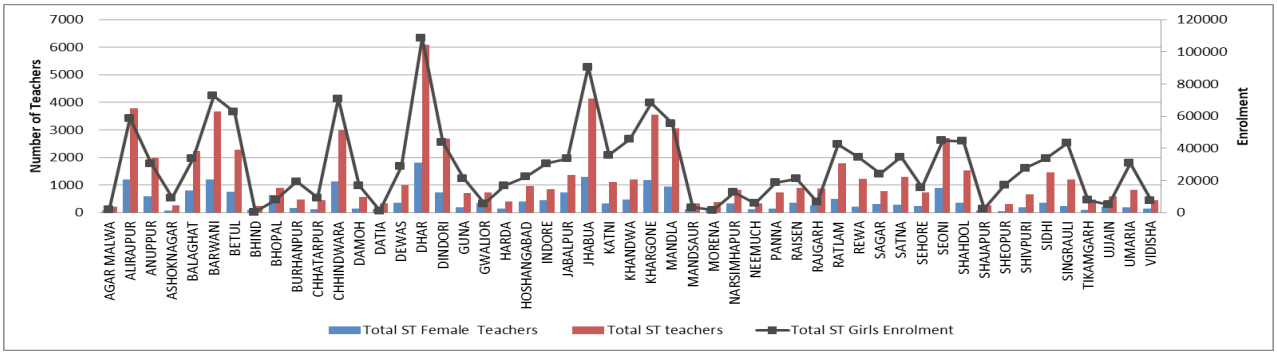
Source: DISE 2015-16

Figure 4:18 Stunting Rate and Dropout Rate



Source: DISE 2015-16 and NFHS-4

Figure 4:19 ST Girls Enrolment and Number of Teachers



Source: DISE 2015-16

There exists a positive correlation between stunting prevalence in children under-5 and dropout rates at the district level (0.500). The study revealed that in the districts with lower prevalence of stunting, the dropout rates were much lower- Balaghat, Chhindwara, Mandsaur etc (Figure 4:18).

The district level analysis of ST enrolment (girls) shows significantly strong relations with number of ST teachers (0.889) and number of female ST teachers in particular (0.929). Districts with high enrolment levels of ST girls - Alirajpur, Barwani, Dhar, Jhabua, etc. were found to have higher proportion of ST teachers as well as female ST teachers (Figure 4:19).

4.3 Education Indicators - Across Social Groups

The education indicators across social groups will help identify the most marginalised communities in the society.

Table 4:1 Education Indicators - Across Social Groups

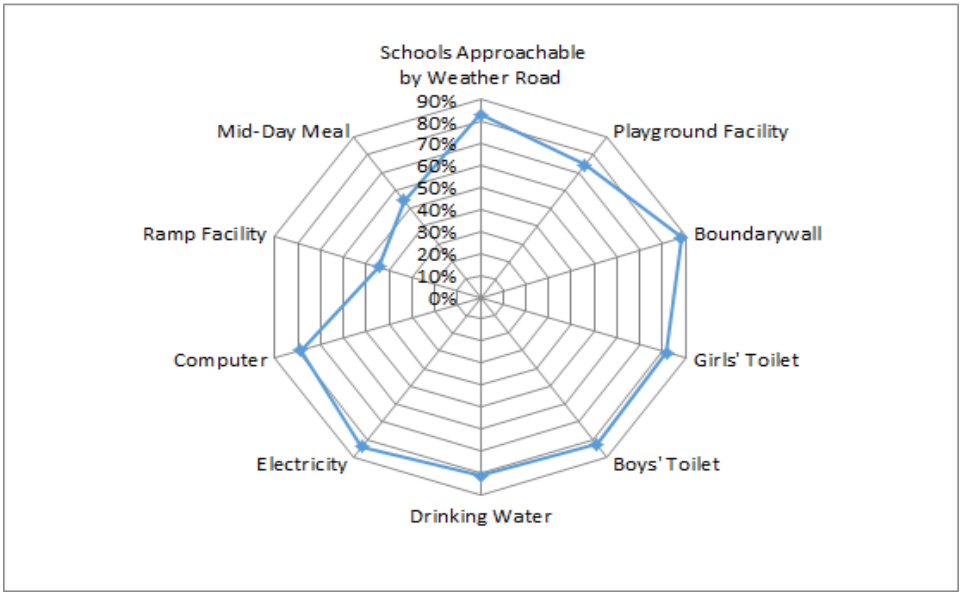
	Literacy Rate	Enrolment Rate	Girls' Enrolment
SC	78.7 per cent	16.9 per cent	47.3 per cent
ST	59.2 per cent	25.2 per cent	47.5 per cent
OBC	-	42.6 per cent	47.3 per cent
Other	-	5.5 per cent	48.1 per cent

Source: Census 2011; DISE 2015-16

4.4 Infrastructure and Enrolment

Infrastructure plays an important role in influencing enrolment. Drinking water, computer, mid-day

Figure 4:20 Infrastructure and Enrolment



Source: DISE 2015-16

meal and girls' toilet are key drivers of school enrolment; playground, electricity and other such facilities have the least influence. The correlation and various infrastructure aspects are given below.

The diagram implies that schools having facilities like toilets, drinking water, electricity, mid-day meals, playground and all weather roads motivate students to enrol. However, there exist significant inter-district disparities for the same. For instance the proportion of schools having access to electricity has a range of 57.11 per cent, with Alirajpur being the lowest at 8.51 per cent and Bhopal with 65.62 per cent schools electrified.

4.5 Pupil - Teacher Ratio and Student-Classroom Ratio

Pupil-Teacher Ratio is the ratio of total enrolment in primary schools to total teachers in primary schools

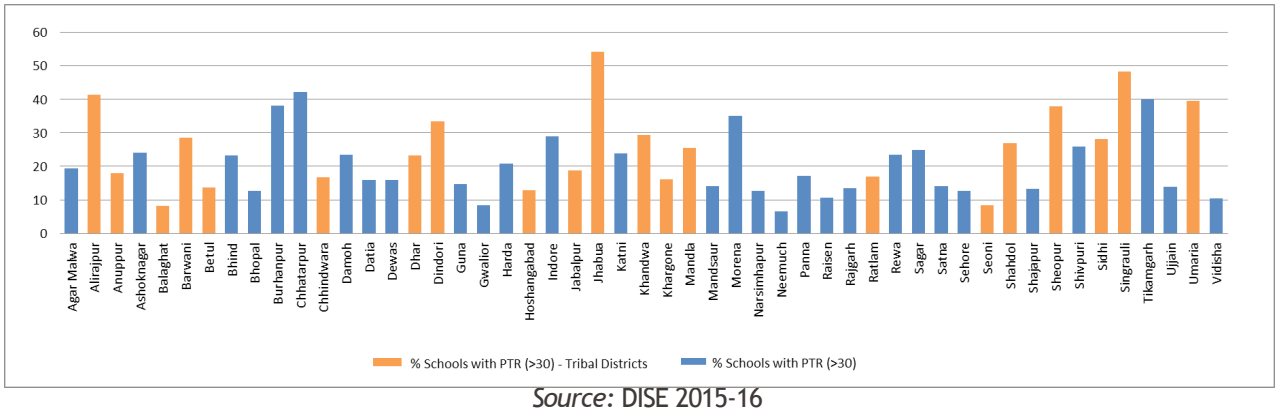
Student - Class Ratio is the ratio of total enrolment in primary schools to total classrooms in primary schools

As per the Right to Education Act 2009, the required pupil-teacher ratio (PTR) is 1:30; one teacher for 30 students. The percentage of schools maintaining a PTR of greater than 30 is 21.52 per cent (2015-16) at the state level, decreasing from 26.9 per cent in 2014-15. The regulation also prescribes a student - classroom ratio of 1 classroom per 30 students. The share of schools having a greater ratio also fell from 19.6 per cent (2014-15) to 15.73 per cent (2015-16).

Districts such as Jhabua, Singrauli, Chhatarpur, Alirajpur, Umaria, Burhanpur and Tikamgarh had the highest share of schools with a pupil-teacher ratio greater than 30.

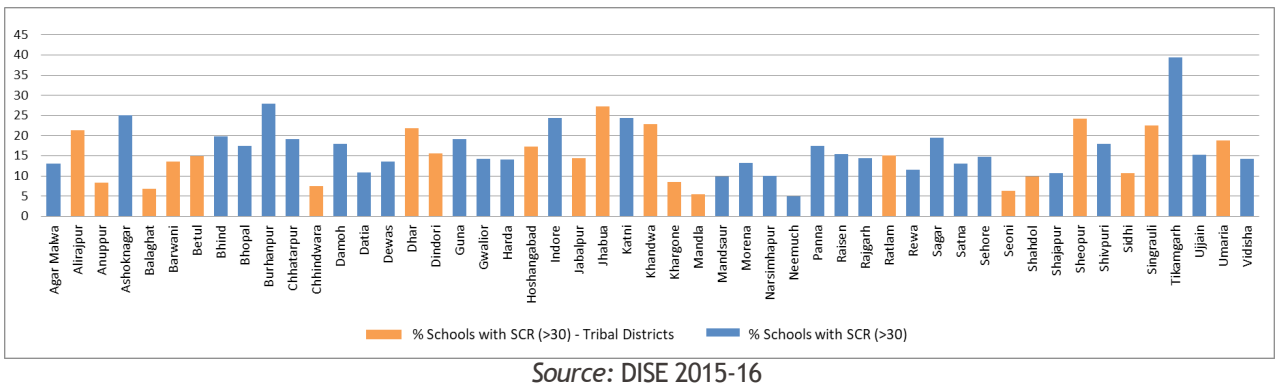
With respect to schools with a student-classroom ratio of more than 1:30, the districts with the highest proportion are Tikamgarh, Burhanpur, Jhabua, Ashoknagar, Indore and Katni.

Figure 4:21 Pupil-Teacher Ratio



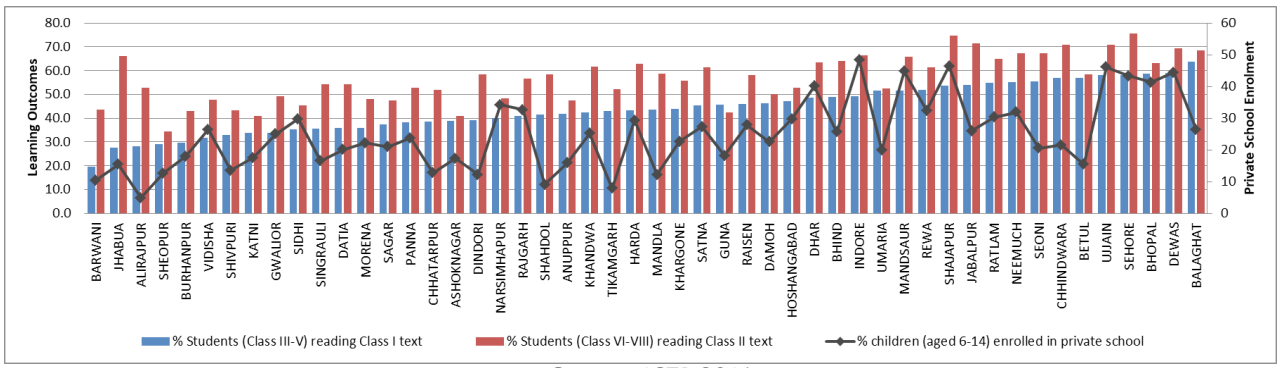
Source: DISE 2015-16

Figure 4:22 Student-Classroom Ratio



Source: DISE 2015-16

Figure 4:23 Learning Outcomes and Private School Enrolment



Source: ASER 2016

4.6 Learning Outcomes and Private School Enrolment

The district level analysis shows a significant positive correlation between learning outcomes and enrolment in private schools. Specifically, the analysis revealed that there exists a positive relation between the share of students of class III - V who can read a class I text (0.595), share of students of class VI-VIII who can read a class II text (0.585) and the percentage of children (aged 6-14) enrolled in private school (Figure 4:23).

The district level analysis shows a significant positive correlation between learning outcomes and enrolment in private schools. Specifically, the analysis revealed that there exists a positive relation between the share of students of class III - V who can read a class I text (0.595), share of students of class VI-VIII who can read a class II text (0.585) and the percentage of children (aged 6-14) enrolled in private school. There also exist high levels of inter-district disparities with the range for both learning outcomes being 29.2 per cent and 41 per cent respectively.

4.7 Summing up

It is clear that education is a critical sector with a large direct and indirect impact on the lives of people. The study revealed a host of factors that have strong or weak influences on the educational indicators of the state. For instance, a strong correlation was found between the adult literacy rates and per capita income at the district level. A similar relationship was found for the latter with district level enrolment rates. Over and above the relations discussed, the study also shed light on the infrastructural deficiencies prevailing in the state. The lack of basic infrastructure such as school boundary wall, supply of water and electricity, sanitation facilities and so on have a high correlation with enrolment. Furthermore, the study discussed the learning outcomes in the state with respect to both private and government schools. It was found that the learning outcomes in both reading and arithmetic were better in private schools, explaining the increase in private school enrolment rates in the state. However, it was also revealed that a higher proportion of boys are enrolled in private schools when compared with girls.

Chapter 5

Water, Sanitation and Hyggiene

*" We shall not defeat any of the infectious diseases that plague the developing world until we have also won the battle for safe drinking water, sanitation and basic health care"- **Kofi Anan, 7th Secretary General, UN***

Water and Sanitation are the crucial components in determining the overall health and development of a society. Across the globe, 840,000 people die each year because they do not have clean reliable drinking water, while 2.5 billion people lack access to improved sanitation. Nearly 80 per cent of illness in developing countries can be attributed to the lack of clean water and sanitation. The economic and educational costs associated with poor sanitation and water facilities are disproportionately borne by women and children. At least 20 per cent of girls drop out of school due to lack of access to safe sanitation facilities. This contributes to the increased occurrence of early marriages and teen child bearing.

MDG has made a significant landmark in reducing child and maternal death, but millions across the globe are still dying of preventable diseases. Hand washing, water quality, sanitation and hygiene are core interventions for maternal and child health, ensuring a healthy and productive society. Against this background, SDG has given greater emphasis to WASH as each SDG can be achieved at a greater pace by the inclusion of WASH practices.

Sustainable Development Goal 6

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

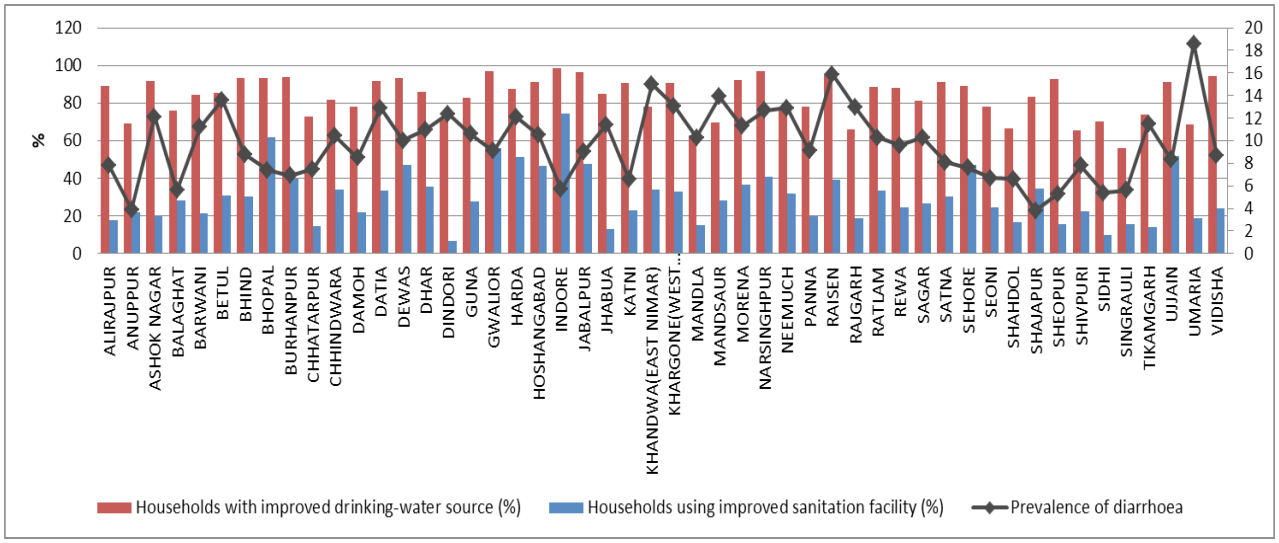
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

In India, 89.9 per cent households have access to improved drinking water source, whereas 48.4 per cent of households have access to improved sanitation facility. India still faces the issue of ensuring safe drinking water with more than 1 lakh people dying annually due to water borne diseases. As per estimates, US $ 106.7 billion has been wiped off from India's GDP (5.2per centof GDP) in 2015, due to poor access to sanitation facilities.

5.1 Access to drinking water and sanitation

Diarrhoea among children is taken as the proxy indicator to measure the impact of inadequate access to clean drinking water and improved

Figure 5:1 Diarrhoea and access to improved sanitation facilities and drinking water source



Source: NFHS-4

sanitation. In India, Bihar, Orissa and Madhya Pradesh are the worst performing states registering high prevalence of diarrhoea at 10.4, 9.8 and 9.5 per cent respectively. During 2012-17, Madhya Pradesh accounted for 7.2 per cent of the total diarrheal deaths in the country.

In Madhya Pradesh, 84.7 per cent households have access to improved drinking water sources and 33.7 per cent households have access to improved sanitation. A district wise analysis shows that there exists a relation between the prevalence of diarrhoea and access to improved drinking water source and improved sanitation. For instance, Umaria district which has the highest prevalence of diarrhoea also accounts for the lowest per cent of households with improved drinking water source and improved sanitation facility.

Contrary to the existing literature, there exists a positive correlation between households with improved drinking water source & sanitation facility and prevalence of diarrhoea in some districts. For instance, Raisen has high levels of access to improved sanitation facilities and drinking water source, but the district also registers the highest prevalence of diarrhoea among children, next to Umaria.

In Balaghat the share of households with improved drinking water source and improved sanitation facilities are below the state average and the prevalence of diarrhoea in the district was found to be on the lower end (5.6 per cent) when compared with the state average (9.5 per cent). This could be attributable to the high literacy levels found in the district, especially among women.

Along with accessibility of drinking water, source and quality of drinking water is an important determining factor. Although more than 80 per cent households in Madhya Pradesh have access to improved drinking water sources, these also include public taps, tube wells or boreholes, as per the NFHS definition. Department of Drinking Water and Sanitation, Government of India, came up with a strategic plan to ensure that 90 per cent of rural households are provided with piped water supply by 2022. The plan has put a target of providing piped water supply to at least 55 per cent rural households by 2017. The targets for 2017 were incorporated in the 12th Five Year Plan. In Madhya Pradesh, Public Health Engineering Department is responsible for implementing drinking water schemes as per the norms of NRDWP.

In 2016-17, against the target of 35 per cent, only

Table 5:1 Targets for 2017

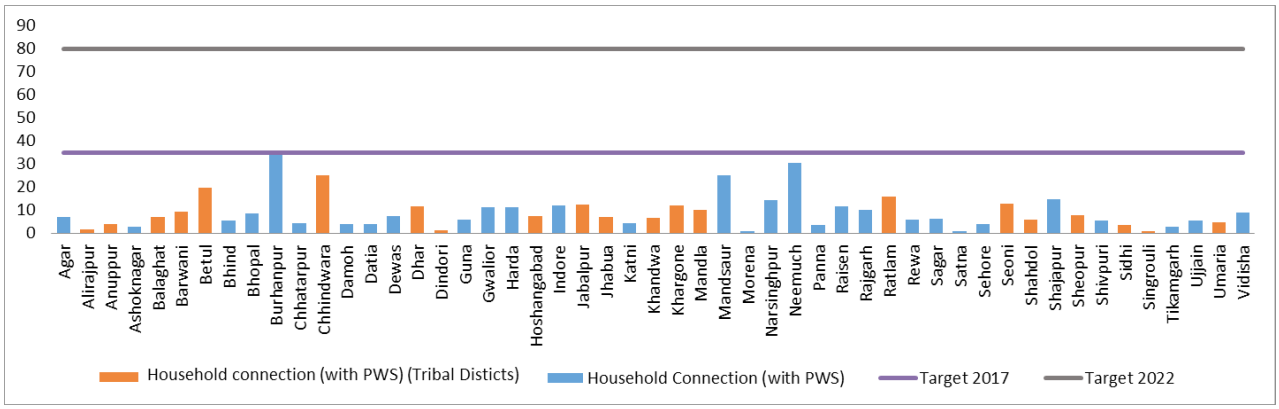
- Ensure piped water supply to
  - o at least 55 per cent of rural households
  - o at least 35 per cent of rural households through a household connection
- Ensure that
  - o less than 20 per cent use public taps
  - o less than 45 per cent use hand pumps or other safe and adequate private water source
- Ensure that all rural households, schools and anganwadis have access to and use adequate quantity of safe drinking water
- Provide enabling support and environment for Panchyat Raj Institutions and local communities to manage at least 60 per cent rural drinking water sources

Table 5:2 Targets for 2022

- Ensure piped water supply to
  - o at least 90 per cent of rural households
  - o at least 80 per cent of rural households through a household connection
- Ensure that
  - o less than 10 per cent use public taps
  - o less than 10 percent use hand pumps or other safe and adequate private water source
- Ensure that all rural households, schools and anganwadis have access to and use adequate quantity of safe drinking water
- Provide enabling support and environment for Panchyat Raj Institutions and local communities to manage at least 60 per cent rural drinking water sources

Source: MP Strategic Plan 2011- 2022

Figure 5:2 Rural Households with Piped Water Supply connection, 2016-17 (in per cent)



Source: Ministry of Drinking Water and Sanitation, NRDWP

7.16 per cent of the rural households in Madhya Pradesh were provide with piped water supply (PWS) with household connections. Among the districts, only Burhanpur (31.6 per cent) is close to achieving the target of 35 per cent (Figure 5:2). Satna, Rewa, Singrouli and Morena have less than one per cent households having household connections with PWS.

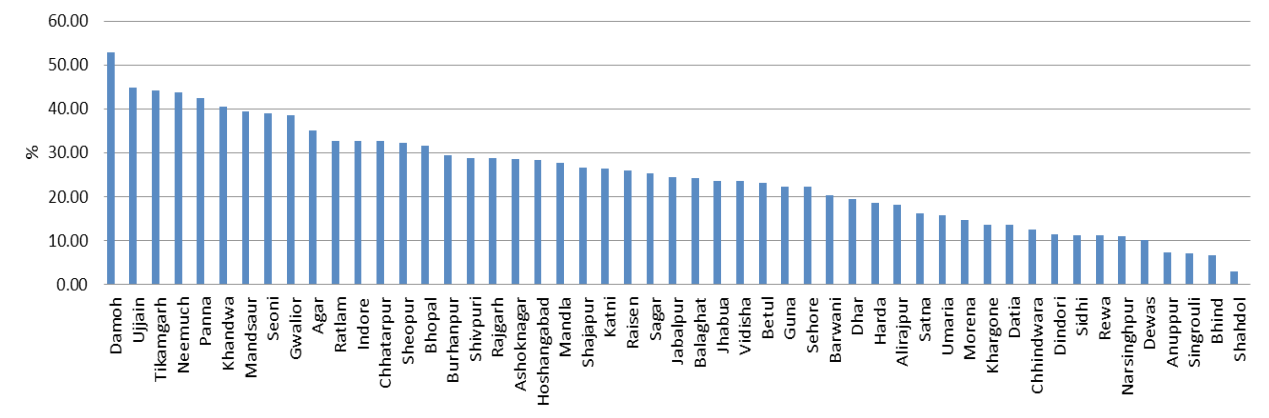
5.2 Demand and Supply of Drinking Water

As per WHO estimates, 7.5 litres per day (lpd) to 15 lpd is required per person for meeting basic needs. In India, NRDWP has fixed 55 litres per capita per day (lpcd) as the minimum supply that has to be provided to a habitation for meeting the basic minimum needs. Habitations where water system provides at least 55 lpcd or more to the entire population are considered '*fully covered*', whereas if water supply systems provide less than 55 lpcd to the population it is considered to be '*partially covered*'. With drinking water being a state subject, states can fix the amount of water that needs to be provided.

Rural persons in the state will have access to 70 lpcd within their household premises or at a horizontal distance of 100 meters or vertical distance of not more than 10 meters from their household without barriers of social or financial discrimination. (12th FYP, Madhya Pradesh)

From the graph below, it can be inferred there exist a demand-supply gap in terms of access to drinking water (Figure 5:3). In Narsimhapur, Singrauli, Rewa and Shahdol less than 10 per cent of habitations are considered to be partially covered.

Figure 5:3 Per cent of habitations- Partially Covered



Source: Ministry of Drinking Water and Sanitation, NRDWP

5.3 Quality of Water

The quality of water from these sources is an important aspect that has significant health implications. As per the Madhya Pradesh Ground Water Year Book (2015-16), the districts showing fluoride concentration beyond the permissible limits are Agar Malwa, Anuppur, Betul, Chhindwara, Katni, Mandla, Narsinghpur, Sehore, Seoni, Shahdol, Shajapur, Ujjain and Umaria districts. The data published by the NRDWP shows 27 districts as having fluoride contaminated drinking water sources, with the highest percentage of tested sources found contaminated belonging to Chhindwara district.

Exposure to fluoride contaminated water is the chief contributing factor of fluorosis, a disabling disease caused by accumulation over the bones affecting limb movements. Madhya Pradesh has over 4.5 lakh people affected by fluorosis, registering the highest reported cases in the country.

Experts working in this area attribute the fluoride contamination to the change in climatic patterns, viz. reduced rainfall, and the decrease in water table levels. Deeper drilling for hand pumps and bore wells are also cited as causes. Most of the above districts rely on hand pumps as the major source of drinking water.

Table 5:2 Districts with Fluoride Contamination

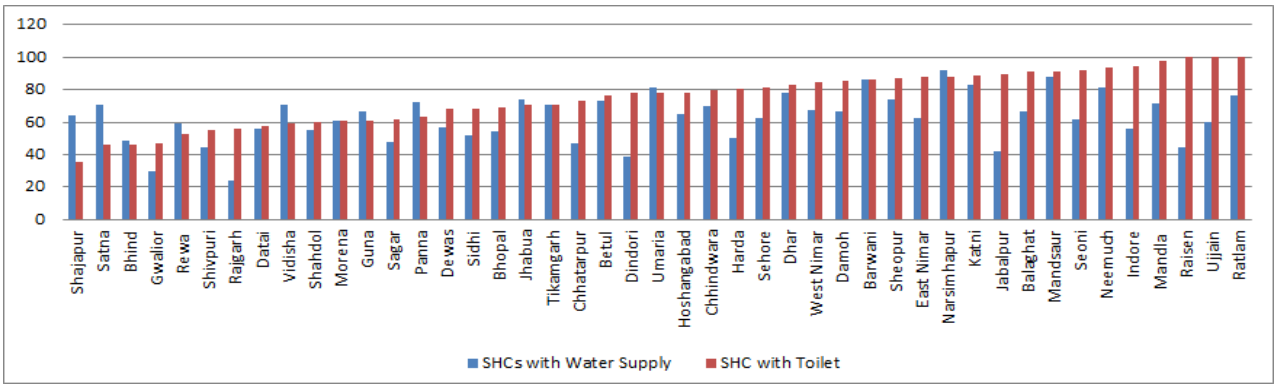
Districts with Fluoride Contamination		
• Agar	• Dhar	• Ratlam
• Malwa	• Dindori	• Sagar
• Alirajpur	• Jabalpur	• Sehore
• Anuppur	• Jhabua	• Seoni
• Balaghat	• Khargone	• Shajapur
• Betul	• Mandla	• Sheopur
• Chhatarpur	• Neemuch	• Shivpuri
• Chhindwara	• Raisen	• Ujjain
• Damoh	• Rajgarh	• Vidisha
• Datia		

Source: National Rural Drinking Water Programme

5.4 Drinking Water facilities in SC, Anganwadi and Schools

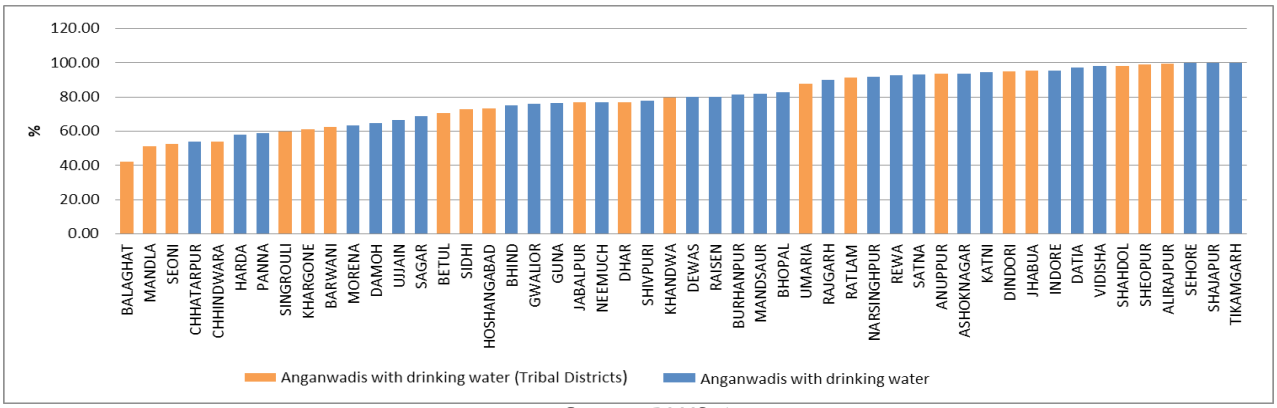
The strategic plan (2011-2022) had set the target of providing drinking water access to all Anganwadis

Figure 5:4 Sub- Centre Infrastructure (in per cent)



Source: DLHS, 2012-13

Figure 5:5 Share of Anganwadis with Access to Drinking Water (in per cent)



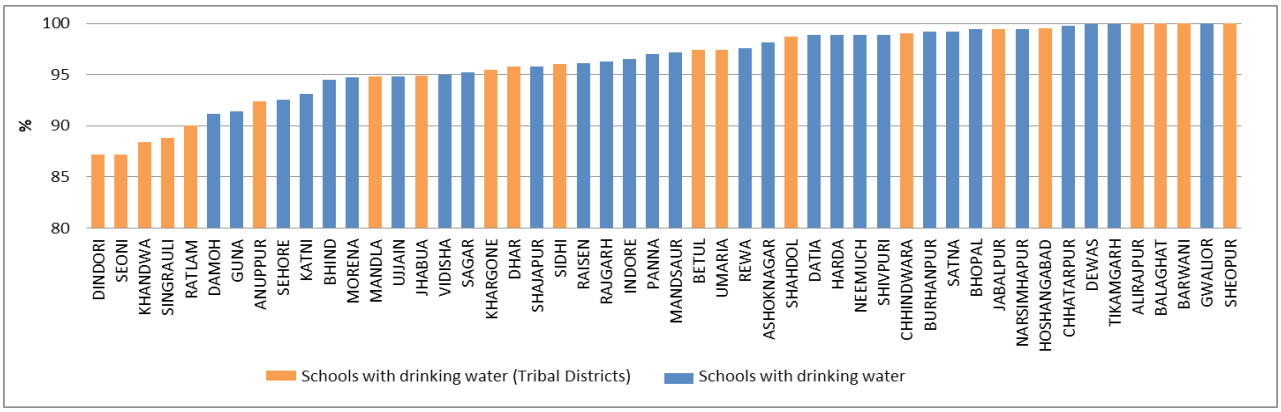
Source: DLHS-4

and schools. Improved sanitation and drinking water facilities are a relevant concern as poor sanitation and impure drinking water are the leading cause of diarrhoea and have an impact on other health and nutritional indicators.

The share of Sub Health Centres (SHCs) with access to regular water supply was found to have great inter-district disparities, ranging between 24 per cent and 92 per cent (Figure 5:4). Interestingly, most of the districts were found to have SHCs with toilets but lacking water supply. Only 10 districts were found to have a higher share of SHCs with water supply when compared to those with toilets. The greatest gaps can be seen in districts such as Indore, Ujjain, Jabalpur and Raisen.

From the figure given above it is evident that the existing infrastructure has not been able to provide the required facilities for Anganwadis. In districts like Balaghat, Mandla and Seoni, barely 50 per cent of the Anganwadis had access to water (Figure 5:5).

Figure 5:6 Share of Schools with Access to Drinking Water (in per cent)



Source: DISE 2015-16

The districts with the least number of schools with drinking water were found to be tribal districts and had high prevalence of diarrhoea viz. Dindori, Khandwa, Ratlam etc. Also, the tribal districts with 100 per cent drinking water supply in schools were found to have prevalence of diarrhoea lower than state average, except Barwani (Figure 5:6).

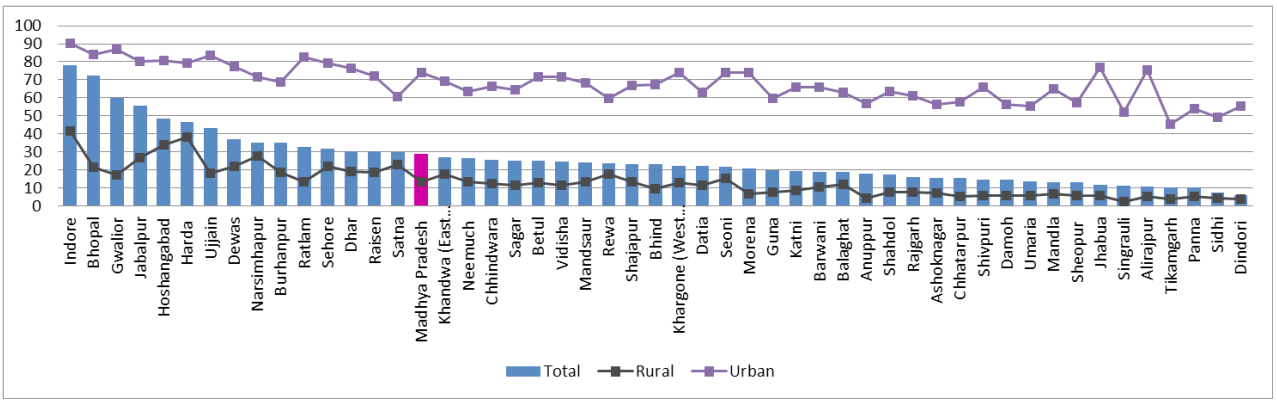
5.5 Sanitation and Hygiene

According to the NFHS-3 data (2005-06), 18.7 per cent of the households used improved sanitation facility. After 10 years, this has risen to only 33.7 per cent (NFHS-4, 2015-16) with wide disparity between rural (19.4 per cent) and urban areas (66.6 per cent). In 2003, Madhya Pradesh became the first state in India to have Total Sanitation Campaign (TSC) projects approved in every district. As a result, TSC activities have been operating at scale across the state for several years. Unfortunately, the state's progress has been slow, and two thirds of the households still do not follow safe hygiene practices.

According to the 2011 Census data, only 28.8 per cent of the households in Madhya Pradesh have toilets. This could be attributed to the nature of TSC activities which focus on building facilities, but not on behavioural change that leads to their effective utilization. This coupled with the shortage of water availability led to the current status of low level of hygienic sanitation practices. Majority of the households of the state (60 per cent), lack provision of waste water drainage.

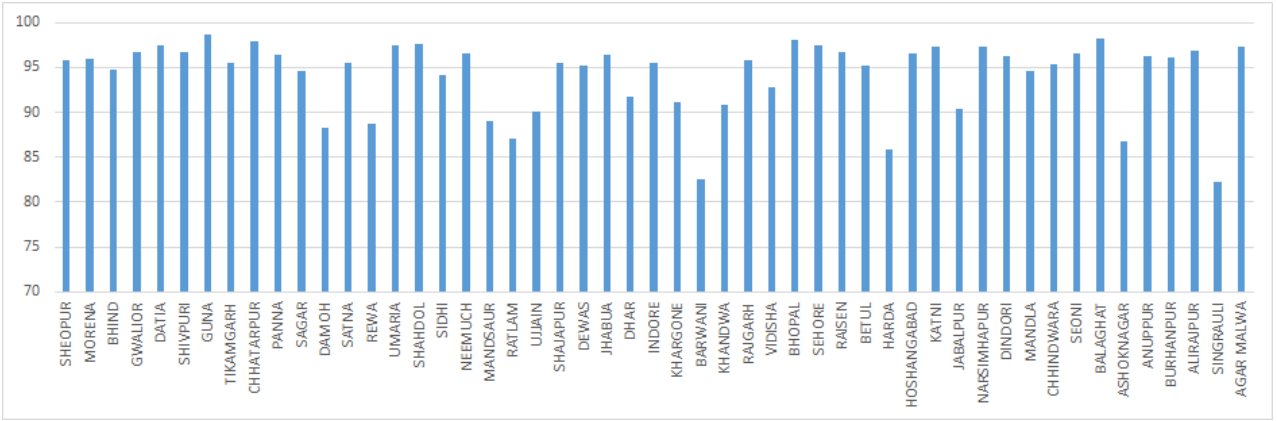
The recent push in the sanitation sector spearheaded by Swachh Bharat Mission reported that Individual Household Latrine (IHHL) coverage in MP reached 86.7 per cent which is more than

Figure 5:7 : Percentage of households in the districts of MP having individual latrines (2011)



Source: Census, 2011

Figure 5:8 Per cent of schools with Girls Toilet



Source: DISE, 2015-16

three times the census data. According to Swachh Bharat Mission, the rural coverage of IHHL has exceeded 70 per cent in Madhya Pradesh. Since 2nd October 2014, 57.5 per cent increase was reported in the number of households with toilets. As of April 2018, 14 districts, 9665 Gram Panchayats and over 24,000 villages self-declared as 'Open Defecation Free' (ODF). By 2017-18, 47.1 per cent of the villages in Madhya Pradesh declared as ODF and 27 per cent were verified by the state as ODF. Even though in 10 districts of MP, all the villages have been verified as ODF and thus present a progressive picture, in 25 other districts only less than 10 per cent of the villages achieved ODF status. Some villages have declared themselves as ODF, but have not been verified so. For example, in the district of Raisen, all the villages self-declared as ODF, but only one-fifth of them have been verified as the same in 2017-18.

An important aspect with regard to hygiene practices is the provisions of toilet and hand washing facilities at schools. From the graph it can be inferred none of the districts register 100 per cent in terms of schools having girl's toilet (Figure 5:8). The tribal districts of Singrauli, Barwani and Harda are the worst performers in this aspect. It was reported that only 28.98 per cent schools in Madhya Pradesh have hand washing facility.

5.6 Summing up

As a part of SDG, the UN advocates supporting and strengthening the participation of local communities in improving water and sanitation management. But till now the approach has been largely top down with central level policies and schemes hardly translating to the desired results at the grass root level. The current policy of rationing and provisioning water has many flaws including ignoring the issue of overexploitation of ground water and ensuring adequate quantity and quality of water. It also does not account for the participation of the community in ensuring sustainability of water resources. Moreover, two-thirds of the households still do not follow safe hygiene practices. Realisation of the sixth goal of SDG, 'clean water and sanitation' will be a distant dream if this is the tempo of development, especially in the areas of sanitation and IHHL coverage.

Chapter 6

Social and Child Protection

*"Child labour perpetuates poverty, unemployment, illiteracy, population growth and other social problems" - **Kailash Satyarthi, Nobel Laureate***

Social and Child Protection is a crucial policy tool for supporting equity and social justice. It addresses the economic and social barriers that prevent access to services, focusing on the most vulnerable sectors and thus contributing to a fairer distribution of resources and benefits (UNICEF). Investing in social protection and children is important from both human and economic development perspective.

Social protection was not explicitly mentioned in the MDG, but it was widely identified with Goal 1 focussing on the 'Eradication of extreme poverty and hunger'. Similarly, social/child protection is identified with the four goals in SDG.

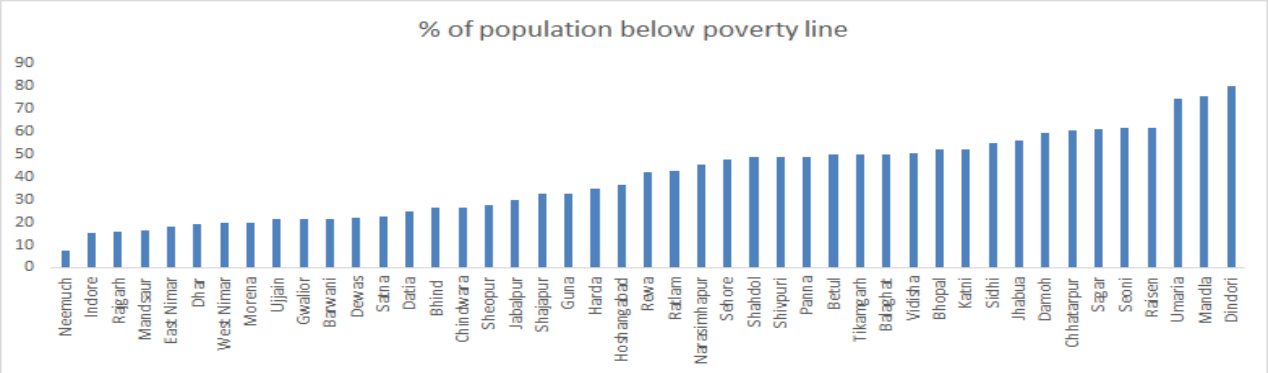
6.1 Poverty

As per the Tendulkar Methodology, the poverty line for Madhya Pradesh was drawn at Rs 771 (monthly per capita) for rural areas and Rs 897 (monthly per capita) for urban areas. Based on the poverty line estimation, 31.65 per cent in the state (35.74 percent- rural, 21 per cent- urban) live below poverty line. District wise poverty estimates show that Dindori has the highest per cent of population living below poverty line at 80.11 (State Planning Commission, 2011). It should be noted that the three districts registering the highest poverty rates are all tribal districts viz., Umaria, Mandla and

SDG- Focussing Social and Child Protection

Goal 1: End poverty in all its forms everywhere.
Goal 5: Achieve gender equality and empower all women and girls.
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Figure 6:1 Per cent of population below poverty line



Source: MP State Planning Commission, 2004-05

Dindori. The low health, nutrition and education indicators in these districts, as discussed in the other chapters, can be attributed to the high incidence of poverty.

Table 6:1 Proportion of Population living below poverty line by Social Groups

Social groups	Rural	Urban	Total
SC	55.34	32.27	53.17
ST	41.34	33.17	39.48
Others	19.63	13.12	23.56
All	35.74	21.00	31.65

Source: Madhya Pradesh State MDG Report, 2014-15

Among the social groups, incidence of poverty is highest among the STs followed by SC community. The high incidence of poverty among ST community has a negative impact on their health, nutrition and educational outcomes.

6.2 Disability

As per Census 2011, total disabled population in Madhya Pradesh stands at 15.5 lakh. Madhya Pradesh accounts for 5.8 per cent of the total disabled population in the country. Among the districts, urbanised districts of Indore, Bhopal and Jabalpur have the highest share of disabled population. Indore and Bhopal account for around 10 per cent of the total disabled population in the state.

Table 6:2 Disabled Population- Social Groups

Social Group	Disabled Population (in lakh)
SC	2.92
ST	2.86
All	15.50

Source: Census, 2011

Government schemes for Disabled

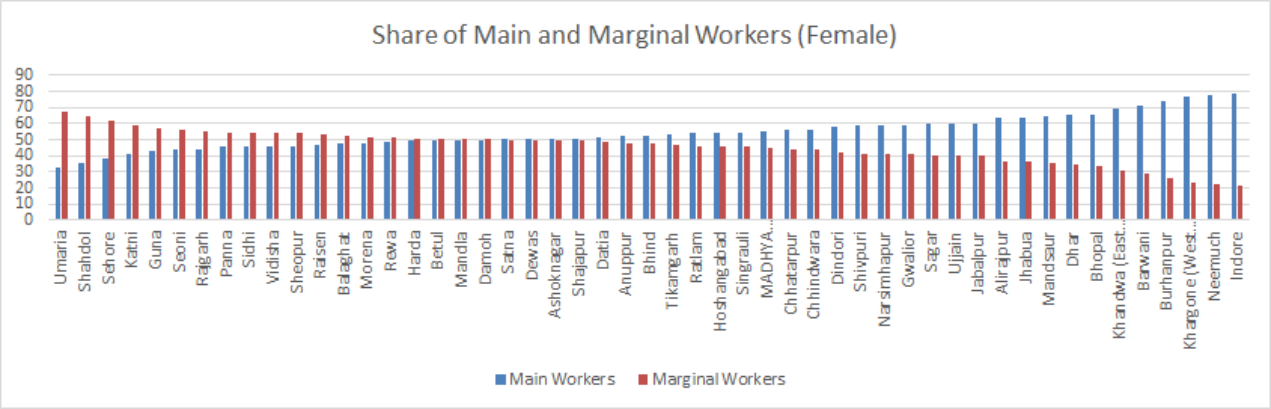
In Government jobs there is 6 per cent reservation in 100 point roster for Class II, Class III and Class IV category for direct recruitment for persons with disabilities.

The State Government awards scholarship to those handicapped students whose parent's income is less than ` 2000/- per month.

Under Disability pension/Social security pension, persons with disabilities above the age of 65 years get disability pension at ` 150/- per month, destitute children with disabilities at the age of 14 years or more get social security pension at ` 150/- per month, and children between 6 to 14 years who are enrolled in schools and whose families live below the poverty line get social security pension at ` 150/- per month.

Disabled employees get 5per cent of the basic with a minimum of ` 50/- per month and a maximum of `100/-per month as conveyance allowance for attending office.

Figure 6:2 Share of Main and Marginal Workers (Female)



Source: Census, 2011

6.3 Women Empowerment

Eliminating gender discrimination and empowering women will have a profound and positive impact on the survival and well-being of children (UNICEF). In this section, the situation of women in Madhya Pradesh is analysed using the following indicators:

- **Share of main and marginal workers to the total workers (female)**

The share of main workers and marginal workers to the total workers helps to understand the level of employability among females. 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.

In Madhya Pradesh, 55.5 per cent of the total workers (females) were categorized as main workers, whereas it stood at 81.2 per cent for males. Indore registered the highest share and districts such as Umaria, Shahdol and Sehore have the lowest share of main workers among females (Figure 6:2).

- **Participation of women in government services**

As per the Employment Census there are 983,924 people working under the state government. Of the total government employees, females account for a share of only 18.7 per cent.

Table 6:3 Participation of Women in Government Services

Categories	Total	Male	Females
Category 1	7230	5495 (76.10)	1735 (23.9)
Category 2	29237	22022 (75.33)	7215 (24.67)
Category 3	437607	365817 (83.60)	71790 (16.40)
Category 4	62638	50984 (81.40)	11654 (18.60)
Regular Staff	446762	354468 (79.35)	92294 (20.65)

Source: Employment Census, 2016

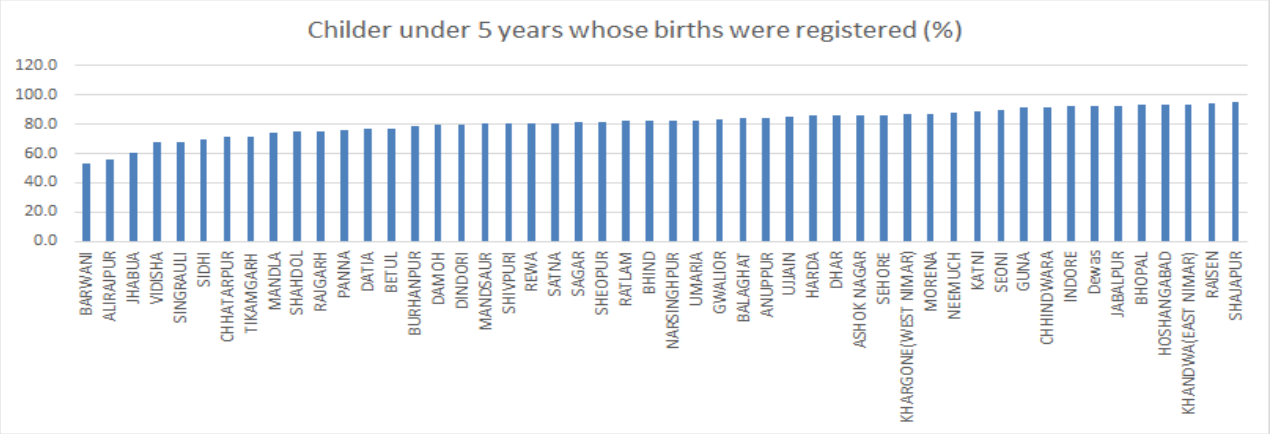
- **Share of seats held by women in legislative assembly**

Of the total 230 seats in the legislative assembly, females account for only 30 seats marking a share of 13.04 per cent. The districts with women representatives are Gwalior, Shivpuri, Guna, Sagar, Tikamgarh, Chhatarpur, Damoh, Panna, Satna, Rewa, Singrauli, Shahdol, Umaria, Jabalpur, Balaghat, Khandwa, Burhanpur, Khargone, Jhabua, Dhar, Indore and Ratlam.

6.4 Child Protection

The United Nations Convention on the Rights of the Child, through its 45 articles, has created a space for children to voice and present their opinions in decisions regarding them, to ensure that they lead a meaningful childhood and dignified life. The

Figure 6:3 Children under-5 years whose birth were registered (per cent)



Source: NFHS-4

enlisted child rights are centred on three pillars: protection, participation and provision (The United Nations Convention on the Rights of the Child, 2010).

6.4.1 Birth Registration

Birth registration is an important measure to ensure that the child is under legal jurisprudence which safeguards their economic, social, cultural and civil rights. Knowing the age of a child is central to protecting them from child labour, being arrested and treated as adults in the justice system, forcible conscription in armed forces, child marriage, trafficking and sexual exploitation (UNICEF).

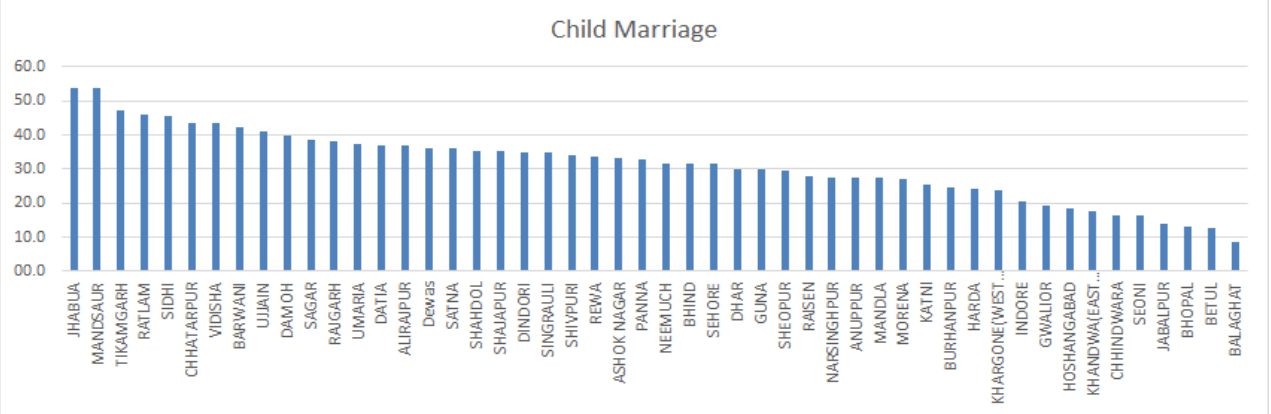
In Madhya Pradesh, birth registration of children under-5 years has improved from 81.9 per cent in 2005-06 to 92.2 per cent in 2015-16. Birth registration is lowest in the districts of Barwani, Alirajpur, Jhabua and Vidisha. It should be noted that all the above districts are tribal districts (Figure 6:3).

The "Ladli Laxmi Yojana" was introduced in the State in 2007 to improve the health and educational status of the girls, to prevent female feticide and to bring about a positive attitude towards the birth of a girl child. Cash incentives are given to poor families with a girl child for registration of birth, immunization, enrolment in school and delaying marriage till the age of 18. However, many reports like those by UNFPA (2010) and Asia Centre for Human Rights have shown that financial incentive schemes are not successful in improving sex ratio, especially child sex ratio, in districts with low levels of education.

6.4.2 Child Marriage

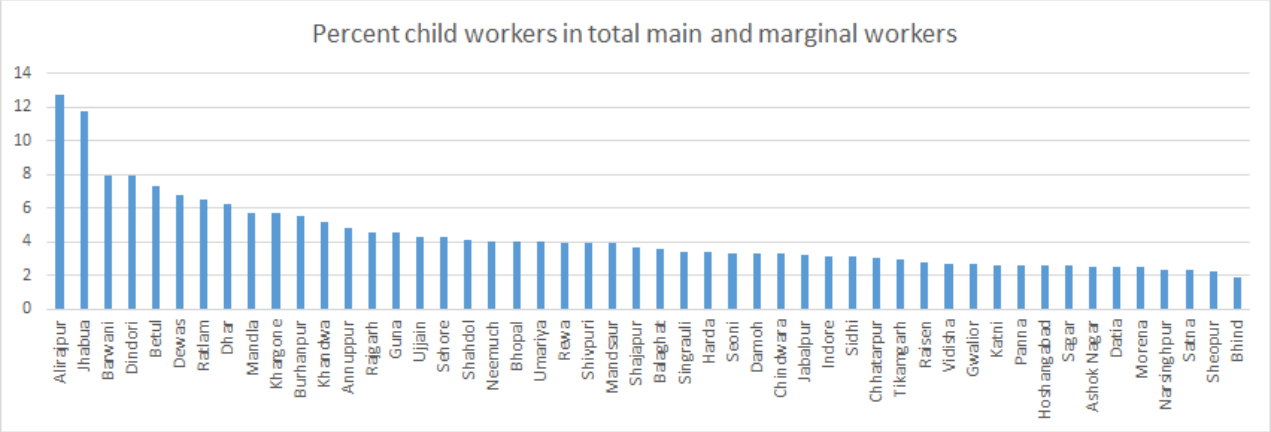
Child marriage is still widespread in India, though the incidence of child marriage has declined from 54 per cent in 1992-93 to 27 per cent in 2016. States having high incidence of child marriage

Figure 6:4 Incidence of Child Marriage (in per cent)



Source: NFHS-4

Figure 6:5 Per cent of child workers in total main and marginal workers



Source: Census, 2011

above the national average are Jharkhand, Uttar Pradesh, West Bengal, Madhya Pradesh, Andhra Pradesh, Karnataka, Chhattisgarh and Tripura. In Madhya Pradesh, 30 per cent of women age 20-24 were married before the legal age 18 (NFHS-4). The incidence of child marriage is highest in the districts of Jhabua, Mandsaur and Tikamgarh. The incidence of child marriage is lowest in Balaghat, the district registering the highest literacy rate.

6.4.3 Child Labour

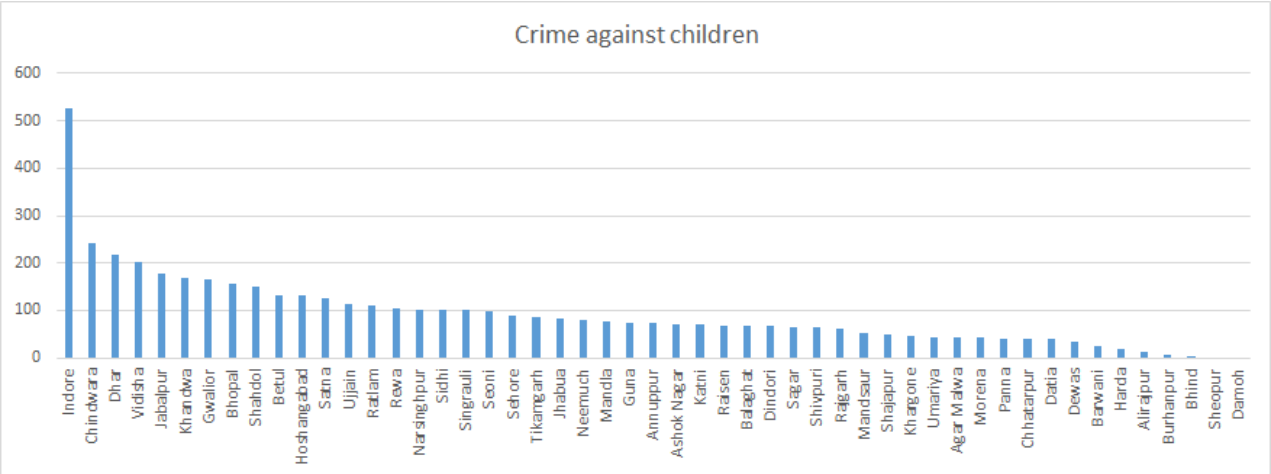
Child labour prevents children from acquiring the skills and education they need to have opportunities of decent work as an adult (ILO). As per Census 2011, total child population in India in the age group 5-14 years is 259.6 million. Of these around 10.1 million are working either as main workers or marginal workers. Uttar Pradesh, Bihar, Rajasthan, Maharashtra and Madhya Pradesh account for nearly 55 per cent of total working children in India. In Madhya Pradesh there are 0.70 million child labourers. It can be seen that the tribal districts of Alirajpur, Jhabua and Barwani register the highest share of child workers (Figure 6:5).

Among the social groups, the incidence of child workers (taken as percentage of child workers to the total main and marginal workers) is highest among STs at 7.26 per cent followed by SCs at 3.43 per cent.

6.4.4 Crime against Children

Article 19 of Convention on the Rights of the Child defines violence against children as "all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or

Figure 6:6 Crime against children (2015-16)



Source: National Crime Record Bureau

exploitation, including sexual abuse, while in the care of parent(s), legal guardian(s) or any other person who has the care of the child.

Table 6:4 Basic Police Data

Particulars	Sanctioned	Actual
Strength of Civil Police	87,366	76,770
Strength of State Armed Police	28,360	21,696
Strength of Women Police	--	4352
Total State Police Force	115,726	98,466
Population per Policeman	678.69	797.66
Policemen per lakh of population	147.34	125.37
Policemen per 100 sq km	37.54	31.94

Source: Bureau of Police Research and Development, 2016

It should be noted that crimes against children is reported highest in Indore and lowest in Sheopur and Damoh (with 0 cases reported). But it should be noted that high rates of crime against children in Indore can be attributed to the high rates of reporting in the district, and the low rates of reporting in the other districts. The above data may not fully capture the real picture on crime against children in the state. As per the NCRB, the state also tops the list in terms of crime against women. The high rate of crime against women and children exposes the need to look into the police infrastructure in the state.

The table highlights the police infrastructure gap in the state and the need to strengthen it to address the high rate of crime against women and children in the state (Figure 6:4). The state can look into best practices adopted in other states to address the issues of crime against women and children. For instance, in the early 1990's, Tamil Nadu pioneered the concept of All Women Police Station (AWPS). The existence of AWPS would encourage the reporting of crimes against children and women which in turn could reduce the incidence of such crimes.

6.5 Summing Up

Equity means equal access to justice. In order to ensure that there is equal access to justice, the state should be able to strengthen its police infrastructure and judiciary to minimize crimes against children and women. Local self-governments should be involved in running juvenile homes, destitute homes, child welfare units and anti-human trafficking units. Ensuring gender equity can have far reaching impact on child protection.

Chapter 7

Connectedness

"The right signal is that technology is going to boost (economic) development of our nation"
- A P J Abdul Kalam, Former President, India

Infrastructure is often described as basic assets and objects that, in the aggregate, are deemed essential for the functioning of society and the economy (United Nations 2016). The benefits of infrastructure development are not only restricted to economic growth and development, but they also build the social overhead capital of an economy. Investment in infrastructure is a necessary precursor to empower people, communities and government to achieve the SDGs.

Global Infrastructure gap is estimated to amount to US$ 1 to 1.5 trillion annually in developing countries (High Level Political Forum, 2017).

Infrastructure forms an integral part of all the Sustainable Development Goals (SDGs), and having a goal exclusively based on infrastructure and technology highlights the importance and centrality of it to underdeveloped, developing and developed countries. Infrastructure and technological developments have an important role to play in achieving the targets of SDGs focussing on poverty, health, education and WASH.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

7.1 Road and Railway Connectivity

Increased rural connectivity via road construction and development has implications on the choices individuals make regarding their health and macro health indicators. In a study that evaluates the factors affecting obstetric choices, the most commonly cited reasons for poor access were mobility issues and lack of knowledge and information (Ensor and Cooper 2004). Having access to health centres can also reduce gender gaps in health outcomes. Increased connectivity, as measured by road connectivity and electrification, has increased the likelihood of immunization and availing of prenatal care (Majid 2013).

It is estimated that for every ₹1 million invested in rural roads, 163 people were lifted out of poverty (World Bank 2009).

Despite being located in the central part of India, the road connectivity of Madhya Pradesh is poor in terms of National Highways and other future projects undertaken. Based on the statistics of Government of Madhya Pradesh, out of 200 highways in the country, only 18 pass Madhya Pradesh. Out of 13,252 km of proposed Golden Quadrilateral, North- South and East-West (E-W) corridors, only 621 km (4.68 per cent) would pass

Pradhan Mantri Gram Sadak Yojana in its impact assessment recorded that after all-weather roads were constructed, 83 per cent habitations were connected to the nearest Primary Health Centre (PHC) and government hospitals and 82 per cent were connected to a private hospital/nursing home (CMI Social Research Centre,2011). 22 per cent of the habitations recorded an increase in the availability/ visits of government doctors, 17 per cent habitations witnessed an increase in Anganwadi centres and deliveries at home were reduced from 76 per cent to 57 per cent after the roads were constructed.

through the state. Table 7.1 shows the profile of roads in the state.

Table 7:1 Profile of Roads in Madhya Pradesh

Length of Road	Km
National Highways	4709
State Highways	10,859
Major District Roads	19,574
Village Roads	24,209

Source: Govt of MP, 2017

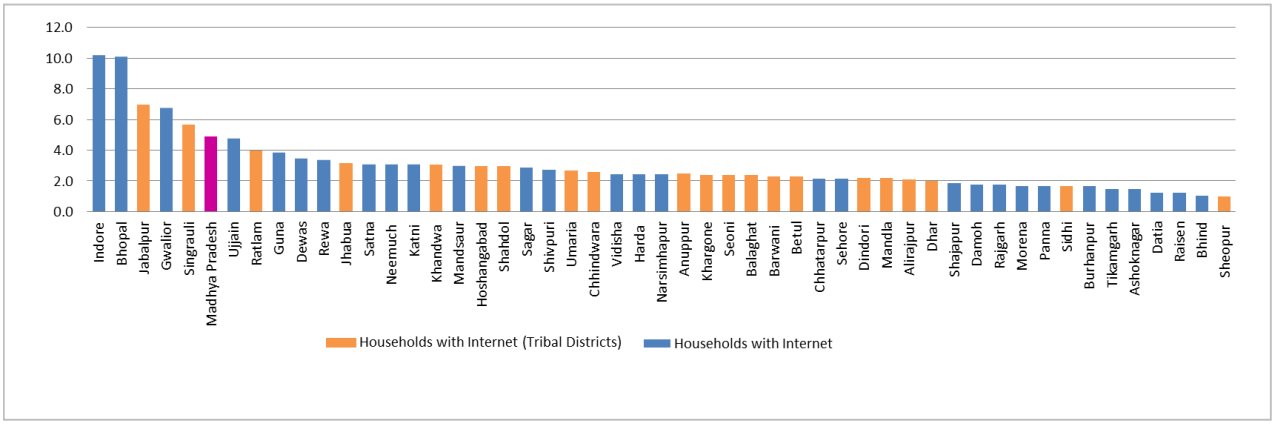
According to data of Ministry of Railways, Government of India, the average rail line network in MP is only 16.07 km when the national average is 19.46 km per 1000 sq km in 2016. MP is behind nine states— Rajasthan, Maharashtra, Gujarat, Bihar, UP, Jharkhand, Punjab, Uttaranchal and West Bengal. Regarding air connectivity, the state of Madhya Pradesh has only five of the 125 major airports in India. Among these five airports, except Indore and Bhopal, the other airports are not connected with the rest of India.

7.2 Mobile-Internet Penetration

The total number of mobile telephone subscribers in India was 102,7166,644 as on February 29, 2016. Of the total mobile subscribers in India, Madhya Pradesh had a share of 6.34 per cent at 65,142,091. Madhya Pradesh witnessed a yearly growth (2016-17) of 9.72 per cent of both wire-line and wireless telephone subscribers from 67.51 million in 2016 to 74.08 million in 2017. Of the total 74.08 million subscribers, 33.45 million belonged to rural areas and 40.63 million to the urban areas.

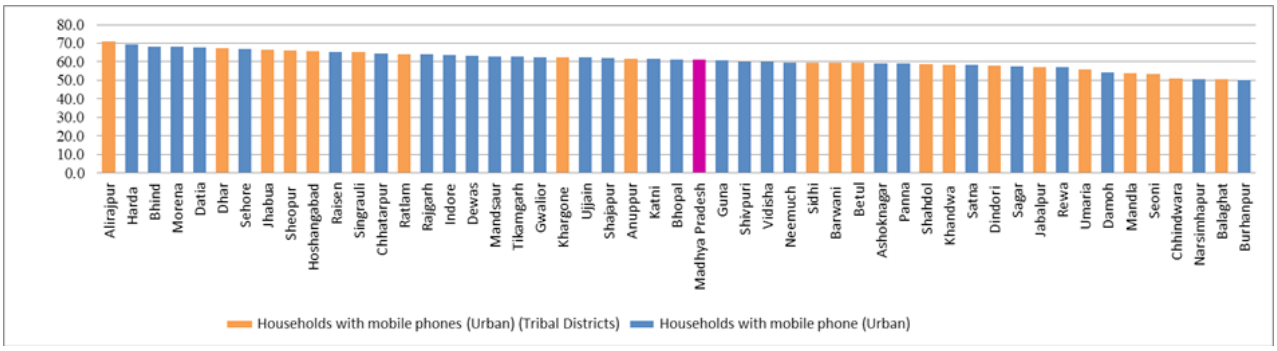
Total number of internet subscribers increased from 391.50 million in 2016 to 445.96 million in 2017, recording a yearly growth rate of 13.91 per cent. A disparity can be observed between rural and urban subscriber base in Madhya Pradesh. While the former is 6.24 million, the latter is 16.94 million. The internet subscribers per 100 population in rural areas is 8.12 whereas it stands

Figure 7:1 Urban Households with Internet Connection



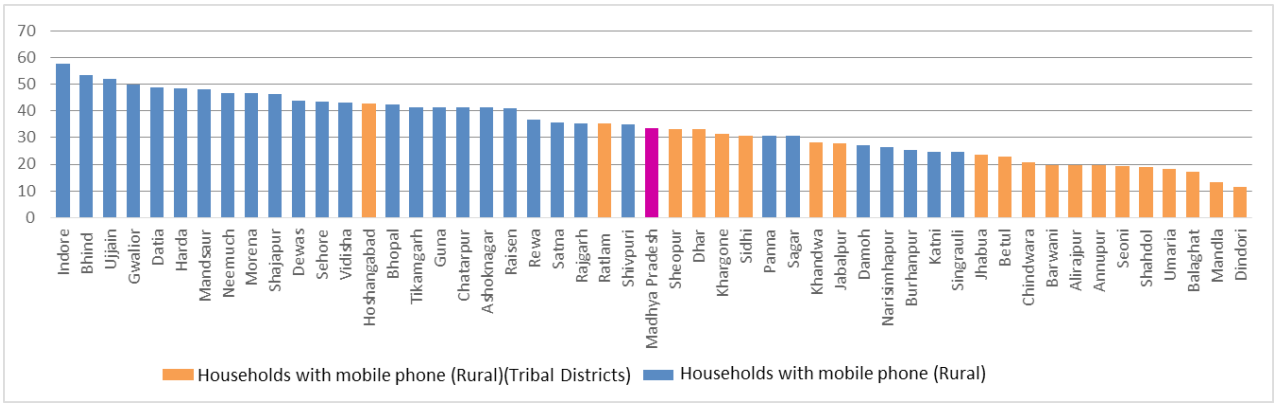
Source: Census, 2011

Figure 7:2 Urban Households with Mobile Phones



Source: Census, 2011

Figure 7:3 Rural Households with mobile phones



Source: Census, 2011

at 57.46 for urban areas.

For a district wise analysis, census data is being used, though the present scenario would be different due to changes in the market.

Only five districts in urban areas have households with internet higher than the state average while all the other 45 districts have households with internet below the state average. Figure 7.2 shows that 26 districts in urban areas have households with mobile phones greater than the state average, whereas 24 districts in urban areas have less than the state average.

In rural areas, there are 25 districts with households owning mobile phone above the state average and the rest have households with mobile phones below the state average.

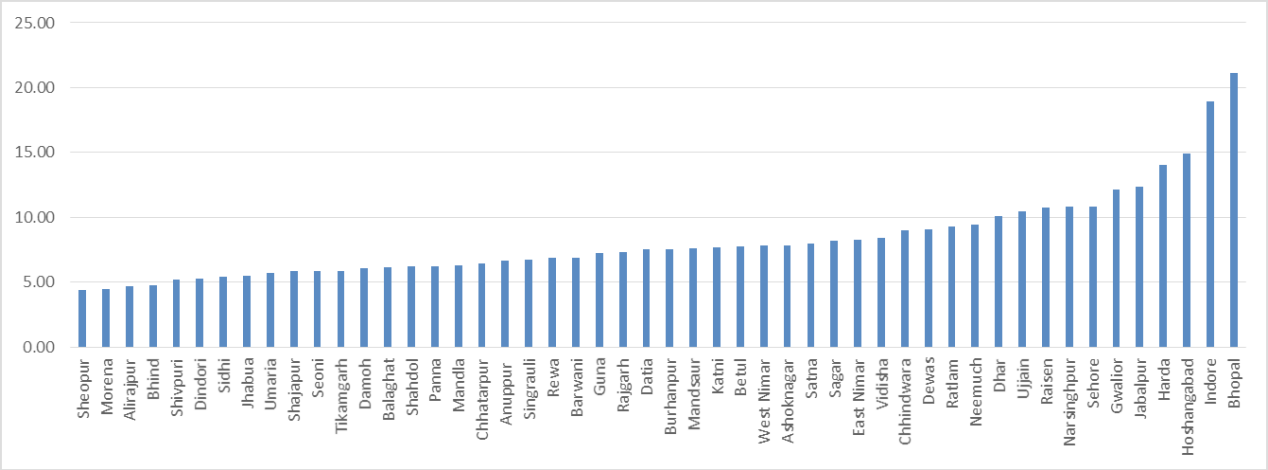
By comparing region wise connectedness, it can be seen that there is a negative correlation between the ST population and region wise connectedness. Districts with high ST population have low region wise connectedness in terms of households with internet and mobile phone compared to other districts.

7.3 Banking Penetration

A well-developed financial system is necessary for economic development and poverty alleviation (Beck, Demirguc-Kunt and Levine 2004 and Honohan 2004a). Given its social (and economic) benefits, access to finance can be seen on a similar level as access to basic needs such as safe water, health services and education (Peachey and Roe, 2004).

The following section discusses access to banking facilities across the districts. The indicator used to measure access to finance is the number of bank branches per 100,000 people. Banking per sq km is another indicator that could be used to measure

Figure 7:4 Banking Penetration



Source: Computed from State Level Bankers Committee Report, 2017

banking penetration, but since Madhya Pradesh has a large share of forest area it is not included in the analysis.

From the graph it is evident that banking penetration is highest in the urbanised districts of Bhopal and Indore. Sheopur, Morena and Alirajpur register the lowest banking penetration in the state. Most of the tribal districts in the state register low banking penetration in terms of the number of banks per 100,000 population. There are 9263 ATMs in Madhya Pradesh marking the ATM penetration in the state at 12.6 for 100,000 population.

7.4 Summing Up

Infrastructure is critical for economic development. The state will be able to reap its demographic dividend only if it is successful in creating ample employment opportunities. To attract foreign investment, infrastructure development including road, railway and banking are prerequisites. Various government initiatives are helping the state in terms of infrastructural development. For instance, BharatNet an initiative of the central government to provide high-speed broadband connectivity to all gram panchayats in the country by March 2019, has covered 6355 gram panchayats in Madhya Pradesh in its first phase. Infrastructure development not only creates economic benefits but has a positive impact on poverty reduction and across sectors such as health, education, nutrition and WASH.

Chapter 8

Readiness for Equitable Social Development Analysis: Intra state Issues

Madhya Pradesh has proved to be a laggard among the socioeconomically backward states, also known as the Empowered Action Group States, in most indicators of development. In most areas of socioeconomic development, the state displays disparities across districts, gender and social groups. Though there have been many policy interventions in this regard, the government needs to take a stronger stance on equitable development for the sustained economic growth of the state.

One of the objectives behind this study is to understand the extent of equity in realizing a better standard of life at the district level in the areas of health, nutrition, education and sanitation. The main inter-district gaps in equitable social development process as well as in policy interventions are identified in this chapter. The study has also developed an index for each sector as well as a composite index to highlight the inequities and inter-district disparities of the state[7].

8.1 Health: Intra state Issues

The critical problems in the health sector have been discussed at various stages of the report. A focused district wise summary of the main pain points are presented in Table 8.1

Table 8:1 Districts Identified with Crucial Health Problems

Districts	Indicators
Panna	High TFR with 4.1, IMR with 85, NNMR with 61, U-5 MR with 127
Shivpuri	High TFR with 4.0, IMR with 69, NNMR with 43
Vidisha	High TFR with 3.9, IMR with 65, U-5 MR with 94, NNMR with 48
Barwani	High TFR with 3.9, IMR with 66, PNMR with 25, U-5 MR with 89

[7] *The indices are based on available data and globally used parameters are taken into consideration but customized to the local context. It is thus not comparable to other global*

Chhatarpur	High TFR with 3.8, IMR with 63 ,NNMR with 46
Satna	High TFR with 3.6, PNMR with 27, IMR with 83, U-5 MR with 121, NNMR with 57
Sehore	High TFR with 3.5, IMR with 72 , U-5 MR with 84, NNMR with 44
Damoh	High TFR with 3.5, IMR with 71, U-5 MR with 106, NNMR with 53
Guna	PNMR with 29, IMR with 75, U-5 MR with 93, NNMR with 46
Datia	PNMR with 30, IMR with 73, U-5 MR with 94, NNMR with 43
Sheopur	PNMR with 29, IMR with 72, U-5 MR with 98, NNMR with 43
Ratlam	PNMR with 27, IMR with 65, U-5 MR with 92
Shahdol	PNMR with 27, IMR with 71, U-5 MR with 85, NNMR with 44
Jhabua	PNMR with 26, IMR with 64, U-5 MR with 86
Chhindwara	IMR with 69, NNMR with 45
Raisen	IMR with 69, U-5 MR with 88, NNMR with 48
Sagar	IMR with 69, U-5 MR with 92, NNMR with 57
Mandla	IMR with 68, U-5 MR with 84, NNMR with 51
Sidhi	IMR with 67, U-5 MR with 112, NNMR with 46
East Nimar	IMR with 67, U-5 MR with 94, NNMR with 43
Rewa	IMR with 68, U-5 MR with 100, NNMR with 57
Umaria	U-5 MR with 99, NNMR with 43

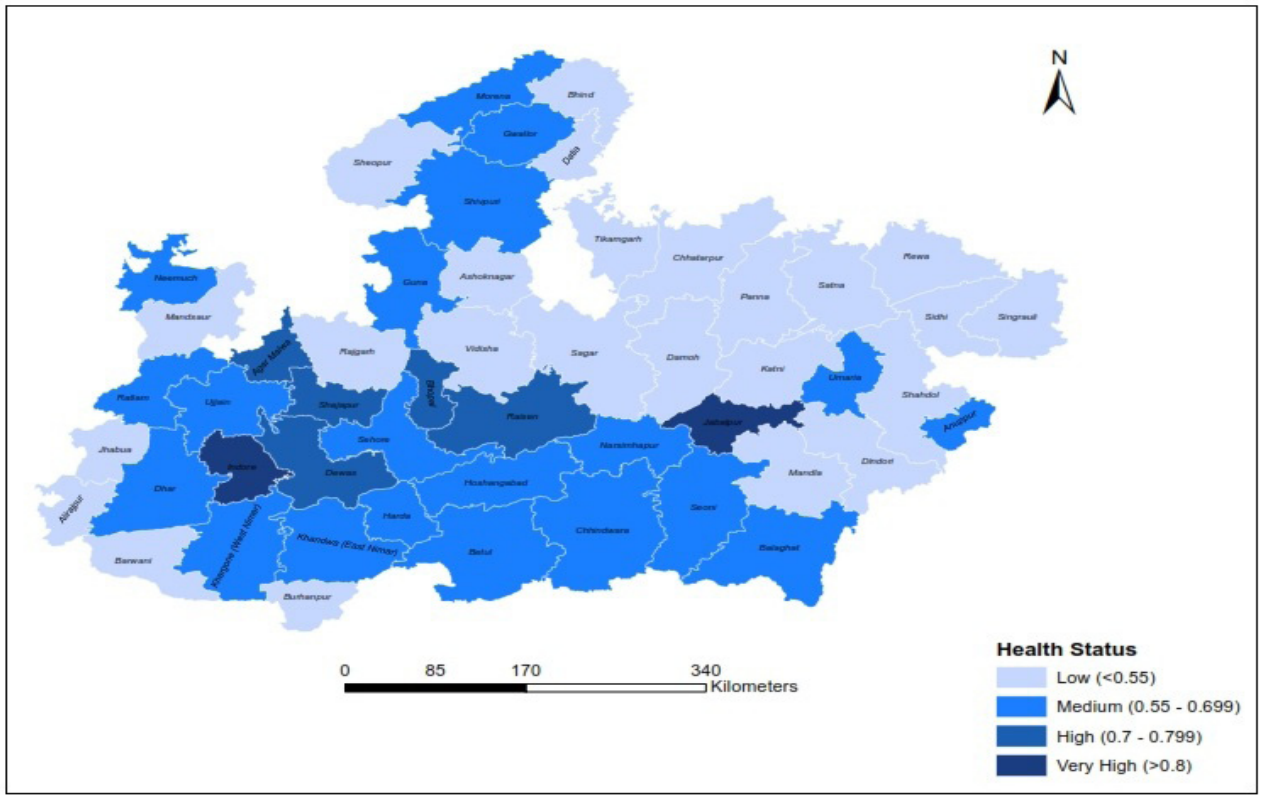
Source: NFHS-4

It is revealed that 21 districts suffer from low performance in at least two indicators. Panna presents the worst situation as four health indicators display adverse conditions.

The variables considered are mothers who had full ANC, institutional births, children aged 12-23 months fully immunized and mothers who received postnatal care from a medical professional within two days. The justification for selecting these variables is that data relating to the mortality variables pertain to 2012-13, but the data for variables considered in the present context pertain to 2015-16.

The inequity across districts in health is evident from the map 8.1 Districts are classified into four based on the UNDP methodology. Those districts with a score of less than 0.55 were categorized as 'low' development, between 0.55 and 0.699 are considered as 'medium' development , between 0.700 and 0.799 are 'high' development districts and those with 0.8 and above 'very high'

Map 8:1 Classification of Districts on the basis of Health Index



developed districts. Two districts viz. Jabalpur and Indore enjoy 'very high' development. Dewas, Bhopal, Shajapur and Raisen follow them in the 'high' development category. While 20 districts exhibit 'medium' development, the remaining have 'low' development in health performance indicators. Sidhi, Alirajpur, Singrauli, Barwani and Panna constitute the bottom five districts.

8.2 Education: Intrastate Issues

As mentioned earlier, inter districts issues relating to education begins with literacy. The combined analysis of general literacy and adult literacy shows a difference in the performance of the two indicators in 11 districts as shown in table 8.2.

Those districts with < 20 per cent of literacy or adult literacy are 'very low performing', between 20 and 40 per cent are 'low performing', between 40 and 60 per cent are 'medium performing', between 60 and 80 per cent are 'high performing' and above 80 per cent are 'very high performing districts'.

Table 8:2 Districts where Grading of General Literacy and Adult Literacy vary

Districts	Category Under General Literacy	Category Under Adult Literacy
Chhatarpur	High performing	Moderate performing
Datia	Very high performing	High performing
Dindori	High performing	Moderate performing
Guna	High performing	Moderate performing
Harda	Very high performing	High performing
Panna	High performing	Moderate performing
Raisen	Very high performing	High performing
Satna	Very high performing	High performing
Seoni	Very high performing	High performing
Sidhi	High performing	Moderate performing
Ujjain	Very high performing	High performing

Source: Computed from Census of India, 2011

A clear cut strategy has to be devised to increase the adult literacy rate in these 11 districts as well as formulate interventions for the low performing and very low performing districts. The discussion of inequity should not be confined to literacy. Table 8.3 discusses the critical problem areas in education pertaining to certain districts.

Table 8:3 Districts Identified with Crucial Educational Problems

Districts	Indicators
Alirajpur	Lowest literacy rate (36 per cent) and 26.3 per cent adult literacy rate (the lowest), lowest GER with 47.73 per cent, lowest NER with 34.02 per cent, highest dropout rate (20.77 per cent) in classes 1- IV and second lowest retention rate with 48.7 per cent, large number of single teacher schools with 739 schools, less than 60 per cent schools to enrolment ratio, women having 10 years of education is the least (9.6 per cent)
Jhabua	Second lowest literacy rate (43.3 per cent) and second lowest adult literacy rate with 33.9 per cent, large number of single teacher schools with 674 schools, low retention rate
Barwani	< 50 per cent literacy rate and adult literacy rate of 40.6 per cent, large number of single teacher schools with 773 schools, Low GER (80 per cent). Less than 65 per cent schools to enrolment ratio, 61 per cent retention rate
Sheopur	< 60 per cent literacy rate and < 50 per cent adult literacy rate, less number of schools, poor enrolment
Singrauli	60 per cent literacy rate and adult literacy rate 51.2 per cent, teacher shortage has been noticed,
Dhar	51.8 per cent literacy rate, large number of single teacher schools (841), low retention rate
Rajgarh	53.2 per cent adult literacy rate
Shivpuri	Adult literacy rate of 54.7 per cent
Shajapur	Lowest GER (60 per cent), lowest retention rate in class I-V (46.8 per cent)
Guna	Adult literacy rate at 55.4 per cent, High Dropout rate (21. 54 per cent) in classes VI-VIII
Sidhi	Adult literacy rate at 55.8 per cent
Umaria	58.2 per cent adult literacy rate, teacher shortage has been noticed, Less number of schools, poor enrolment
Tikamgarh	Adult literacy rate at 53.4 per cent, teacher shortage has been noticed
Panna	57.1 per cent adult literacy rate
Rewa	Largest number of single teacher schools with 1329 schools
Mandla	Large number of single teacher schools with 757 schools, Only 62 per cent schools to enrolment ratio
Morena	Large number of single teacher schools with 646 schools
Khargone	56.9 per cent adult literacy, Large number of single teacher schools with 586 schools

Sagar	Large number of single teacher schools with 562 schools
Chhindwara	Large number of single teacher schools with 525 schools
Anuppur	Less number of schools, poor enrolment of girls
Harda	Less number of schools, the lowest enrolment of girls
Neemuch	Less number of schools, poor enrolment of girls
Agar malwa	Less number of schools, poor enrolment of girls
Datia	Less number of schools, poor enrolment of girls

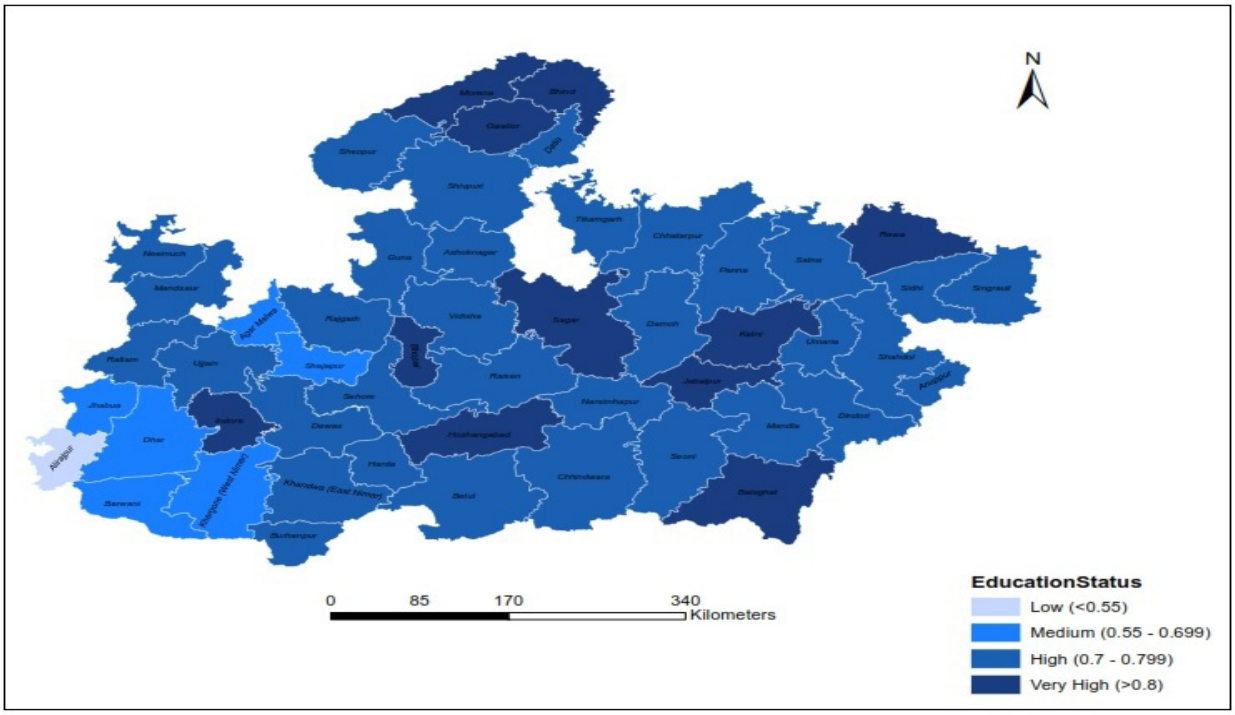
Source: Census 2011, DISE 2015-16

Interventions of different types are required to solve the educational problems faced by the above districts. In order to see the level of inequity that exists among the districts in respect to education, an index is worked out considering all the relevant variables. However, due to lack of data and absence of uniformity, there are limitations in accommodating all variables.

In the present context, two variables viz. literacy and net enrolment rate at primary level are considered for evaluating the variations in the performance of districts. Literacy data for the year 2011 is extrapolated for the year 2015-16.

Map 8.2 shows the classification of districts based on the education index. Alirajpur was found to be the only district with low development in education. Five districts, viz. Jhabua, Barwani, Shajapur, Dhar and Khargone, present medium development in education. In the high development category 33 districts were present and 11 districts exhibit very high development in education. While inequity in education exists across the states, the severity of the same is less when compared with health sector.

Map 8:2 Classification of Districts on the basis of Education Index



8.3 Nutrition

The variables considered based on the availability of data expose a number of backward districts that need immediate attention to realize social development in an equitable manner. Table 8.4 depicts the districts which suffer from variations in selected nutrition variables.

Table 8:4 Districts Identified with Crucial Nutrition related Problems

Districts	Indicators
Shivpuri	Children under-5 years who are stunted (height-for-age) 48.6 per cent, Children under-5 years who are underweight (weight-for-age) 49.6 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 16.5 per cent
Guna	Children under-5 years who are underweight (weight-for-age) 51.2 per cent, Children under-5 years who are severely wasted (weight-for-height) 12.1 per cent, children age 6-23 months receiving an adequate diet 3 per cent
Barwani	Children under-5 years who are stunted (height-for-age) 52.0 per cent, Children under-5 years who are underweight (weight-for-age) 55 per cent, children with anaemia 82 per cent
Burhanpur	Children under-5 years who are stunted (height-for-age) 50.0 per cent, children with anaemia 80.2 per cent. Children under age 6 months exclusively breastfed 48.7 per cent, children age 6-23 months receiving an adequate diet 4 per cent
Tikamgarh	Children under-5 years who are stunted (height-for-age) 49.7 per cent, children age 6-23 months receiving an adequate diet 3.5 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 14 per cent
Alirajpur	Children under age 3 years breastfed within one hour of birth 25.5 per cent, Children under-5 years who are underweight (weight-for-age) 52.4 per cent, Children under-5 years who are stunted (height-for-age) 48.6 per cent, Children under-5 years who are severely wasted (weight-for-height) 11.3 per cent, children age 6-23 months receiving an adequate diet 3.8 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 12.7 per cent
Khargone	Children under-5 years who are stunted (height-for-age) 48.3 per cent, Children under age 3 years breastfed within one hour of birth 17.8 per cent,
Shajahpur	Children under-5 years who are stunted (height-for-age) 48.1 per cent, Children under-5 years who are underweight (weight-for-age) 49.6 per cent, Children under age 3 years breastfed within one hour of birth 22.7 per cent, children age 6-23 months receiving an adequate diet 0.8 per cent
Datia	Children under-5 years who are stunted (height-for-age) 48.9 per cent, children age 6-23 months receiving an adequate diet 3.9 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 16.3 per cent
Sheopur	Children under-5 years who are stunted (height-for-age) 52.1 per cent, Children under-5 years who are underweight (weight-for-age) 55 per cent, children age 6-23 months receiving an adequate diet 1.1 per cent

Hoshangabad	Children under age 3 years breastfed within one hour of birth 36.5 per cent, Children under age 6 months exclusively breastfed 36.5 per cent, children age 6-23 months receiving an adequate diet 1.6 per cent
Morena	Children under-5 years who are underweight (weight-for-age) 52.2 per cent, Children under-5 years who are stunted (height-for-age) 47.7 per cent, Children under-5 years who are severely wasted (weight-for-height) 12.5 per cent, Children under age 3 years breastfed within one hour of birth 36.6 per cent, Children under age 6 months exclusively breastfed 36.6 per cent, children aged 6-23 months receiving an adequate diet 4 per ent
Bhind	Children under-5 years who are underweight (weight-for-age) 49.8 per cent, Children under-5 years who are severely wasted (weight-for-height) 12.6 per cent, Children under age 3 years breastfed within one hour of birth 33.3 per cent, Children under age 6 months exclusively breastfed 33.3 per cent, children aged 6-23 months receiving an adequate diet 2.8 per cent
Ashok Nagar	Children under age 6 months exclusively breastfed 30.2 per cent, children age 6-23 months receiving an adequate diet 1.8 per cent, Children under-5 years who are stunted (height-for-age) 42.5 per cent
Panna	Children under age 3 years breastfed within one hour of birth 32 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 16 per cent
Dindori	Children under age 6 months exclusively breastfed 35.5 per cent
Umaria	Children under age 6 months exclusively breastfed 36.6 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 16.4 per cent
Gwalior	Children under-5 years who are underweight (weight-for-age) 48.5 per cent, Children under age 3 years breastfed within one hour of birth 26.4 per cent, Children under age 6 months exclusively breastfed 26.4 per cent, children aged 6-23 months receiving an adequate diet 2.1 per cent
Sidhi	Children under-5 years who are stunted (height-for-age) 48.7 per cent, Mothers who consumed iron folic acid for 100 days or more when they were pregnant 10.2 per cent
Mandla	Children under-5 years who are underweight (weight-for-age) 49.8 per cent, Children under-5 years who are severely wasted (weight-for-height) 11 per cent, children age 6-23 months receiving an adequate diet 3.2 per cent
Harda	Children under age 3 years breastfed within one hour of birth 30.3 per cent, children aged 6-23 months receiving an adequate diet 2.3 per cent
Dhar	Children under age 3 years breastfed within one hour of birth 20.9 per cent ,Mothers who consumed iron folic acid for 100 days or more when they were pregnant 14.1 per cent
Vidisha	Mothers who consumed iron folic acid for 100 days or more when they were pregnant 15.2 per cent

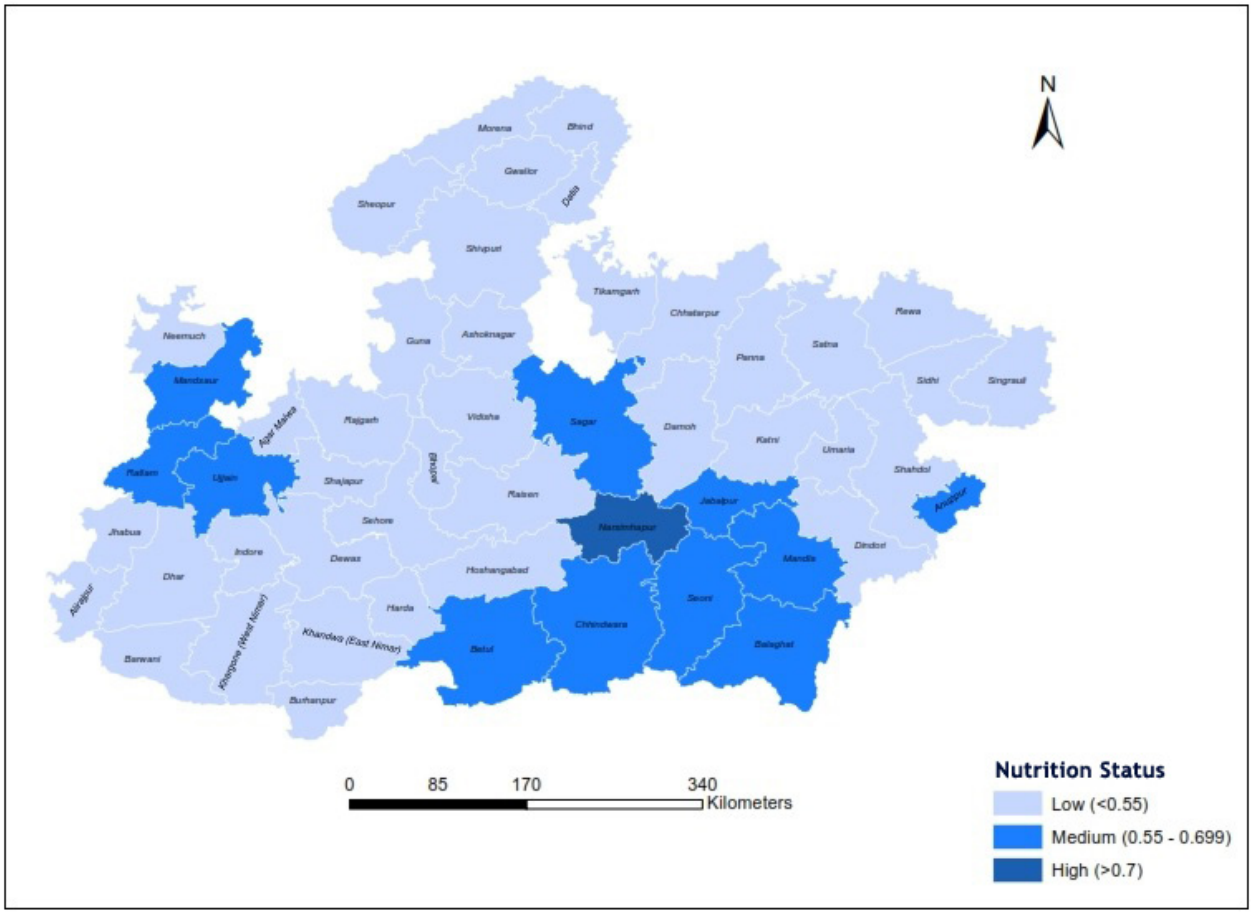
Source: AHS 2012-13, NFHS-4

The study identified 23 districts having serious problems related to nutrition. Interventions are needed not only for so-called backward districts in MP, with a dominant SC and ST population, but also in urban centred districts. The analysis reveals that Gwalior, an urbanised district also faces nutritional challenges.

The variables selected for the index are mothers who consumed iron folic acid for 100 days or more when they are pregnant, children under age 3 years breastfed within one hour of birth, children under-5 years who are stunted (height-for-age), and children under-5 years who are severely wasted (weight-for-height).

The index sheds light on the inequity across districts. No district falls under 'very high' development indicating the need for strong interventionist strategies for promoting development in the nutrition sector. There is only one district viz. Narsinghpur which performs with 'high' development in respect of nutrition. Eleven districts including Jabalpur, Balagat and Chhindwara, come under the medium category and most of the other districts present 'low' development in the case of nutrition.

Map 8:3 Classification of Districts on the basis of Nutrition Index



8.4 WASH

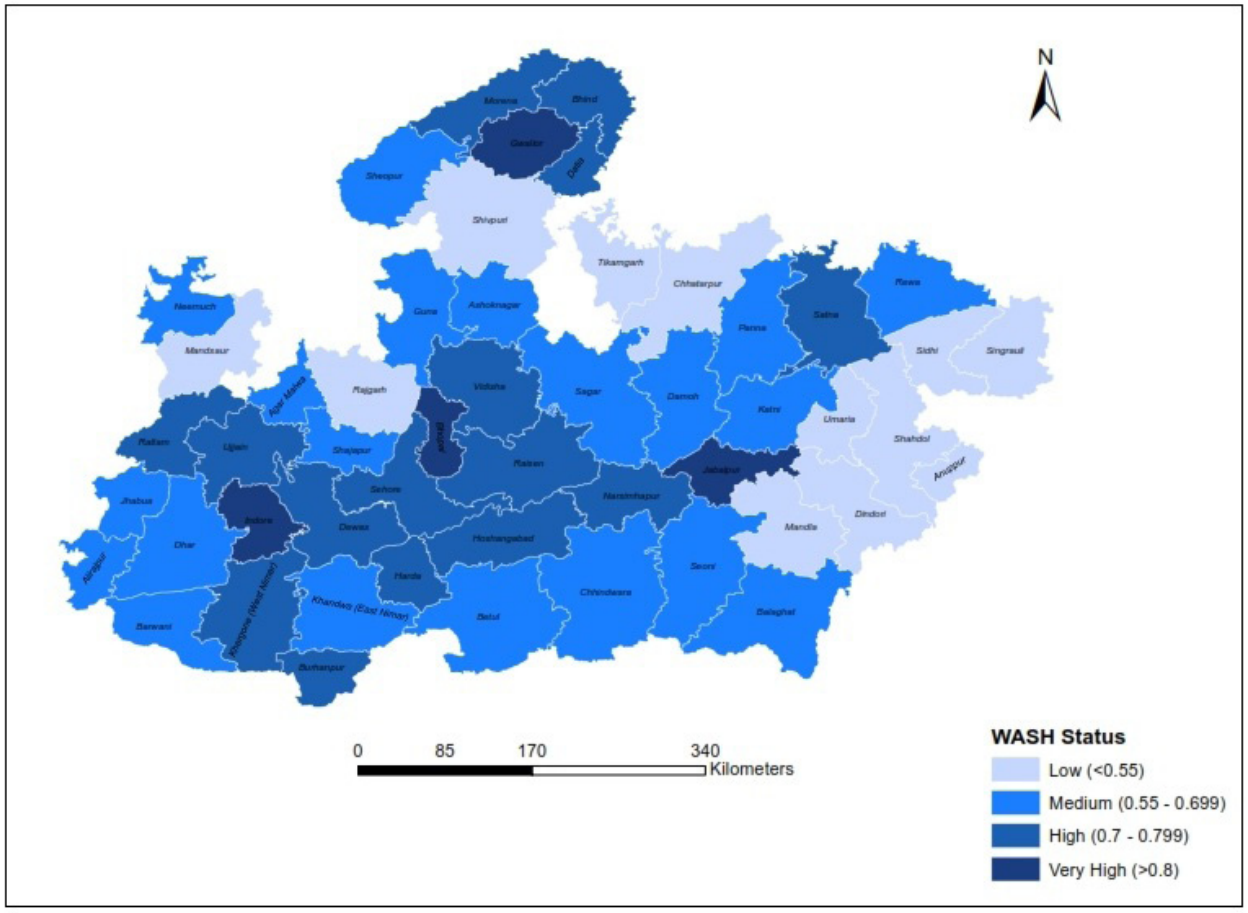
MP government gives thrust on drinking water problems in rural areas along with promoting sanitation. Still many districts suffer from problems related to drinking water, sanitation and hygiene.

Table 8:5 Districts Identified with Crucial WASH related Problems

Districts	Indicators
Singrouli	Improved drinking water source 56.3 per cent, improved sanitation facility 15.8 per cent, IHHL 11.3 per cent, Households using clean fuel for cooking 17.4 per cent
Mandla	Improved drinking water source 62.9 per cent, improved sanitation facility 15.1 per cent, IHHL 13.3 per cent, Households using clean fuel for cooking 14.7 per cent
Rajgarh	Improved drinking water source 65.8 per cent, improved sanitation facility 19 per cent, IHHL 15.9 per cent
Shahdol	Improved drinking water source 66.6 per cent, improved sanitation facility 16.9 per cent, IHHL 17.5 per cent, Households using clean fuel for cooking 13.5 per cent
Shivpuri	Improved drinking water source 65.6 per cent, improved sanitation facility 22.2 per cent, IHHL 14.6 per cent
Umaria	Improved drinking water source 68.6 per cent, improved sanitation facility 18.6, IHHL 13.7 per cent, Households using clean fuel for cooking 12.5 per cent
Anuppur	Improved drinking water source 69.3 per cent, improved sanitation facility 22.2 per cent
Dindori	Improved drinking water source 71.3 per cent, improved sanitation facility 6.9 per cent, IHHL 5.7 per cent, Households using clean fuel for cooking 4 per cent
Sidhi	Improved drinking water source 70.3 per cent, improved sanitation facility 10 per cent, IHHL 7.5 per cent, Households using clean fuel for cooking 6.9 per cent
Chatarpur	Improved sanitation facility 14.5 per cent, Improved drinking water source 72.7 per cent, IHHL 15.3 per cent, Households using clean fuel for cooking 13.5 per cent
Damoh	Improved sanitation facility 22.2 per cent, Improved drinking water source 78.3 per cent, IHHL 14.4 per cent, Households using clean fuel for cooking 13.3 per cent
Panna	Improved sanitation facility 19.8 per cent, Improved drinking water source 78.1 per cent, IHHL 10.2 per cent, Households using clean fuel for cooking 11.3 per cent
Sheoupur	Improved sanitation facility 15.4 per cent, Improved drinking water source 93 per cent, IHHL 12.9 per cent, Households using clean fuel for cooking 13.8 per cent
Tikamgarh	Improved sanitation facility 13.9 per cent, Improved drinking water source 74 per cent, IHHL 10.2 per cent, Households using clean fuel for cooking 14.6 per cent
Alirajpur	Lowest improved sanitation facility 17.6per cent, using clean fuel for cooking 11.7per cent Improved drinking water source 89.1per cent, IHHL 10.5 per cent
Jabaua	Second lowest improved sanitation facility 13 per cent, using clean fuel for cooking 9.1 per cent

Source: NFHS-4

Map 8:4 Classification of districts on the basis of WASH Index



Water and sanitation problems are every crucial for 16 districts based on the variables considered[8] . The WASH index is worked out based on two variables - percentage of household with improved drinking water source and improved sanitation facility. Considering the importance of access to drinking water, two-third weightage is assigned to it and one-third weightage to sanitation.

Indore is the only district that falls under 'very high' development in WASH, followed by Bhopal, Gwalior, Jabalpur, Ujjain, Dewas and Harda with 'high' development. While 21 districts were found to have 'medium' development, the rest (22 districts) were of 'low' development stature. The disparity observed in other sectors is reiterated more aggressively in this sector.

8.5 Social Protection

Social protection is evaluated based on parameters such as poverty, percentage of marginal workers to total workers, and women (age 15-19 years) who were already mothers or pregnant at the time of the survey. Table 7.6 shows the districts with critical problems of social protection and reinforces the wide disparities prevalent across the state.

[8] *Improved drinking water, improved sanitation facility, individual households with latrines (IHHL) and households having clean cooking fuel*

Table 8:6 Districts Identified with Crucial Social Protection Problems

Districts	Indicators
Dindori	80.11 per cent of population below poverty line, Women age 15-19 years who were already mothers or pregnant at the time of the survey with 10.3 per cent
Mandla	75.54 per cent of population below poverty line, per cent of marginal workers to total workers -41.9
Umaria	74.49 per cent of population below poverty line
Raisen	61.62 per cent of population below poverty line
Seoni	61.54 per cent of population below poverty line , per cent of marginal workers to total workers 41.9
Sagar	61.02 per cent of population below poverty line, Women age 15-19 years who were already mothers or pregnant at the time of the survey with 11.1 per cent
Chhatarpur	60.6 per cent of population below poverty line
Damoh	59.16 per cent of population below poverty line
Jhabua	55.9 per cent of population below poverty line ,Women age 15-19 years who were already mothers or pregnant at the time of the survey with 24 .4 per cent
Tikangarh	49.64 per cent of population below poverty line, Women age 15-19 years who were already mothers or pregnant at the time of the survey with 17.1 per cent
Barwani	Women age 15-19 years who were already mothers or pregnant at the time of the survey with 14.8 per cent
Alirajpur	Women age 15-19 years who were already mothers or pregnant at the time of the survey with 13.5 per cent
Narashinhapur	women marrying before age of 18 years is the highest, Women age 15-19 years who were already mothers or pregnant at the time of the survey with 12.5 per cent
Singrouli	Women age 15-19 years who were already mothers or pregnant at the time of the survey with 11.7 per cent
Sidhi	54.85 per cent of population below poverty line, per cent of marginal workers to total workers 40.3
Katni	52.26 per cent of population below poverty line, per cent of marginal workers to total workers 41.9
Shajahpur	32.29 per cent of population below poverty line. Women age 15-19 years who were already mothers or pregnant at the time of the survey with 10.2 per cent
Shahdol	48.46 per cent of population below poverty line , per cent of marginal workers to total workers 51.2
Balaghat	50.1 per cent of population below poverty line, per cent of marginal workers to total workers 40.6
Rewa	41.95 per cent of population below poverty line, per cent of marginal workers to total workers 36.5

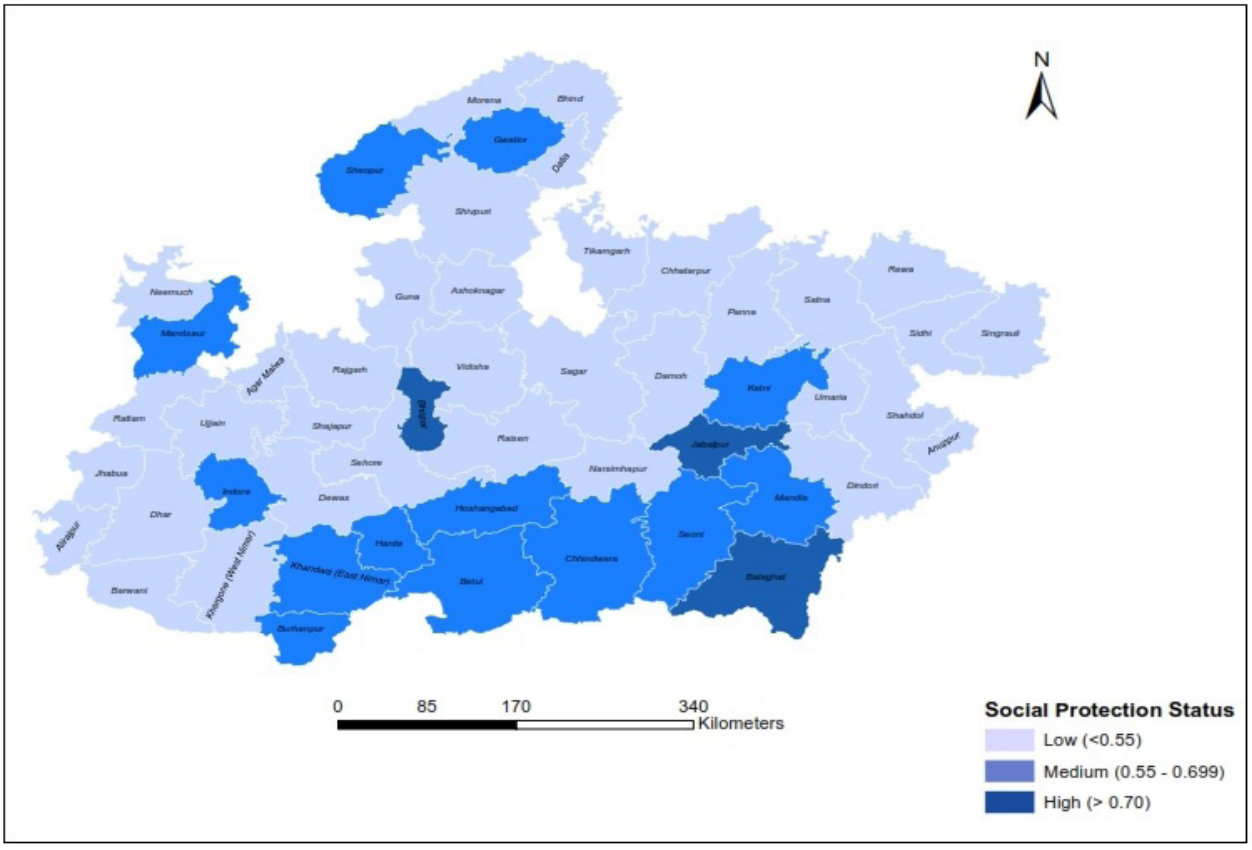
Sehore	47.35 per cent of Population below poverty line, per cent of marginal workers to total workers 36.5
Panna	48.72 per cent of population below poverty line , per cent of marginal workers to total workers -36

Source: NFHS -4, State Planning Commission, MP 2004-05

Social protection is largely examined with a poverty lens. The poverty index worked out[9] shows wide spread disparities across districts. Neemuch has the highest poverty index with 92.74 (2004-05) indicating lowest burden of poverty, followed by Indore, Rajgarh and Mandsaur. The lowest was reported in Dindori with 19.89, implying greatest poverty burden followed by Mandla, Umaria and Raisen.

As the current data regarding poverty intensity at district level is not available, the present situation remains unexplored. Owing to the inadequacy of available data, the study is compelled to drop poverty (pertains to the year 2004-05), work participation rate and percentage of marginal workers (year 2011) in the calculation of social protection index. Households with any member covered by a health scheme or health insurance, women (age 20-24 years) married before the age of 18 years and women (age 15-19 years) who were already mothers or pregnant at the time of the survey are the variables considered for index calculation.

Map 8:5 Classification of Districts with Social Protection Index



[9] *Poverty index= (Actual value- 100)/(0-100) * 100*

Balagat, Bhopal and Jabalpur are the only districts that enjoy very high levels of social protection. Jhabua, Tikamgarh, Barwani and Alirajpur are ranked at the bottom. The classification of districts reveals that most (33) have 'low' levels of social protection.

8.6 SC and ST

Among the social groups the most deprived classes are Scheduled tribe and scheduled caste. The various problems faced across districts are given in table 8.7

Table 8:7 Districts Identified with Crucial Problems relating to SC & ST

Districts	Indicators
Alirajpur	The highest ST population with 88.98 per cent, Literacy rate among ST is 32.4 per cent, Literacy rate among SC is 35.6 per cent,
Jhabua	ST population with 87 per cent, , Literacy rate among ST is 37.2 per cent low child sex ratio of 879 among SC
Barwani	ST population with 69.43 per cent, Literacy rate among ST is 39.3 per cent, Literacy rate among SC is 53.7 per cent
Dindori	ST population with 64.7 per cent, Low child sex ratio of 979 among ST
Mandla	ST population with 57.88 per cent
Dhar	ST population with 55.94 per cent, Literacy rate among ST is 46.3 per cent Low sex ratio of 990 among ST
Anuppur	ST population with 47.85 per cent, Literacy rate among ST is 59.3 per cent
Umaria	ST population with 46.64 per cent, Literacy rate among ST is 55.1 per cent, lowest WPR of 43.3 per cent among SC
Shahdol	ST population with 44.65 per cent, Literacy rate among ST is 54.9 per cent, lowest WPR of 46.4 per cent among SC
Betul	ST population with 42.34 per cent, Literacy rate among ST is 52.8 per cent, lowest WPR of 45.9 per cent among SC
Ujjain	Highest percentage (26.37 per cent) of SC population, Literacy rate among SC is 63 per cent, Low sex ratio of 955 among ST
Datia	SC population with 25.46 per cent, low sex ratio of 869 among SC , low child sex ratio of 868 among SC, lowest WPR of 42.3 per cent among SC, Low sex ratio of 914 among ST, Low child sex ratio of 912 among ST, Low WPR of 42 per cent among ST
Tikamgarh	SC population with 25.02 per cent, low sex ratio of 897 among SC, low child sex ratio of 883 among SC, Literacy rate among SC is 59.5 per cent, lowest WPR of 45.1 per cent among SC, Low sex ratio of 943 among ST, Low sex ratio of 907 among ST, Low WPR of 47.7per cent among ST

Shajapur	SC population with 23.40 per cent, low sex ratio of 934 among SC, low child sex ratio of 915 among SC, Literacy rate among SC is 61.5 per cent, Low sex ratio of 949 among ST, Low sex ratio of 930 among ST
Chatarpur	SC population with 23 per cent, low sex ratio of 883 among SC, low child sex ratio of 909 among SC, Literacy rate among SC is 56.3 per cent, lowest WPR of 43 per cent among SC, Low sex ratio of 933 among ST, Low WPR of 45.2per cent among ST
Bhind	SC population with 22.1 per cent, lowest sex ratio of 835 among SC, lowest ST enrolment, low child sex ratio of 874 among SC, lowest WPR of 31.1 per cent among SC, Lowest sex ratio among ST with 867, Lowest WPR of 32.1 per cent among ST
Morena	SC population with 21.44 per cent, low sex ratio of 844, lowest child sex ratio of 844 among SC, Literacy rate among SC is 66.8 per cent, lowest WPR of 34.7 per cent among SC, Low sex ratio of 903 among ST, Low child sex ratio of 900 among ST, Low WPR of 36.7 per cent among ST
Sagar	SC population with 21.09 per cent, low sex ratio of 884, Low sex ratio of 934 among ST, Low child sex ratio of 943 among ST
Ashoknagar	SC population with 20.8 per cent, lowest sex ratio of 906 among SC, Literacy rate among SC is 61.1 per cent, lowest WPR of 38.7 per cent among SC, Low sex ratio of 934 among ST, Low WPR of 42.9 per cent among ST
Sehore.	SC population with 20.69 per cent, lowest sex ratio of 919 among SC, Literacy rate among SC is 65.8 per cent, Low sex ratio of 956 among ST, Low WPR of 47 per cent among ST
Gwalior	Low WPR of 34.6 per cent among SC, Literacy rate among ST is 49.6 per cent, Low sex ratio of 913 among ST, Lowest child sex ratio of 886 among ST, Low WPR of 42.7 per cent among ST
Hoshangabad	Lowest WPR of 39.8 per cent among SC, Low sex ratio of 953 among ST, Low sex ratio of 936 among ST, Low WPR of 45.1per cent among ST

Source: Census 2011, DISE 2015-16

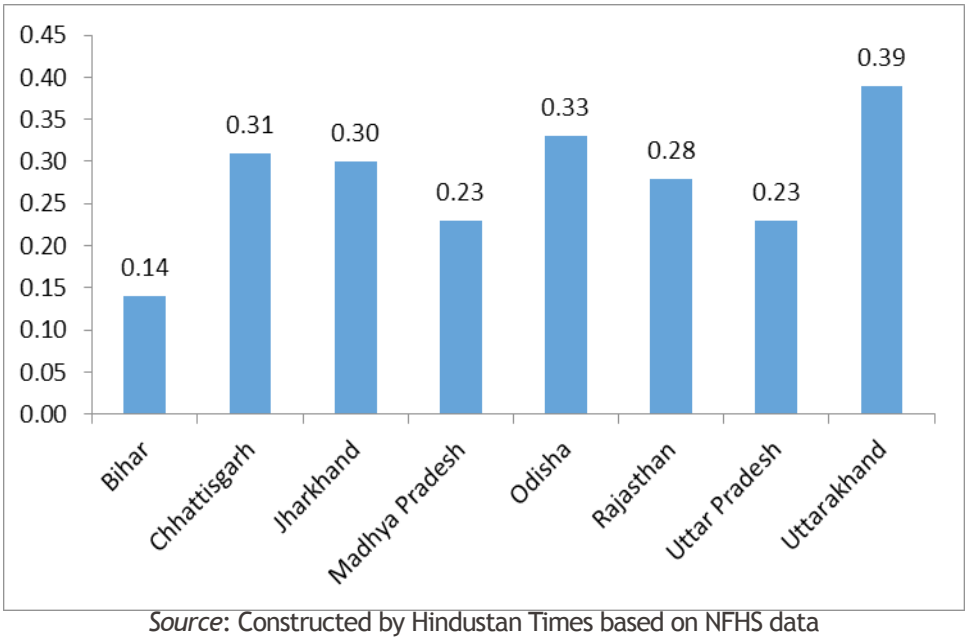
Many urbanised districts like Gwalior suffer from low sex ratio, low literacy rate among SC & ST. This requires focused strategies for the advancement of the deprived communities in these districts as well as an overall strategy for the development of SC & ST groups in the state.

8.7 Women and Children

The women empowerment index shows Madhya Pradesh as the poorest performing state after Bihar. The state has an overall score of 0.23 and is ranked 3rd (2015-16). This highlights the dire state of women in the state despite many significant government interventions for their welfare.

The low ranking in women empowerment is further substantiated by the problems women face in various districts of the state. The identified districts along with the crucial problems are shown in table 8.8.

Figure 8:1 Women Empowerment Index Scores 2015-16



Source: Constructed by Hindustan Times based on NFHS data

Table 8:8 Districts Identified with Crucial Problems relating to Women & Children*

Districts	Indicators
Bhind	Sex ratio of 837,8.4 per cent FWPR among women- the lowest in the state
Morena	Sex ratio of 840, 16.8 per cent FWPR among women
Datia	Sex ratio of 873, 26 per cent FWPR among women
Chhatarpur	Sex ratio of 883, 41.1per cent, Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT
Sagar	Sex ratio of 893, 28.9 per cent FWPR among women
Vidisha	Sex ratio of 896, 21.6 per cent FWPR among women, 45.7per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT
Raisen	Sex ratio of 901, 23.4 per cent FWPR among women
Tikangarh	Sex ratio of 901, Low literacy rate of 50 per cent among women, 34.4 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Sheopur	Sex ratio of 901, 28.7 per cent FWPR among women, Low literacy rate of 44.2 per cent among women
Alirajpur	Lowest literacy rate of 30.8 per cent among women, 22.6 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT) -the lowest,
Jhabua	Low literacy rate of 33.3 per cent among women, 25 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Panna	26.6 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT

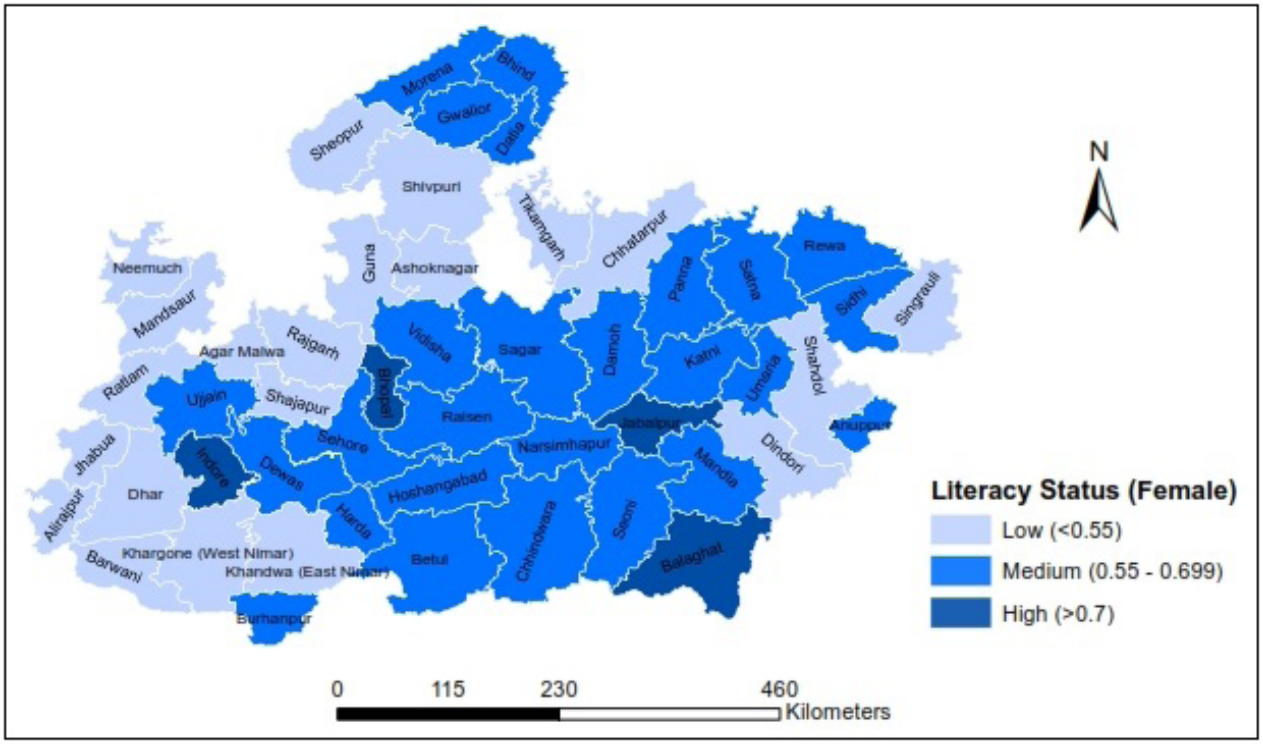
** NCRB data is not used as it is based on the number of reporting cases and may not capture the real picture*

Barwani	Low literacy rate of 42.4 per cent among women, 41.8 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Sidhi	34.4 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT
Ashok Nagar	20.8 per cent FWPR among women 37.2 per cent, Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Shahdol	40.3 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Singrauli	Low literacy rate of 48.5 per cent among women ,42.2 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Rajgarh	Lowest literacy rate of 48.9 per cent among women, 42.7 per cent Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT)
Gwalior	Sex ratio of 864, 14.5 per cent FWPR among women- second lowest

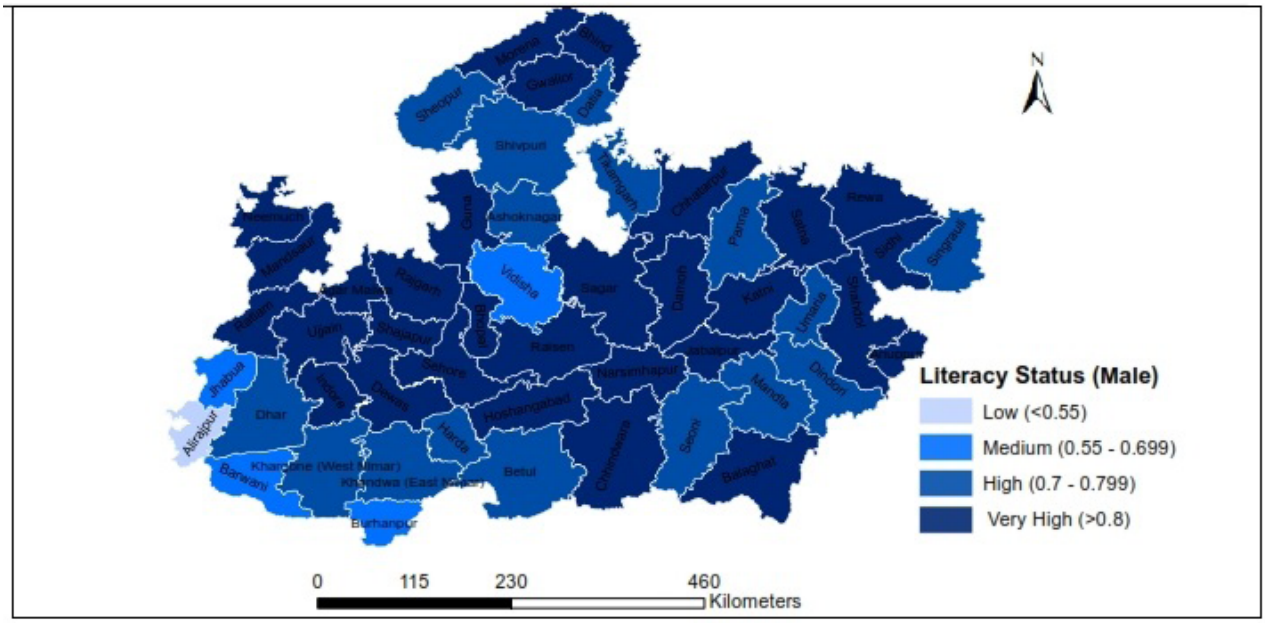
Source: Census 2011, DISE 2015-16

Although only 19 districts have been identified above, lack of women empowerment is a problem across the state irrespective of the level of development of the district. The adult literacy disaggregated by sex, representative of gender parity, shows that the index is higher for males across the state and is half the index value for women in certain districts. Map 8.6 shows the district wise disparity in adult literacy levels.

Map 8:6 Classification of Districts based on Adult Literacy Status (Female)



Map 8:7 Classification of Districts based on Adult Literacy Status (Male)

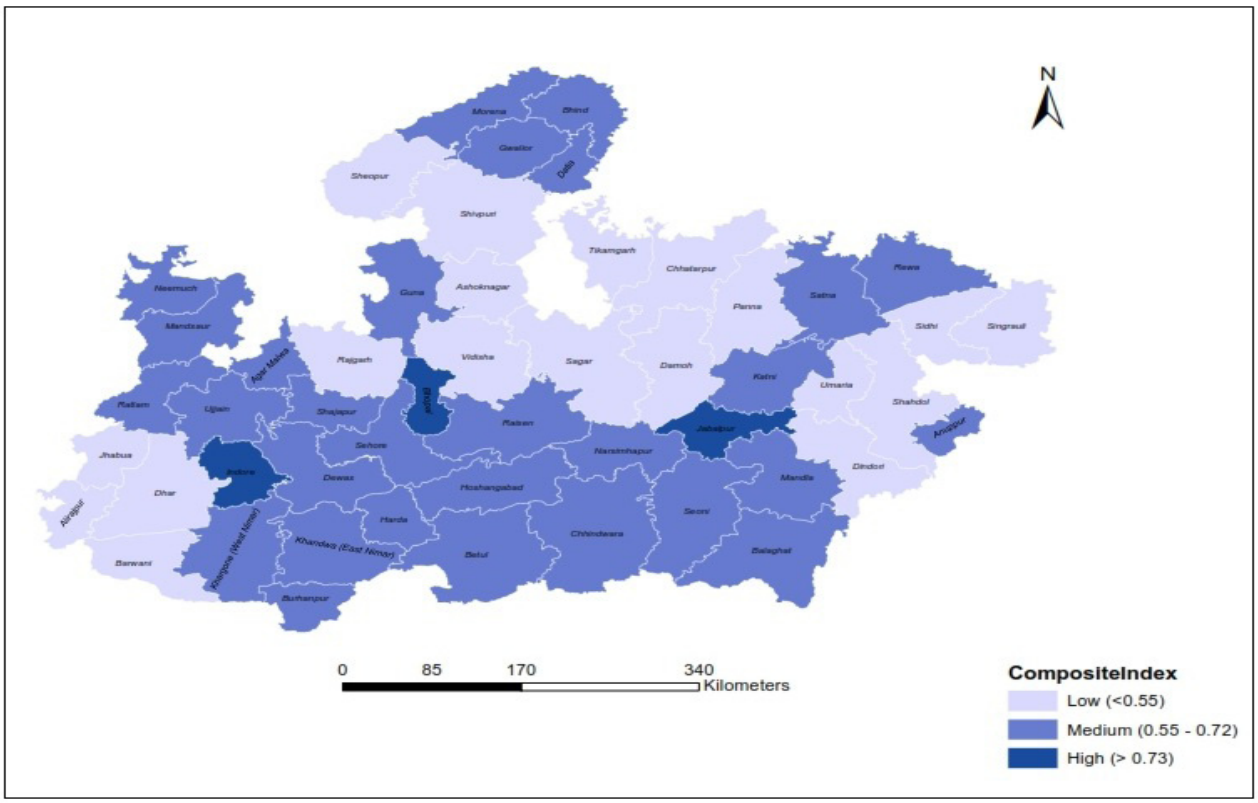


8.8 Composite Index Showing Inequity

The composite index for the year 2015-16 is evidence of inequity that exists in the state across districts. The sub components of the composite index are health index, education index, nutrition index, WASH index and social protection index.

As expected districts like Jabalpur, Indore, Bhopal, Balaghat and Gwalior top the index, while Jhabua, Alirajpur, Barwani, Singruali and Sidhi are in the bottom levels of development. Figure 7.8 shows the extent of inequality and the gap to reach the index value of 1.

Map 8:8 Classification of Districts with composite index



8.9 Summing Up

Districts such as Alirajpur, Jhabua and Tikamgarh suffer from inequity in health, education, nutrition, WASH and social protection. The problems of backward social groups like SC & ST are also the highest in these districts coupled with the neglect of women and children. It was also observed that intervention strategies have to be developed not only for so-called backward districts, but must also include interventions to address inequities in urban districts. Low female workforce participation and low sex ratio are some of the crucial problems faced in these districts.

The problems in crucial districts along with their intensity are identified and the implementation of proper strategies in the right dosage is the only way to rectify this inequity.

Chapter 9

Key Recommendations

Recent decades have seen the rising tides of inequity in society. Tackling this inequity is thus an urgent requirement, especially in light of international mandates viz. Sustainable Development Goals.

As previously discussed, the philosophy of equity broadly encompasses various aspects of personal liberty. Primarily, it refers to the equal access to opportunities that people must enjoy irrespective of their cultural and socioeconomic backgrounds. Freedom of choice is yet another facet that is critical in maintaining equity. The very existence of inequities can often be traced back to distortions in the market due to the limited freedom of choice. These choices are often limited due to governmental policies, or lack thereof, creating high entry level barriers for market players.

The equity analysis conducted sheds light on the heavily interconnected nature of the sectors discussed - Health, Nutrition, Education, Water and Sanitation. The district-wise analysis shows common factors that have strong effects in improving outcomes in these areas. It has been revealed that districts with higher rates of urbanisation, such as Bhopal, Indore, Gwalior, etc. have performed better in both health and education outcomes. The increased levels of urbanisation in certain districts have led to an increase in the per capita income. The increased earnings and disposable income with the people have a ripple effect across all the sectors and lead to overall upliftment. The strong influence of per capita income on most indicators, at the district level, is evidence of the same.

The policies and strategies intended to uplift the marginalised communities are mostly proposed and developed at the state level. However, the only way to assure maximum efficiency and effectiveness in achieving their objectives is through involvement of district and Local Self Governments (LSG). Thus, capacity building of the District Planning Committees (DPCs) along with LSGs is critical for success.

One of the main hurdles in assessment of the ground realities is the acute lack of authentic data. The storing of reliable data would help in various processes - from early identification of problem areas to formulating better strategies to address them. Real time analysis could be undertaken with immediate remedial action. Robust data management systems could thus prove useful in eliminating the information asymmetry in all the critical sectors.

Madhya Pradesh faces this data challenge to a greater extent, both quantitatively and

qualitatively. The present study could have done more justice if data were available on many aspects at the disaggregated level. This shortcoming must be addressed so that future research on any aspect is smooth and rigorous. It was strongly recommended in the FGD that a '**Madhya Pradesh Vinjan Preeshalana Kendra**' has to be set up with the following objectives:

- Prompt collection of relevant monthly data from all departments.
- Develop appropriate software that will enable various departments and local bodies to report data.
- Provide training to elected members of local bodies at local level as part of capacity building.
- Train personnel to use the software developed by Kendra and to compile and report the relevant data.

While the world is galloping towards the fourth industrial revolution, the state is still struggling with broadband connectivity to households. Leveraging the immense potential of information and communication technology (ICT) would significantly improve the performance of the districts. It can be used to empower gram panchayats, health centres and even schools for better service delivery. The study highly recommends the use of geographic information systems (GIS) designed to capture and analyse different geographical data. The data so generated could be used to provide valuable real time insights and help formulate plans of action. This system could be implemented across all sectors, as discussed subsequently. Government of Andhra Pradesh has drafted a new GIS policy in 2016, for the new state formed in June, 2014. The rationale behind policy is that the state would require robust information for the effective and efficient implementation of various development programmes. As part of the GIS policy, AP government also plans to launch a GIS portal 'Swarna Bhoomi' including all the information that could be used by various stakeholders.

A holistic appraisal of the situation in Madhya Pradesh points to a few main factors that are holding the state back - infrastructural deficiencies and poor governance. There is immense scope for implementing evidence based, data driven approaches and better outcomes through better supervision, close monitoring and good management practices. Even after addressing these concerns, the state needs high levels of community participation and a sense of ownership in the local activities. Local commitment can only be strengthened through community ownership. Significant impact could be made through community engagement especially for educational and health outcomes. Schools and other common open spaces could be converted into 'Activity Centres' as a venue for different types of non-academic activities. The possibilities for using this open space, with a focus on community engagement, are endless - awareness drives, medical camps, after-school classes in English, computers, new farming practices and so on. These centres would also be equipped with electronic kiosks to access information without restrictions.

The study also suggests some concrete recommendations to alleviate the inequities. Focus group discussions, meetings with heads of important departments and interviews with selected experts helped to arrive at some key recommendations. It is presented under various heads as follows:

9.1 Health and Nutrition

- The study revealed the large infrastructural gaps in the existing healthcare system of the state. There is an immediate need to improve the condition of local healthcare centres and hospitals. It was stated in a focus group discussion that most of the CHCs are not working efficiently and transport to these centres is in dilapidated condition. The CHCs could be provided with ambulatory services to address

accessibility concerns.

- It is also recommended that local healthcare centres be provided with mobile phones and other communication tools to be better connected and serve the needs of the locals. They must however be provided with sufficient training to effectively use these tools.
- Selective primary care is an inadequate response to the rapidly changing epidemiology, ageing population and altering lifestyle. It requires more investment in public health infrastructure. PHCs/SHCs must be provided the necessary equipment, such as dialysis units, for effective service delivery.
- Accessibility to hospitals, particularly for referral cases, is another concern raised during the focus group discussion. Standards must be set in place for different levels (PHC, SHC, CHC and District) in terms of hospitals. It also requires strengthening of existing healthcare centres by provisioning more beds, equipment, staff etc.
- The demand side constraints, with respect to health sector, are well known; however, the study revealed that supply side is equally dire. As discussed in previous chapters, there exists a significant shortage of qualified medical professionals. Staffing problems further debilitate the already strained medical infrastructure in the state. Responsible bodies must be cognizant of the same and recruit adequate staff.
- The study observed that doctors were reluctant to move to rural areas of the state. The government is responsible for providing the necessary infrastructural facilities to support the public healthcare systems, especially in remote areas. This includes the availability of good quality schools and addressing safety and security concerns.
- The number of medical colleges in the state is insufficient to produce enough professionals to cater to the medical needs of such a diverse and vast populace. Efforts should be taken to increase the number of MBBS seats. In addition to setting up more Government medical colleges, MP must encourage private players to establish institutions in medical education like other states. Giving autonomy and ensuring quality medical education along with reforms of regulatory institutions (like MCI) would help to overcome challenges other states have faced. The involvement of community and non-profit organisations in the health sector will be helpful in attaining better health indicators.
- Discussions with experts revealed that the network of ASHA and ANM workers are sufficiently large. However, the scope of their work has increased because of the introduction of various new schemes. One ANM/ASHA worker often takes care of 7 to 8 villages. Due to the expansive topography of the state, they experience difficulties in reaching remote areas. The transport systems of the state need to be built up to facilitate their activities. They could also be provided with convenient modes of transport such as bicycles, two-wheelers, etc.
- In order to address connectivity issues, mobile clinics with basic equipment and drugs, and manned by a skeletal medical staff could be deployed in regular intervals. This would address the healthcare needs of those living in remote areas.
- The study revealed a unique relationship between literacy rates and nutritional levels. It was found that prevalence of anaemia in women was more influenced by male literacy than female literacy. In such male dominated societies it is thus

crucial that maternal and child health interventions, along with strategies for nutritional improvements, be tailored to both sexes to maximise benefits

- Madhya Pradesh is a state with low insurance penetration. Only 17.7 per cent households have any member covered by a health insurance scheme. Access to insurance must be provided through publicly funded and privately administered health insurance schemes.

9.2 Education

- Bottom-up and top-down participatory and community management interventions, which operate through decentralisation reforms, knowledge diffusion, and increased community participation in the management of education systems is required.
- The existence of separate entities (Education and Tribal Development Board) to oversee school management creates administrative and qualitative challenges in the education sector. This was observed in the analysis as well as the focus group discussions (FGDs). The two boards must be vertically integrated to enhance their productivity and functioning.
- Integration of the various departments that run schools is also essential for creating common cadres for government teachers and rectifying the existing anomalies.
- It was also observed that the teachers were involved in management of all activities in the school, over and above classroom activities. The management/ government should provide supporting staff to take responsibility for the non-teaching activities.
- FGDs also pointed out problems in the teacher's recruitment process. The study recommends that the entire process be streamlined from appointments to salary disbursement.
- Literature suggests that there are strong linkages between pre-school education and life outcomes. Discussions with the relevant stakeholders revealed that there is sufficient unused infrastructure (classrooms) which can be utilised to provide pre-school education to the children.
- The work hours can be fixed to local standards to reduce absenteeism. Flexible school timings could be implemented based on local demands and circumstances.
- It is evident from our study that infrastructure facilities like access to water and electricity, segregated toilets and boundary walls strongly influence enrolment rates. It is critical that management/government take cognizance of these requirements in the schools with the objective of increased enrolment and retention of students.
- The state has managed to achieve positive results in ensuring greater enrolment (primary); however, the poor quality of education provided to the students is a serious concern. The downward trend in the learning outcomes (ASER 2016) highlights the need for better teaching standards. There is a need for more investment in teachers' training as well as R&D for content generation, teaching aides and other relevant tools and materials.
- Another concern raised during discussion with experts was the lack of teachers in rural areas. Due to the remote nature of these areas, inadequate infrastructural facilities and general lack of support systems, teachers are reluctant to stay there. The study recommends strengthening the infrastructural capabilities of the rural

schools so as to retain teachers in these remote areas.

- The income generation capacity is poor due to the inadequately skilled workforce. The scheme that imparts skill formation at school level has to be strengthened with innovative programmes so that students who get such training will be absorbed in the job market easily.
- The IT mission needs to be strengthened so as to impart the relevant skill set to the workforce. Further exploration could also be done on the feasibility of smart schools equipped with ICT. It can also be leveraged to provide knowledge sharing platforms online for both teachers and students with unique multimedia teaching aides.
- The study also recommends exploring options such as mobile libraries to encourage knowledge sharing and reading habits, especially in inaccessible rural areas. The mobile libraries could be modelled to cater to diverse age groups and interests - from books on modern agriculture techniques to adolescent and children's books.
- Geographic information system (GIS) can be deployed to identify demand-supply gaps. GIS is a system designed to capture, store, manipulate, analyse, manage and present geographical data. The spatial data collected can be utilised to find density of schools, excess or lack of schools in every locality. Rational decisions can be taken, based on real evidence, to merge schools and redeploy excess teachers based on requirements.
- It is well established that the quality of education is better at private schools than public. The better performance is attributable to the higher levels of accountability in the former, especially towards students and parents. School vouchers are a system by which government schools could be held accountable and more responsive to the needs of students and parents. The study recommends the use of vouchers on an experimental basis with direct cash transfers to the schools.

9.3 Water and Sanitation

- The crucial element in improving water and sanitation conditions in Madhya Pradesh is empowerment of LSGs and DPCs. Strengthening and focused capacity building at this level is critical as it was observed that the role of local bodies is not well recognised. In water and sanitation sectors local bodies can perform well. WASH strategies must be formulated at the district level based on local circumstances and implemented through local governments. Their activities could include:
  - Maintenance of traditional drinking water sources and environmental hygiene
  - Preservation of ponds and other water tanks
  - Maintenance of waterways and canals under the control of Village Panchayats
  - Collection and disposal of solid waste regulation of liquid waste disposal,
- GIS technology can also be used to collect critical spatial data to formulate plans and also help in implementation. It can prove useful in identification of beneficiaries rather than using social and geographical context.
- Innovative business models have also been proposed world-over to address the water crisis. One such model is the loyalty programmes that can be attached to the individuals' telecom services. Every

individual's top-up will accumulate loyalty points, collected in a common drop fund that can be used to provide local water and sanitation facilities to the respective localities. These funds would be owned and managed by the community thus ensuring high levels of ownership

9.4 Looking Ahead: Possibilities and Strategies

Having identified the backward districts and vulnerable categories, it is very clear that Madhya Pradesh has to adopt several measures on a war-footing for the realization of SDGs by 2030. At the outset it is proposed that measures should be taken on the basis of the gravity of the problems faced by the districts. For convenience, the districts are classified into three categories on the basis of the intensity of their problems. Table 9.1 throws light on this aspect.

Broad based growth and development should be the first strategy of the state. Increase in the work participation rate, removal of absolute poverty and deprivation, gender justice etc. should be the components of broad based growth and development strategy. A multipronged strategy covering health, education, nutrition, WASH, and social protection aspects should be accommodated to uplift the districts belonging to category one i.e. the districts with a high severity of problems. The theme and sector based strategies should be devised, especially in those districts with grave problems in particular sectors (category 2). Targeted strategies must be used to address the poor performance of certain indicators (category 3) - households with any usual member covered by a health scheme or health insurance, women age 20-24 years married before 18 years, mothers who had full antenatal care etc.

As discussed earlier, improved technology holds the key to resolving most of the issues raised.

Table 9:1 Categories of Districts and Strategy to be adopted

	District			Strategy
Category 1	• Alirajpur • Shajapur • Barwani • Jhabua • Khargone • Dhar • Dindori • Burhanpur	Singrauli Panna Mandsaur Chhatarpur Rajgarh Morena Shivpuri	Shahdol Umaria Sidhi Mandla Tikamgarh Ratlam Vidisha	Multipronged strategy covering health, education, nutrition, WASH and social protection
Category 2	• Bhind • Satna • Rewa • Sehore • Neemuch • Sheopur	Anuppur Ujjain Damoh Datia Katni Ashoknagar	Khandwa Harda Sagar Guna Dewas	Theme and sector based strategy
Category 3	• Jabalpur • Balaghat • Indore • Bhopal • Hoshangabad	Gwalior Narsimhapur Chhindwara Betul Raisen	Seoni	Indicator based strategy

How far the state has addressed the nexus between technological change and innovation is the real consideration. The critical role played by local authorities should not be overlooked. Presently, no effective role is played by local bodies in promoting the development of the region concerned. Regional development strategies have to be devised incorporating the role of local bodies. Policy level interventions are to be made effective so as to make the local bodies dynamic in their area of operation. Decentralized governance should be given prominence for the effective removal of inequity.

Chapter 10

Conclusion

India is committed to achieve the Sustainable Development Goals set by the United Nations by 2020. The National Health Policy-2017 was formulated to help realise these goals. MP houses six per cent of the country's population. The performance of human development indicators vary across regions, social denominations, time etc. and across domains such as education, health, nutrition, and social protection etc.

Our analysis shows that the people of Madhya Pradesh live in a very unequal environment. Given the wide range of disparities it is not surprising that inequality is a salient feature of the development status of the state. The omission of equity, which is integral to human development, is a hurdle for realizing Sustainable Development Goals.

10.1 Trends and Levels of Inequality

The importance accorded to equity in the 2010 Human Development Report and the human development approach to the post-2015 framework and further SDGs reaffirms the focus on tackling inequality. In Madhya Pradesh, there exist only regional differences in creating an enabling environment for human development as well as gender differences and social group discrimination across districts. The districts are the microcosm of the performance at the state level. To mention a few, in the education front, there are gains in the secondary schooling for young, but the achievement among adults is lower than in other states. While the range of general literacy is 32 per cent, the range of adult literacy in the state is 52.3 per cent. Learning outcomes are among the poorest in the country. In the health area, IMR is the highest in the country despite improvement. Malnutrition in the state is the highest in the country; open defecation is higher than most states. The state is still among the leading contributors of total maternal and child mortality, and morbidity in India. No doubt, various governmental and non-governmental initiatives in the past decade focusing on improving the health status have brought in significant improvement in the levels of health indices but they have fallen short of targets as planned. There are significant heterogeneities across the 51 districts in the state of Madhya Pradesh in terms of other development indicators too.

The picture becomes pathetic when the situation of tribal and rural population dominated districts is taken into consideration. They lag significantly behind in other categories and other districts. The urban population and those with high per capita

income perform much better in terms of education, health, food and nutrition as well as water and sanitation facilities; still they suffer from some peculiar problems as mentioned earlier. Above all, the achievements of the districts are not uniform exacerbating the inequity in the state.

10.2 Evaluation of SDGs and Inequity

'Transforming the World: the 2030 Agenda for Sustainable Development' aims to realize 17 goals with 169 associated targets by 2030. The present report does not consider all the goals stated in the document; the major goals considered are evaluated below in the context of MP, recognizing the wide inequity that is substantiated in the previous chapters.

SDG 1: End Poverty in all its forms - Everywhere

This goal envisages a world free of poverty, hunger, disease and want where all life can thrive. In Madhya Pradesh the population below poverty line has reduced significantly from 48.59 per cent in 2004-05 to 31.98 per cent in 2011-12. The same trend is observable both in rural and urban. There is however considerable heterogeneity in the level of poverty among the districts. The range of the distribution is very high (72.85), which indicates that poverty as an indicator has high variation among districts and we are not closer to the realization of SDG agenda by 2030. In more than 50 per cent of the districts, poverty ranges from 30 to 50 per cent with a great intensity in tribal districts. This suggests that the state's poverty elevation programs need to be revisited and that the state must also devise more efficient ways of program implementation that suit the tribal districts demographics.

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

This goal was not specifically examined in the report. The aspect of nutrition was taken care of and its details present a bleak situation. The Madhya Pradesh government has made significant progress in improving food and nutrition security; stunting among children less than 5 years, the percentage of underweight children has declined but these cannot be considered satisfactory results. To improve child nutrition in the state, the MP government should pay more attention to breastfeeding program and antenatal care, both of which are linked to better health outcomes for children. Out of 25 districts where the breastfeeding rates were below MP state average, 16 districts had a higher proportion of severely wasted children below 5 years than the state average. Districts like Bhind, Gwalior, Hoshangabad and Morena, where only about a third of women gave only breast milk to the child below 6 months of age had the highest proportion of children less than five years who were severely wasted. Further, a positive relationship between institutional births and child nutrition and health is found. The government must also focus on quality care for pregnant women. By improving mothers' micronutrient intake, MP could improve the mother's and the child's health. A realist and rigorous approach is needed to realize the SDG goal as is evident from the index for nutrition.

SDG 3: Ensure Healthy Lives and Promote well-being for all at all Ages

Mortality rates are not favourable for many districts .The infant mortality rate is higher in rural areas than in urban, and child mortality is more than twice as high in rural areas. Infant, child and under five mortality rates are also higher for ST, SC and OBC than other social groups. Children whose mothers belong to these groups also have the lowest vaccination coverage. One hurdle that needs to be looked into is the population covered by health institutions. There exist inter-district disparities in the population coverage. The population covered by SCs range from 10,255 in Rewa district and 8698 in Umaria district to just 4136 in Mandla and 4627 in Dindori districts respectively. The population

covered by PHCs range from 95,591 in Bhopal district and 70,814 in Chhatarpur district to just 13,538 in Mandla and 16,739 in Vidisha districts respectively. The population covered by CHCs range from 229,374 in Rewa district and 228,605 in Indore district to just 47,924 in Narasimhapur and 91,592 in Guna districts respectively. The schemes like Pradhanmantri Surakshit Matratva Yojna, Janani Suraksha Yojna, ASHA and Anganwadi workers could also not reduce MMR or other mortality rates. Considering the present scenario and the tempo under which the machinery works there is little hope for ensuring achievement of the goal by 2030.

SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Two things are pertinent in this SDG: inclusive and quality education. The need to ensure education with equity and equality is the central theme in the state. Quality is a distant dream for many districts and vulnerable categories like women, ST and SC. The gross enrolment among SC and ST shows high disparities across different districts in the state. Despite the significant interventions for improving learning outcomes in Madhya Pradesh like Pratibha Vikas Programme, activity based learning approach etc., it must be noted that the literacy rates are among the lowest in the country, and there are only three districts above 80 per cent in the state. Moreover, there are wide regional variations in terms of male-female differential in literacy rate as well as wide rural-urban differentials.

It is difficult to state that Madhya Pradesh is moving in the right direction. Inclusiveness needs to be taken care of in the coming years. A major hurdle is the inadequate infrastructure facilities in the state. For instance, Ministry of Human Resources and Development (MHRD) ranked Madhya Pradesh third among states having the poorest record of electricity provision in 28 per cent of primary, middle, high and higher secondary schools (2014-15)[10]. The focus should be on how to remove inequities among districts and vulnerable categories.

SDG 5: Achieve Gender Equality and Empower all Women and Girls

Gender development, equity and empowerment present a dissatisfactory picture for almost all districts. Absolute and relative development has to be realized for the attainment of the SDG. The problem starts with sex ratio and extends to all education and health parameters. Rural and urban differences are evident from all types of data with regard to women.

SDG 6: Ensure Availability and Sustainable Management of Water and Sanitation for all

The Madhya Pradesh government gives great emphasis to water and sanitation concerns. However, there are significant rural-urban variations in the source of drinking water in the state. Though the proportion of rural households depending upon hand pumps/tube wells as the primary and dominant source of drinking water has risen sharply, dependence on the ground water stock in the state is high. Groundwater status in half the districts of the rural parts of the state have been classified as 'semi-critical', 'critical' and 'over-exploited', as per studies (Das, 2012). The problem is worse in tribal districts. There is every possibility that open defecation may be tackled within a decade but the availability of safe drinking water and hygiene to all will be a hurdle for the agencies involved in it. They have to be promoted with constant efforts for the realization of this SDG by 2030.

[10]*Based on the data collected by National University of Educational Planning and Administration*

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Abbreviations

AHS	Annual Health Survey
ANC	Ante Natal Care
ANM	Auxiliary Nursing Midwife
ASER	Annual Status of Education Reports
ASHA	Accredited Social Health Activist
AWC	Aganwadi Centres
AWPS	All Women Police Station
BPL	Below Poverty Line
CBR	Crude Birth Rate
CDR	Crude Death Rate
CHC	Community Health Centre
CSO	Central Statistical Organisation
DH	District Hospitals
DISE	District Information for Education
DLHS	District Level Household and Facility Survey
EAG	Empowered Action Group
FWPR	Female Workforce Participation Rate
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GSDP	Gross State Domestic Product
ICDS	Integrated Child Development Services
IHHL	Individual Household Latrines
IMR	Infant Mortality Rate
JSY	Janani Suraksha Yojana
MDG	Millennium Development Goals
MMR	Maternal Mortality Ratio
NER	Net Enrolment ratio
NFHS	National Family Health Survey
NNMR	Neo-Natal Mortality Rate
NRDWP	National Rural Drinking Water Programme
NSDP	Net State Domestic Product
NSSO	National Sample Survey Organisation
OBC	Other Backward Class
PCI	Per capita Income
PHC	Primary Health Centre
PNC	Post Natal Care
PNMR	Post Natal Mortality Rate
PTR	Pupil-Teacher Ratio
PWS	Piped Water Supply
RBI	Reserve Bank of India
RMSA	Rashtrya Madhyamik Shiksha Abhiyan
RTE	Right to Education
SC	Schedule Caste
SC	Sub-Centre
SDG	Sustainable Development Goals
SRS	Sample Registration System
SSA	Sarva Siksha Abhiyan
ST	Schedule Tribe
TFR	Total Fertility Rate
TRAI	Telephone Regulatory Authority of India
TSC	Total Sanitation Campaign
U-5 MR	Under-5 Mortality Rate
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organisation
WPR	Workforce Participation Rate

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