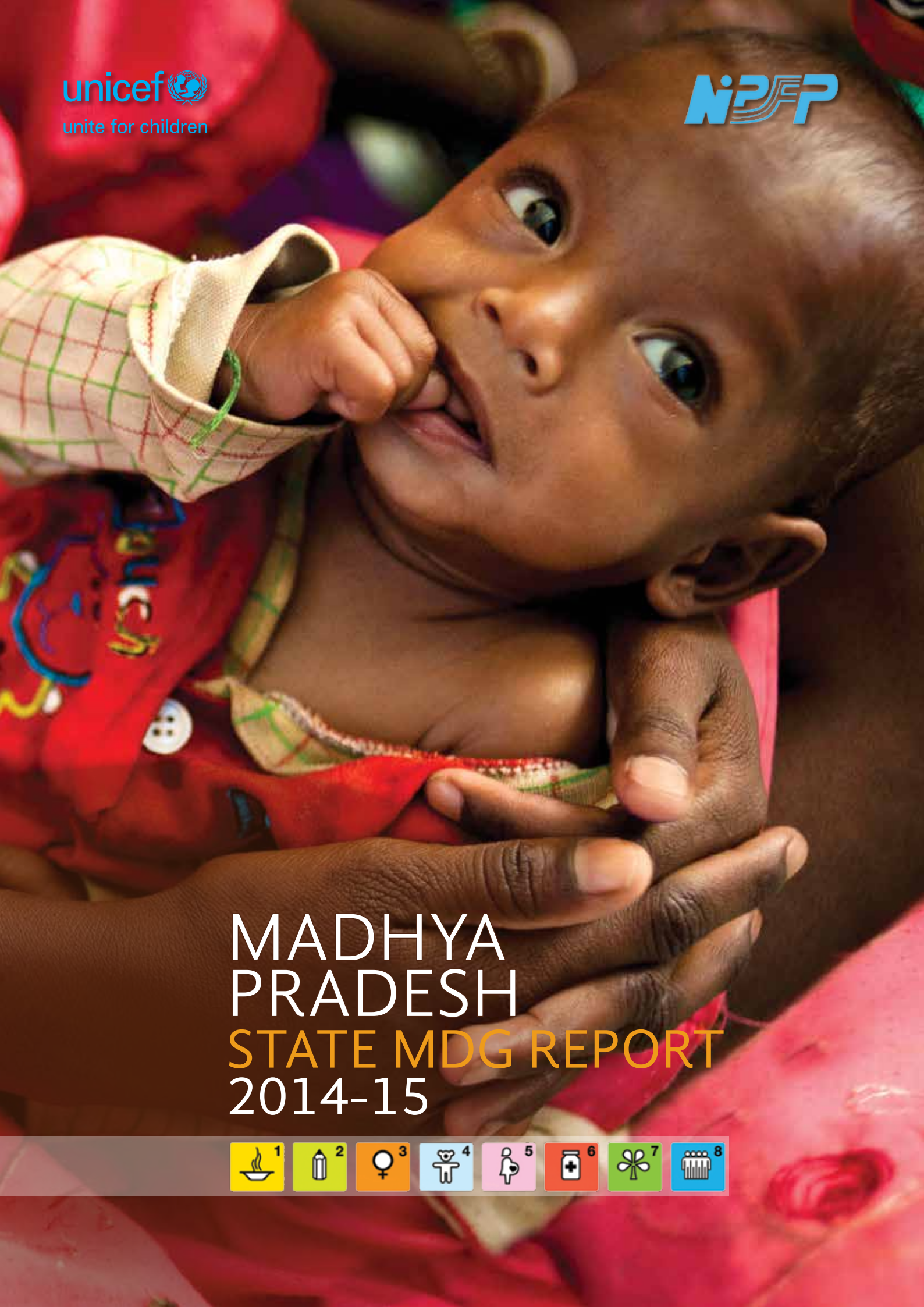

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NIPFP

MADHYA PRADESH
STATE MDG REPORT
2014-15

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Preface

NIPFP has been privileged to be commissioned by the State of Madhya Pradesh to prepare the State MDG Report 2014-15. Madhya Pradesh has been a pioneer in formulating and executing policies with a human development focus. We therefore had to ensure that we measure up to this impressive legacy, and I am happy to see a high quality analytical and substantive report that adequately covers many aspects of human development.

The Human Development Report is not just an accounting exercise to assess whether specific MDG targets were achieved on the basis of indicators. As one of those privileged to be involved in the conceptualisation of the MDGs 15 years ago. I must emphasise that the MDGs embedded a human development framework that sought to tackle causes of under development rather than symptoms.

The report fully responds to this multi-dimension aspiration. Of particular interest is the attention paid in the report to inter district variations, a problem that many Indian States are grappling with. Those residing in the relatively poor areas of rich States are not better off than those residing in the poor States. This important dimension needs to be addressed by the States of India, going forward, as we build on the impressive successes secured in growth, delivery of basic services and a much improved.

I am extremely happy that NIPFP has had occasion to partner the United Nations Children's Fund (UNICEF) in this endeavour. This has given cutting-edge expertise to this report.

I acknowledge the support extended and intellectual partnership with Government of Madhya Pradesh for this important piece of work.

As we move to the Sustainable Development Goals and envision a common global future based on your MDG achievements, this will provide both a benchmark and a basis for this endeavour. For this reason, I commend this report to those who will follow us on this quest for growth and inclusive social justice in the years to come.

This study was carried out by NIPFP team consisting of Professor N.R Bhanumurthy (team leader), Dr. H.K. Amar Nath, Dr. Sukanya Bose, Ms. Parma Devi Adhikari and Mr. Arkajyoti Jana. The views expressed in the report are those of the authors and the members of the Governing Body of the Institute are no way responsible for them.

(Rathin Roy)
Director, NIPFP

Foreword

In 2000, 189 nations made a promise to free people from extreme poverty and multiple deprivations. This pledge became the eight Millennium Development Goals (MDGs) to be achieved by 2015. The UN Secretary-General at the behest of the UN General Assembly prepared a road map for achieving the commitments made in the declaration-resulting in the MDGs. The Goals reflect key aims of various UN development conferences in the 1990s. They also built on the International Development Goals created by the Organization for Economic Co-operation and Development (OECD) in 1996.

This MDG report and analysis is outcome of tripartite partnership and collaboration between State Planning Commission, Madhya Pradesh, National Institute for Public Finance and Policy, New Delhi and Policy Planning & Evaluation (PPE) section of United Nations Children's Fund (UNICEF) State Office of Madhya Pradesh.

While the MDG targets for the state has been fixed actively by the respective governments, the analysis of the policy measures taken for achieving the goals as well as the progress that the governments have been made is less studied at least at the sub-national and sub state level in India. This could be largely due to limitations about the database available which is scanty, less robust, and inconsistent. With these limitations, an attempt has been made to understand the MDG progress in Madhya Pradesh at the state level and also to gain deprivations and challenges that exists across the fifty one districts.

UNICEF has been long associated with Department of Planning Economics & Statistics, Government of Madhya Pradesh to generate credible evidence for policy influencing and realizing the rights of every child particularly the most disadvantaged. UNICEF's commitment to equity – giving a fair chance in life to every child, everywhere, especially the most disadvantaged – is built on the conviction that it is right in principle and evidence that it is right in practice. From the equity perspective this analysis was an attempt to comprehend inter district disparities and linkage between public expenditure and human development.

We are very delighted to present this report to all policy makers, programme managers, social scientists, and researchers, national and international organizations who are interested in human development.

UNICEF
Madhya Pradesh

Acknowledgements

At the outset authors (Prof. N R Bhanumurthy, Amar Nath H K, Sukanya Bose, Parma Devi Adhikari and Arkajyoti Jana of National Institute of Public Finance & Policy - NIPFP) would like to acknowledge that this report is the result of collective and collaborative effort. This report would not have been possible without the support and cooperation of a wide range of individuals and institutions from the Government of the Madhya Pradesh and the UNICEF Madhya Pradesh Field Office.

At NIPFP, research assistance was provided by Mr. Satadru Sikdar and Ms. Varsha Sivaram. Ms. Samreen Badr provided editorial support for the report. However we would like to uphold that any errors or omissions in the report are the authors' sole responsibility.

We would like to mention that the genesis of work started with several rounds of intense discussion with Mr. Trevor Clark (Chief Field Office) and Mr. Prabhat Kumar (Planning Monitoring & Evaluation Officer) of UNICEF Madhya Pradesh, on how to realize equity issues and comprehend inter district deprivations which impede achievement of development goals in Madhya Pradesh. We were constantly reminded that our analysis must help policy makers, planners and programme managers to identify key equity bottlenecks which affects so many women and children in the state. Throughout the course of data analysis and report preparation without their constant support, valuable participation and excellent coordination it would not have been feasible to complete this work. The team also extends gratitude to all UNICEF staff members of Madhya Pradesh for their valuable contribution and involvement at different stages of this work.

We would like to express our earnest thanks to all senior government officials of Madhya Pradesh from various departments (Planning Economics & Statistics, Rural Development, Health, Education, Public Health Engineering, Women & Child Development and Tribal Welfare), who all contributed by sharing their valuable insights and data. The meetings and discussions helped in understanding the policy perspective and implementation challenges of key social sector schemes in Madhya Pradesh. The support received from Directorate of Census, Madhya Pradesh from the beginning of this work was very encouraging and helped add value to the analysis. The discussions with Development Commissioner, Government of Madhya Pradesh were very informative and insightful and assisted in understanding the development challenges in the Madhya Pradesh across the fifty one districts. Sincere appreciation goes to team members of Poverty Monitoring and Policy Support Unit (PMPSU), Department of Planning for their critical feedback and data support during the course of analysis.

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Madhya Pradesh is India's second largest state with an area of 3,08,252 sq. km. The state, which is called "heart of India", has four agro-climatic zones, and thus, has the most unique mix of ethnic groups & tribes, castes & communities, including the indigenous tribal and, relatively more recent migrants from other states. It has a significant tribal population, which constitutes of more than one-fourth of its total population and 14.7 percent of India's total tribal population. In absolute numbers, Madhya Pradesh is home to the largest number of Scheduled Tribes (STs) in India and is often called the tribal state of India.

The state covers 9.4 % of the total land area of the country. It is endowed with rich and diverse forest resources and is a reservoir of biodiversity. The forest cover in the state, based on India State of Forest Report 2013, is 77,522 sq. km, which is around one-fourth of the state's geographical area. The state comprises of 10 divisions, 51 districts, 342 tehsils, 313 Community Development Blocks, 476 towns and 54,903 villages (as per Census, 2011).

During the year 2013-14, Madhya Pradesh registered GSDP growth of 11.1 %, one of the highest in the country, when the Indian economy grew at 4.5 %. However, the trends of human development in the state are not similar. For instance, while the poverty headcount at the all India level has declined by 23.4 % between 1993-94 and 2011-12, in the case of Madhya Pradesh the decline is only about 13 %. Such divergent trends are also found in most of the Millennium Development Goal (MDG) indicators. This clearly indicates some sort of disjoint between the level of growth and human development in Madhya Pradesh.

This report tries to highlight the status of achievement of MDGs in the state and also

CHAPTER 1

Introduction

highlight the possibility of achieving such goals by 2015, which is the terminal year for MDGs. Before addressing the status of MDGs, a brief discussion about the overall economic structure of Madhya Pradesh's economy as well as the trends in human development has been undertaken in this chapter. It also discusses the objectives and the framework that this report follows in order to understand the prospect of achieving MDGs by 2015.

1.2 Demographic Profile of Madhya Pradesh

With a population of 72.6 million, Madhya Pradesh is the sixth-most populous state in the country, contributing six percent to the total population of India. Over the last decade, the state has witnessed a 20.3 % growth in its population. Out of the total population, about 72.4% live in rural areas. According to the Tendulkar Committee Report 2009, nearly 48.6% of the population is estimated as living Below Poverty Line (BPL) with rural poverty ratio (53.6%) exceeding the urban poverty ratio (35.1%) significantly. However, if factors beyond income are considered (Multidimensional Poverty Index), about 68.1% of the state's population is poor. The situation of the poor is characterized by marginal and under-productive landholdings, periodic droughts, insecure land tenure and a higher dependency on seasonal agricultural & forest labor.

Madhya Pradesh is also performing poorly in most of the human development indicators (see table 1.1). It is among the most food insecure states of the country. According to the India State Hunger Index, Madhya Pradesh falls in the "extremely alarming" category (IFPRI, 2008).

Table 1.1: Demographic Profile of Madhya Pradesh

Indicators	MP	All India
Geographical Area in Lakh Sq. Km.	3.08	32.87
Population (Crore)	7.26	121.02
Decadal Growth Rate Percentage	20.3	17.64
Density of Population (Population/Sq. Km.)	236	382
Urbanisaton (%)	27.63	31.16
Sex Ratio Females/1000 Males	930	940
Literacy Rate (%)	70.6	74.0
SC share in Total Population (CENSUS 2011)	15.6	16.6
ST share in Total Population (CENSUS 2011)	21.1	8.6
Poverty Ratio Rural (Planning Commission)	35.74	25.7
Poverty Ratio Urban (Planning Commission)	21	13.7
Poverty Ratio Total (Planning Commission)	31.65	21.92
Infant Mortality Rate (IMR) [SRS] (2013)	54	40
Maternal Mortality Ratio (MMR) [SRS] (2011-13)	221	167
Malnourished Children (% of underweight children under < 3 years [NFHS 3]	57.9	40.4
Enrolment in Primary education (GER primary, 2011) [DISE]	136.6	118.6

Source: Census, SRS Bulletin, NFHS, DISE, and National Planning Commission.

The National Family Health Survey (NFHS) III conducted in 2005-06 revealed that the state has one of the lowest nutrition and health indicators in the country. For example, the state is among bottom five in terms of women with Body Mass Index <18.5 (41.7 %). It has very high prevalence of underweight children below three years of age (58 %).

In terms of Gender Development Index, Madhya Pradesh stood at 0.516 whereas the national value was 0.590 as on 2006. In Gender Equality Marker, the value is 0.463 for the state, which is below the national figure of 0.497.[1] Although the state's sex ratio has increased by 12 points since census 2001 to reach 930 females per 1,000 males in census 2011, it is still below the national average of 940. Child sex ratio has declined by 20 points in Madhya Pradesh during the decade 2001-2011. In terms of literacy rate, the state at 70.6 % fares below the national literacy rate (74%). The female literacy at 59.2 % is also much lower than the male literacy rate of 78.7 %.

As per the latest AHS report of 2012-13, sex ratio at birth is only 905 and there is wide variation by place of residence i.e. for urban it is 876 and for rural it is 916. As per SRS, Statistical Report 2013, Madhya Pradesh has second highest neo-natal mortality rate of 36 per thousand live births and the infant mortality rate is 54 per thousand live births. According to AHS 2012-13, mortality rate of children under the age of 5 is 83. Maternal mortality ratio in Madhya Pradesh is fifth highest in the country with 221 per lakh live births (SRS 2011-13). For these reasons, Madhya Pradesh is one of the least developed states in India, with a HDI value of 0.375 in 2007-8, which is below the national average of 0.467.[2]

1.3 Madhya Pradesh economy

The structure of the Madhya Pradesh economy is somewhat different from that of all India. In terms of sectoral shares, as shown in table 1.2, there seems to be an increase in the share of agricultural

[1] *UNDP publication 'Madhya Pradesh Economic and Human Development Indicators', sourced from http://www.in.undp.org/content/dam/india/docs/madhyapradesh_factsheet.pdf*
[2] *Source: http://www.in.undp.org/content/dam/india/docs/madhyapradesh_factsheet.pdf*

group with a marginal decline in the shares of both industrial and service sectors at least in the recent period. This could be largely due to sharp increase in the growth rates of agricultural output in the last three years (at 18.2 %, 18.6 % and 23.3 % respectively) while there is a slowdown in the industrial sector. Despite diversification, agriculture plays a key role in the economy of Madhya Pradesh.

Following the double-digit growth in the agricultural group output as well as high growth in the services sector, the overall growth in GSDP of Madhya Pradesh has witnessed acceleration in the recent past. On the other hand, there is a slowdown in the industrial growth, which is similar to that of all India trends.

One can also observe from the above table that there is a significant increase in per capita income from Rs. 15,927 in 2005-06 to Rs. 27,917 in 2013-14 (at constant prices). In terms of growth rate of per capita incomes, for the last three years, it has increased by 8.8% (on average), which is quite substantial increase compared to the all India growth of around 4%. However, such high growth in per capita income was accompanied by widening disparity.

Table 1.2: Trends in Growth and Composition of GSDP in Madhya Pradesh

Sectors	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
2004-05 prices (Rs. Crore)									
Agriculture and Allied Activities	33439	34224	33715	36698	39971	40068	47349	56171	69250
Industry	32099	37462	39686	47218	50458	53920	56642	59747	61029
Services	53382	58210	62585	69030	77135	84156	91417	98824	108248
Total GSDP	118919	129896	135986	152946	167564	178144	195409	214741	238526
Per Capita Income (Rupees)	15927	17073	17572	19462	20959	21706	23447	25463	27917
Sectoral Shares (%)									
Agriculture and Allied Activities	28	27	25	25	26	25	27	30	34
Industry	27	29	29	31	30	29	28	26	23
Services	45	45	46	44	44	46	45	45	43
Total GSDP	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Growth Rates (%)									
Agriculture and Allied Activities	7.0	2.3	-1.5	8.8	8.9	0.2	18.2	18.6	23.3
Industry	4.7	16.7	5.9	19.0	6.9	6.9	5.0	5.5	2.1
Services	4.6	9.0	7.5	10.3	11.7	9.1	8.6	8.1	9.5
Total GSDP	**5.3**	**9.2**	**4.7**	**12.5**	**9.6**	**6.3**	**9.7**	**9.9**	**11.1**
Per Capita Income	3.1	7.2	2.9	10.8	7.7	3.6	8.0	8.6	9.6

Source: www.mospi.nic.in

During this period, inequality has also increased in Madhya Pradesh. The Gini coefficient has increased from 0.237 in 2004-05 to 0.276 in 2009-10 for the rural areas. In the urban areas, with a higher level of inequality to start with, the Gini coefficient has increased from 0.351 to 0.367 in the same period[3]. It is noteworthy that the Gini coefficient for rural areas in 2004-05 for MP, which was lower than the all-India level (0.266), is now close to the all-India average.

1.4 Madhya Pradesh Government Finances

The finances of Madhya Pradesh government are in a healthy state with stable fiscal deficit and generating surplus on the revenue account (see table 1.3). But these positive trends are due to legislative compulsions through FRBM act on account of limitations on borrowings. Since human development expenditure is dominated by revenue expenditure, there is scope for increasing human development expenditure with a comfortable revenue surplus. Being a low income state with high poverty and low human development indicators, the state should be spending more on social sectors.

Social expenditure ratio is defined as expenditures on social sectors like education, health, nutrition and other welfare programs in addition to expenditures on poverty through rural development as a ratio to total expenditure. Major states average social expenditure ratio was around 42% in 2012-13 (see table 1.4). The same for Madhya Pradesh is around 39%, which is lower than other low income states such as Chhattisgarh (46%), Bihar (45%), Rajasthan (45%), Odisha (42%), and Uttar Pradesh (41%). In other words, Madhya Pradesh government is spending more on areas other than social sector services. In table 1.3, one may note that Madhya Pradesh is generating a revenue surplus of 3.18% of GSDP in 2011-12, which could suggest a shift away from social sector expenditures.

Table 1.3: Major Deficit Indicators of Major States (per cent to GSDP)

State		2011-12		2012-13 (Revised Estimates)		2013-14 (Budget Estimates)	
		Revenue Deficit	Fiscal Deficit	Revenue Deficit	Fiscal Deficit	Revenue Deficit	Fiscal Deficit
1.	Andhra Pradesh	-0.47	2.32	-0.22	2.80	-0.12	2.86
2.	Bihar	-1.95	2.39	0.25	5.47	-1.85	2.38
3.	Chhattisgarh	-2.44	0.60	-1.41	2.99	-1.38	2.93
4.	Goa	-0.83	2.44	1.09	6.06	0.54	5.97
5.	Gujarat	-0.54	1.86	-0.58	2.71	-0.59	2.65
6.	Haryana	0.48	2.37	0.92	2.35	0.62	2.29
7.	Jharkhand	-0.99	1.34	-2.56	1.92	-1.67	2.16
8.	Karnataka	-1.02	2.68	-0.18	2.91	-0.10	2.94
9.	Kerala	2.61	4.16	0.98	3.25	0.57	2.96
10.	**Madhya Pradesh**	**-3.18**	**1.85**	**-1.73**	**2.81**	**-1.16**	**2.71**
11.	Maharashtra	0.19	1.66	0.00	1.43	-0.01	1.50
12.	Odisha	-2.61	-0.29	-1.16	1.09	-0.66	2.06
13.	Punjab	2.66	3.31	1.66	3.27	0.55	2.90
14.	Rajasthan	-0.83	0.90	-0.17	2.44	-0.20	2.53
15.	Tamil Nadu	-0.20	2.60	-0.06	2.67	-0.08	2.70
16.	Uttar Pradesh	-1.03	2.27	-0.72	2.76	-1.11	2.70
17.	West Bengal	2.71	3.29	2.15	3.37	0.49	1.89
Major states		**-0.21**	**2.18**	**-0.04**	**2.64**	**-0.29**	**2.43**

Source: Basic Data- RBI study of state budgets for various issues and CSO for the GSDP estimates.

[3] *Estimates made by Planning Commission based on NSSO 61st and 66th round consumption expenditure for Mixed Reference Period.*

Table 1.4: Social Expenditure Ratio (in %)

State	2011-12	2012-13
1. Andhra Pradesh	41.64	40.71
2. Bihar	41.13	44.99
3. Chhattisgarh	49.88	46.13
4. Goa	34.44	36.30
5. Gujarat	40.95	41.57
6. Haryana	40.05	39.25
7. Jharkhand	43.98	42.64
8. Karnataka	38.86	40.02
9. Kerala	35.03	34.89
10. Madhya Pradesh	**37.89**	**39.19**
11. Maharashtra	42.66	44.17
12. Odisha	43.28	42.13
13. Punjab	28.72	35.10
14. Rajasthan	46.15	44.89
15. Tamil Nadu	40.03	40.35
16. Uttar Pradesh	42.23	40.98
17. West Bengal	47.95	47.26
Major States	**41.31**	**41.83**

**: Includes expenditure on social services and rural development under revenue expenditure, capital outlay and loans and advances by the state governments.*
Source: Basic Data- Finance Accounts of the respective states, CAG

The above trends clearly suggest that while output growth in the recent period has been accelerating there seems to be a large disconnect between growth and human development indicators as well as in terms of the social sector expenditures towards achieving MDG goals. Looking at trends in various indicators of human development and the targets set by the Government to be achieved by 2015, there is an urgent need to look at the various policies and its implementation issues related to these sectors and make corrective actions. Socio-economic indicators and factors contributing to these indicators need to be dissected to bring out reforms and restructure priorities within the sectors, regions and social groups.

1.5 Objectives

With this background, the present report tries to address the following objectives:

- To provide a consolidated overview of Madhya Pradesh's achievements against MDG indicators, at state and districts level;
- To provide an analytical framework for better understanding of Madhya Pradesh's developmental results with an equity perspective to comprehend deprivations and vulnerabilities of marginalised and excluded groups;
- To understand share of national burden Madhya Pradesh has, when it comes to achieving MDGs targets; and,
- Way-forward in terms of future policy-making and planning for post-2015 agenda.

1.6 Data Sources

A variety of data sources have been used to capture the trends and patterns of the various indicators and their determinants. Some of the major sources that are used in the report are listed below:

- Poverty and Hunger Indicators: Planning Commission and NSSO.
- Health Indicators: National Family Health Survey; District Level Household and Facility Survey (DLHS) of Ministry of Health and Family Welfare; Annual Health Survey of Office of the Registrar General and Census Commissioner; Coverage Evaluation Survey- GOI and UNICEF; HIV Sentinel Surveys, D/O AIDS Control (NACO), Surveillance Data.

- Education indicators: Ministry of Human Resource Development Reports and District Information System for Education (DISE).
- Environmental Sustainability Indicators: NSSO, CSO, MOSPI; Census, International Energy Agency
- Public Expenditure Data: States Budgets, Treasury information.

As the focus of the report is also to understand the status of MDG progress at the District level, the report uses the district level data available from the treasury withdrawals as well as from CSS allocations. There are difficulties related to reliability and comparability of the available data on various MDG indicators. Some of these issues are discussed in Appendix 3.

1.7 Analytical Framework

While the MDG targets for the state has been fixed enthusiastically by the respective governments, the analysis of the policy measures taken for achieving the goals as well as the progress that the governments have been made is less studied at least at the sub-national level in India. This could be largely due to limitations about the database available at the sub-national level, which is scanty, less robust, and inconsistent. With these limitations, an attempt has been made to understand the MDG progress in Madhya Pradesh, which is largely exploratory.

The study is undertaken in three phases and is more or less consistent with the framework adopted by the UN regional commissions for analyzing the MDG progress at the country level. In the first phase, the report attempts to understand the recent trends in the MDG progress at the state level and compares it with respect to SAARC nations, and all of India including EAG states. Inter-state comparison, especially with the EAG states, is undertaken in order to understand the burden that Madhya Pradesh has on the all India MDG progress. This trend analysis is further analysed at the district level to capture the uneven progress that the state had in terms of achieving the MDG targets. Further, as part of equity analysis, the report undertakes further disaggregated analysis at the regional level (rural/urban) as well as across the social groups (SC/ST, male/female, etc). This would help in focusing the public policy on the region/group that is highly vulnerable.

In the second phase, the report, with the help of latest data and its trend, tries to understand and quantify the possibility of achieving the MDG goals by the end of 2015. Here, the report uses standard trend forecast measure (discussed in Appendix 1) with the assumption that the recent trend is expected to continue in the rest of the period. These forecasts will be useful in undertaking MDG gap analysis. The MDG gap estimate provides significant inputs for the kind of public policy intervention that is required in improving overall MDG progress in the state. As the targets are fixed for each, the gap analysis is undertaken for each indicator. While, like Human Development Index, MDG goals are not strictly additive, in this report an attempt has been made to derive overall MDG index that provides a clear picture regarding the overall MDG gap both at the state as well as at the district level. As the MDG goals are having equal priority by the national and sub-national governments, equal weights are given to derive a composite MDG index that will indicate distance from the target.

What determines the achievement or failure of the MDG targets? As the literature suggests, the determinants of MDG achievements are mainly the growth and the public policy intervention through increasing social sector expenditure. Madhya Pradesh being one of the poorest states with low per capita incomes, economic growth playing a major role in achieving MDG goals could be limited. This is more so when the inequality is higher even among the EAG states. Hence, the achievement of MDG goals in the state is limited to higher public expenditures in the social sector. In the third phase, an attempt has been made to map the pattern of public expenditures (in terms of social expenditure ratios and social priority ratios) with the extent of MDG goals achievement at the district level. At this stage, it is hypothesized that social sector expenditure alone is not sufficient enough to achieve the ambitious goals set at the sub-national level. The efficiency of social sector expenditures in terms of achieving goals also depends on the expenditure on other economic sectors. For example, educational expenditure at the district level alone is not sufficient in improving educational outcomes (such as retention rate). The outcomes also depend on the expenditure on economic sectors such as roads, power and other infrastructure sectors. Such analysis help in identifying broader policy directions at state as

well as at district level and help in reprioritizing the government's public expenditure policy in terms of specific indicators as well as the districts.

Following the above analysis it is possible to identify the indicators/districts that are offtrack and the course-correction that it needs to improve. One of the course-corrections that may be suggested from the analysis is the extent of public expenditures that is needed to eliminate the MDG gap in each indicator/district. Based on MDG gap ratios that are estimated in the second stage, the report broadly undertakes that MDG resource needs assessment and estimate of MDG Resource Gap at the district level and also at the state level. This analysis will help the public policy in localizing the government's public policy intervention that helps in improving the MDG goals in the chosen districts as well as the overall achievement at the state level.

1.8 Structure of the report

With the discussion on Madhya Pradesh economy and also the framework adopted in the report, the rest of the report is structured as follows:

From Chapter 2 to 8, the trends and progress of each MDG goal and its indicators are discussed. These chapters also highlight, following its present trends, whether the indicator is off-track or on-track by 2015, at the state level. As the focus of the report is more on the uneven achievement of goals at the district level, chapter 9 focuses entirely on the district level analysis and identifies the districts that are lagging in terms of specific development indicators as well as the overall MDG target. Chapter 10 focuses on analyzing the relationship between outcomes and the role that public expenditures play in reducing the MDG gaps. It addresses the issue of whether uneven MDG achievements at the district level are due to uneven social sector expenditures? Finally the chapter also derives the extent of MDG Resource Gap at the state as well as at the district level and argues that there is a need to reprioritize the social sector expenditures towards the goals and districts where the MDG gaps is very high. In other words, MDG localization strategy might help in accelerating the progress towards achieving MDG goals in the pockets/clusters that are having large MDG gaps. Such localization strategy will also help in prioritizing the public policy towards reducing the burden of some districts on the state level MDG achievements.

1.9 MDG status of Madhya Pradesh: A Snapshot

The Millennium Development Goals (MDGs) are the world's time-bound and quantified targets for addressing the level of development of a country. In September 2000, the world leaders adopted the UN Millennium Declaration, at the Millennium Summit, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of timebound targets, with a deadline of 2015. There are eight MDG goals addressing poverty and hunger, education, gender equality, child health, maternal health, diseases, sustainable development and global partnerships. The indicators corresponding to the eight goals can be seen in Table 1.5, which also presents a snapshot of the likely status of MDGs in Madhya Pradesh in the year 2015. Madhya Pradesh is likely to be off-track vis-a-vis most of the MDG targets including the important ones of poverty, nutrition, retention rate in primary classes, infant and child mortality rates, maternal mortality, drinking water and sanitation.

Table 1.5: Status of MDG: Madhya Pradesh

Achievement of indicators having targets				
Indicators	Early Achiever - already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow - Expected to meet the target after 2015	Off Track: no progress/ regressing - Stagnating or slipping backwards
MDG 1: Eradicate extreme poverty and hunger				
Poverty Head Count Ratio			√	
Underweight Children < 3 years				√[4]
MDG 2: Achieve Universal Primary Education				
Net Enrolment Ratio in primary education				√
Retention rate at primary level			√	
Literacy rate among youth (15-24 year old)			√	
MDG 3: Promote Gender Equality and Empower Women				
Ratio of girls to boys in primary, secondary and tertiary education				
i) GPI for Primary Grades (I-V)				√
ii)GPI for Secondary Grades (IX-X)				√
iii)GPI for Tertiary Education				√
Ratio of Literate female to male			√	
Share of women in wage employment in non-agricultural sector				√
Proportion of seats held by women in Legislature/ Parliament			√	
MDG 4: Reduce Child Mortality				
Under-Five Mortality Rate			√	
Infant Mortality Rate			√	
Proportion of one year old children immunized against measles			√	
MDG 5: Improve Maternal Health				
Maternal Mortality Ratio (MMR)			√	
Proportion of births attended by skilled health personnel		√		
MDG 7: Ensure Environmental Sustainability				
Households with drinking water within premises				√
Households without access to sanitation			√	
Households with drinking water within premises				√
Households without access to sanitation			√	

[4] *Considering 2009-10 data point of 48.1% on prevalence of underweight among 0-5 years children from impact assessment of ICDS in MP, the projection for MP would show a downward trend. Position of Madhya Pradesh shifts to off-track but expected to meet the target after 2015.*

Achievement of Indicators without targets				
Indicators		Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
MDG 1: Eradicate extreme poverty and hunger				
Poverty Gap Ratio	Rural	√		
	Urban	√		
Share of Poorest Quintile in National Consumption	Rural	√		
	Urban			√
MDG 6: Combat HIV/AIDS, Malaria and other Diseases				
HIV Prevalence among pregnant women aged 15- 24 years				√
Condom use rate of the contraceptive prevalence rate		√		
Malaria Incidence Rate		√		
Death Rates Associated with Malaria		√		
Deaths Due to TB per lakh Population				√
Proportion of Tuberculosis Cases Cured to Detected under DOTS		√		
MDG 7: Ensure Environmental Sustainability				
Area Covered under Forests as Percentage of Geographical Area				√
Ratio of Area Protected to Maintain Biological Diversity to Surface Area			√	
Proportion of the Households using Solid Fuels		√		
Households with access to tap water				√
MDG 8: Develop a Global Partnership for Development				
Telephone Lines and Cellular Subscribers per 100 population		√		

1.10 MDG status in Madhya Pradesh in comparison with other EAG States

The eight socioeconomically backward states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttaranchal and Uttar Pradesh, referred to as the Empowered Action Group (EAG) states, lag behind in the demographic transition and have the highest infant mortality rates in the country. The most conspicuous feature of the demographic characteristics of the EAG states (former BIMARU states) is its high fertility, high IMR, high MMR, high population growth rate, low literacy rate and high gender disparity (Som & Mishra, 2014).

Table 1.6 provides a comparison of Madhya Pradesh with the eight EAG states and the all- India average. While the overall position of MP would be somewhere around the middle among the eight EAG states, the state performs particularly badly in the following indicators: underweight prevalence amongst children, infant mortality and under-five mortality, gender parity in secondary education, sex ratio (adult and child), access to drinking water and sanitation. The position of the state is pretty much at the bottom in respect to these indicators

Table 1.6: Comparison of Madhya Pradesh with EAG States

S. No.	MDG Goals and Indicators	Year	Bihar	Chhattisgarh	Jharkhand	
Goal 1: Eradicate Extreme Poverty and Hunger						
1	Head Count Ratio	2011-12	33.74	39.93	36.96	
2	Proportion of Underweight Children (< 3yrs)	2005-06	54.90	47.80	54.60	
Goal 2: Achieve Universal Primary Education						
3	Net Enrolment Ratio in primary education	2013-14	91.66	93.79	96.49	
4	Retention rate (primary)	2013-14	82.95	65.07	75.16	
Goal 3: Promote Gender Equality and Empower Women						
5	Ratio of girls to boys in:					
i	Primary education	2013-14	0.98	0.96	0.96	
ii	Secondary education	2010-11	0.80	0.93	0.91	
6	Share of women in wage employment in the non-agricultural sector	2011-12	6.10	29.30	9.10	
7	Sex-ratio	2011	916	991	947	
8	Child Sex Ratio	2011	933	964	943	
Goal 4: Reduce Child Mortality						
9	Under-five Mortality Rate	2012-13	70	60	51	
10	Infant Mortality Rate	2012	48	46	36	
Goal 5: Improve Maternal Health						
11	Maternal Mortality Ratio	2011-13	208	221	208	
Goal 6: Combat HIV/AIDS, Malaria and Other Diseases						
12	HIV Prevalence among Pregnant Women Aged 15-24 Years	2010-11	0.17	0.38	0.52	
13	Malaria Incidence Rate (%) (People affected by malaria as a percentage of total population)	2013	1.37	2.91	2.75	
14	Proportion of Tuberculosis Cases Detected and Cured under DOTS (Cure rate)	2010	80	78	84	
Goal 7: Ensure Environmental Sustainability						
15	Per cent of Households Consuming Solid Fuels	2011	89.91	87.74	86.90	
16	Households with Drinking water within premises	2011	50.11	19	23.18	
17	Households without Access to Sanitation (%)	2011	76.94	75.41	77.97	

Sources: are given in the respective chapters in the report

	Madhya Pradesh	Odisha	Rajasthan	Uttar Pradesh	Uttarakhand	All India
	31.65	32.59	14.71	11.26	29.43	21.90
	57.90	39.50	36.80	41.60	31.70	40.40
	93.66	89.05	79.54	87.03	83.54	88.10
	84.77	68.50	87.81	89.00	78.48	88.10
	0.91	0.93	0.87	0.95	0.90	0.93
	0.66	0.93	0.69	0.81	0.95	0.88
	18.30	18.40	22.60	9.10	10.00	19.30
	930	978	926	908	963	940
	912	934	883	899	886	919
	83	75	74	90	48	52
	62	56	55	68	40	40
	221	222	244	285	285	167
	0.40	0.45	0.53	0.29	0.33	0.39
	0.80	4.51	0.37	1.13	0.44	0.78
	85	83	88	86	82	85
	79.92	86.17	75.86	79.78	53.17	67.24
	23.90	22.38	35.04	51.92	58.25	46.58
	71.18	77.96	65.03	64.35	34.23	53.08

1.11 MDG status in Madhya Pradesh in comparison with some SAARC Countries

Broad trends in the MDG progress in Madhya Pradesh are compared with that of the countries in the SAARC region. As there are significant commonalities among these countries in terms of socio-cultural and political behaviours, such comparisons might be useful to understand the status of Madhya Pradesh MDG's achievement within the sub-region. Further, in terms of population, Madhya Pradesh has more number of people compared to other SAARC countries, except Pakistan and Bangladesh. Hence, comparing trends of the state with other countries in the sub- region might help in placing the state in a comparative perspective. For this purpose a total of 18 indicators across 8 MDGs, for which information are available for most of the countries, are presented in Table 1.7.

Broadly, while Sri Lanka has been ahead of other countries in most of the 18 indicators, Madhya Pradesh appears to be at the bottom just before Afghanistan. In terms of poverty levels, with a poverty ratio of 31.7%, Madhya Pradesh could be the region with highest number of poor people (with 2.28 crore people) living compared even with Pakistan (with only 2.28 crore people below poverty line). In terms of goal-2, Madhya Pradesh appears to rank below Bangladesh, Bhutan, Nepal and Sri Lanka for the indicator proportion of pupils starting grade 1 and reaching grade 5. With the exception of Pakistan and Afghanistan (which might be due to religious reasons) the gender inequality (both in education and employment) is the highest in Madhya Pradesh compared to other countries in the region. Similar trends are also found in health indicators where in the case of both child mortality, Madhya Pradesh is far behind when compared to Sri Lanka, Bhutan, Bangladesh and Nepal. However, in the case of maternal health, there appears some mixed achievements: while the state has high proportion of births attended by skilled health personal (at 82.9%, even higher than all India), however, in the case of MMR, Madhya Pradesh is performing poorly (with 221 per lakh population) compared to Sri Lanka, Bhutan, Nepal and Bangladesh.

In the case of goal-6, contraceptive prevalence rate is the lowest in India at 5.2% with Madhya Pradesh having below the all India rate (at 4.8%), lowest compared to all the countries in the region. However, a caution here is that the latest comparable information for India is available only for the year 2005-06 while for other countries, they are for later years (see the notes below table 1.7) (The World Bank data suggest that for India it was 54% in 2008). Under goal-7, Madhya Pradesh ranks bottom (with the exception of Afghanistan) in the case of both the indicators of households with sustainable access to improved water sources as well as households without access to improved sanitation.

Overall, from the table, it is very clear that MDG achievements in Madhya Pradesh are far behind most of the SAARC countries.

Table 1.7: MDG Status in Madhya Pradesh - A Comparison with SAARC countries

S. No.	MDG Goals and Indicators	Afghanistan	Bangladesh	
Goal 1: Eradicate Extreme Poverty and Hunger				
1	Proportion of population below national poverty line (%)	36	NA	
2	Proportion of under-weight children below 5 years (%)	39	35.1*	
Goal 2: Achieve Universal Primary Education				
3	Proportion of pupils starting grade 1 and reaching grade 5(%)	64	96.4*	
4	Literacy rate (15-24 years)	47	74.9*	
Goal 3: Promote Gender equality and empower women				
5	Ratio of girls to boys in primary education	0.71	1*	
6	Female to male literacy rate 15-24 years	0.52	0.82	
7	Share of women in wage employment in the non-agri sector (%)	NA	19.87	
Goal 4: Reduce Child Mortality				
8	Under 5 mortality rate per 1000 live births	102	53*	
9	Proportion of one year old immunized against measles (%)	62	81.9*	
Goal 5: Improve Maternal Health				
10	MMR in 100,000 live births	327	218*	
11	Proportion of births attended by skilled health personnel (%)	47	43.5*	
Goal 6: Combat HIV/AIDS, Malaria and other diseases				
12	Contraceptive Prevalence Rate (%)	21	61.20	
13	Deaths due to TB per 100,000 people	39	45	
Goal 7: Ensure Environmental Sustainability				
14	Area covered under forest as of geographical area	2	13.20	
15	Households with sustainable access to an improved water source (%)	31	97.9*	
16	Households without access to improved sanitation (%)	92	44.10	
Goal 8: Global Partnership for Development				
17	Telephone users (%)	57.4	0.71	
18	Internet users (%)	5.5	24.37	

Notes:
** More than one figure. Refer to Report*
For each country the information is available for different years for different indicators. Afghanistan - Indicators 1,2,10 refer to 2010 and the rest 2012; Bangladesh – Indicators 7 refer to 2010, Indicators 4,8,10 to 2011, Indicators 6,11 to 2012, indicators17,18 to 2014, Indicator 12 to 2008-12 and the rest to 2013; Bhutan -Indicators 1,14,15,17,18 refer to 2007, Indicators 16 refer to 2009, indicators 10 refer to 2008-2012 and the rest are of 2010; India - Indicators 2,12 are of 2005-06, Indicators 9,11 are of 2009, Indicators 13 are of 2010-11, Indicators 8 are of 2012-13, Indicators 3,5,14 are of 2013-14, Indicators 17, 18 are of 2014, and the rest are of 2011-12; Nepal - Indicators 14 is of 1999, Indicators 5 are of 2009, Indicators 3,10,13 are of 2012, Indicators 1,11,15,16 are of 2013, and the rest refer to 2011; Pakistan – Indicators refer to 2013; Sri Lanka – Indicators 2 refer to 2006-07, Indicators 8 refer to 2009, Indicators 10,11 is of 2010, Indicators 7 is 2011, Indicators 17, 18 are of 2013, Indicators 12 are of 2008-12 and the Rest are of 2012-13; Madhya Pradesh – Indicators 2 and 12 are of 2005-06., Indicators 11 is of 2009, Indicators 13 are of 2010-11, Indicators 8, 9 are of 2012-13, Indicators 3,5,14 are of 2012-13, Indicators 17, 18 are of 2012-13, and rest are of 2011-12
Source: UNDP Human Development country Reports.

	Bhutan	India	Nepal	Pakistan	Sri Lanka	Madhya Pradesh
	23.20	21.92	23.82	12.4	6.7	31.70
	11.10	40.40	28.80	31.50	26.90	57.90
	93.60	82.40	84.20	50	100	75.20
		86.10	88.60	58	97.80	83.71
	0.994	0.93	1.02	0.9	0.994	0.91
	NA	0.8	0.85	0.81		0.75
	NA	19.30	44.80	10.45	32	18.30
	61.5	52	54	89	11.3	83
	90	74.10	88	81	95	85.40
	150	167	170	276	33.3	221
	67.40	76.20	50	52.10	99.80	82.90
	35	5.20	49.70	35.40	68.40	4.80
	NA	1.33	21	NA	1.1	1.27
	72.50	21.23	39.60	5.20	29.60	25.15
	81	46.6	85	89	89.70	23.90
	17.50	53.10	38	28*	12.80	71.20
	15.6	76.4	NA	NA	17	57
	1.2	3.1	NA	NA	6.7	1.4

1

ERADICATE EXTREME POVERTY AND HUNGER

GOAL 1

Alleviation of Poverty and Hunger

Target: Halve, between 1990 and 2015, the proportion of people affected by extreme poverty and hunger.

Indicators:

- Head Count Ratio - Proportion of population below poverty line.
- Poverty Gap Ratio - Average level of poverty of the people below poverty line.
- Share of Poorest Quintile in National Consumption - Poorest quintile is bottom 20% of the population.
- Proportion of Underweight children below 3 years - A child is underweight if weight of a child is lower than a predefined measurement for its age.

CHAPTER 2

Alleviation of Poverty and Hunger

In India, despite substantial economic progress and many policy interventions, poverty among large sections of the people remains the single most important challenge. The disconnect between poverty and growth is higher in some states such as Madhya Pradesh which has seen considerable growth in output but poverty numbers have shown slower progress. To foreground the importance of poverty alleviation, MDG 1 spelt out in clear terms the goal of reducing to half the proportion of people affected by extreme poverty and hunger by 2015 compared to the levels in 1990. This chapter discusses the recent trends in poverty levels, its depth and the policy measures that could help in achieving this goal. The burden of poverty in Madhya Pradesh on India is also discussed.

2.1. Trends in Poverty

Poverty line is the yardstick that is used to estimate the proportion of people who are poor. Indian planners were well-aware of the connection between income poverty and food insecurity & nutrition, and therefore, had defined the poverty line on the basis of calorific standards. In 1979, a task force of the Planning Commission defined the poverty line as that per capita expenditure at which the average per capita per day calorie intake was 2,400 calories in rural areas and 2,100 calories in urban areas. This definition stood the test of time for many decades though there were problems in updating the poverty line as prices increased and what was accepted as minimum necessity by the

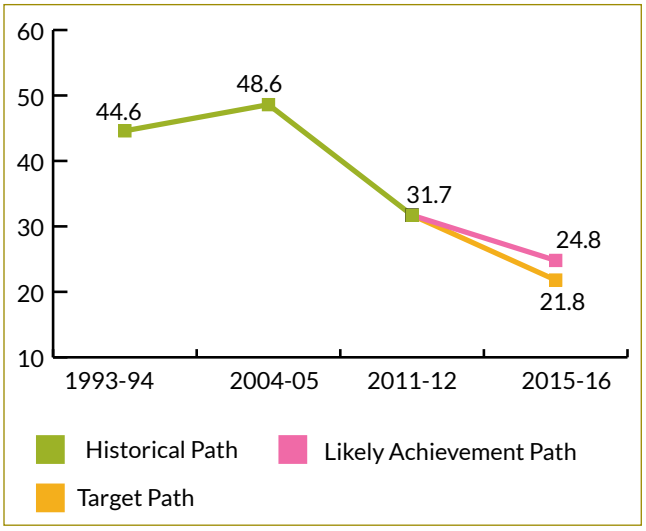
society changed. Tendulkar (2009) methodology, on which the present estimates of poverty are based, shifted from the calorific norm and introduced a broader concept of needs, including spending on food as well as education, health, lighting, clothing etc.[5]

Chart 2.1 presents the progress in poverty reduction for Madhya Pradesh. The poverty head count ratio (PHCR) indicator gives the proportion of people whose monthly per capita consumption expenditure (MPCE) is less than the defined poverty line expenditure, i.e. in 1993-4, 44.6% of the households were spending less than the poverty line. Chart 2.1 also shows the projection for 2015-16, the target year for MDGs. This will help in understanding whether the state is on-track in achieving the goal given the recent trend. The projection helps in understanding the extent of gap and the policies that may be necessary to bridge the gap. The projection is based on the trend growth during the latest period (See Appendix 1 for detailed projection methodology).

Compared to the all-India figure (47.8%), Madhya Pradesh began with lower estimated poverty numbers (43.56%) in 1990. Between 1993-94 and 2004-05, PHCR increased in MP, a development of great concern. Thereafter, there has been reduction in poverty numbers. In 2011-12, estimated poverty stood at 31.7%. The likely achievement path based on the latest trend (i.e. trend between 2004-5 and 2011-12) projects poverty in MP as 24.8% for 2015-16, whereas the MDG target for the state is 21.8%. Thus, given the recent trends, MP is likely to be off-track in terms of achieving this MDG 1 goal and the margin could be about 3% .

Table 2.1 presents the relative progress of Madhya Pradesh vis-a-vis other Empowered Action Group (EAG) states and the all-India average. The state might be considered a low performer compared to some of the other EAG states and relative to the all-India performance.

Chart 2.1: Poverty Head Count Ratio in Madhya Pradesh (%)



Source: Planning Commission, India, and authors' calculation

[5] *Despite attempts at refinement, most people would acknowledge that the poverty lines used in Indian contexts are close to destitution levels (Saith, 2005). This means that even those whose expenditures are above the poverty line and therefore counted among the non-poor may actually experience very low standards of living and suffer from multiple deprivations. In other words, it is important to keep in mind that poverty estimates are conservative at best and the extent of poverty may be far higher when measured by more suitable yardstick.*

Table 2.1: Comparison of Madhya Pradesh with EAG States: Poverty Head Count Ratio

s. no.	EAG STATES	2004-05	2011-12	Projection 2015	Target 2015	Achievement			
						Early Achiever - already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow- Expected to meet the target after 2015	Off Track: : no progress/ regressing - Stagnating or slipping backwards
1	Bihar	54.40	33.74	25.68	31.14		√		
2	Chhattisgarh	49.40	39.93	35.36	25.66			√	
3	Jharkhand	45.30	36.96	32.90	32.87		√		
4	**Madhya Pradesh**	**48.60**	**31.65**	**24.77**	**21.78**			√	
5	Odisha	57.20	32.59	23.63	29.81		√		
6	Rajasthan	34.40	14.71	9.05	19.72		√		
7	Uttar Pradesh	40.90	11.26	5.39	25.34		√		
8	Uttarakhand	32.70	29.43	27.71	15.91			√	
	All EAG States(Avg)	45.36	28.78	22.20	25.28		√		
	All-India	37.20	21.90	16.18	23.90		√		

Source: Planning Commission, India, and authors' calculation.

Depth of poverty and inequality in Madhya Pradesh

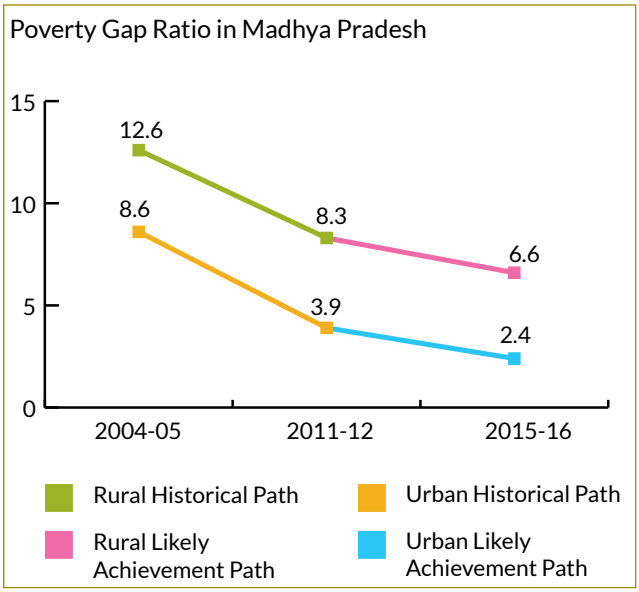
Poverty headcount ratio counts all the people below a poverty line, in a given population, and considers them equally poor. Poverty gap ratio reflects the depth of poverty amongst the poor. Poverty gap ratio is defined as the average poverty gap in the population as a proportion of the poverty line. Higher the poverty gap ratio, more extreme the poverty.

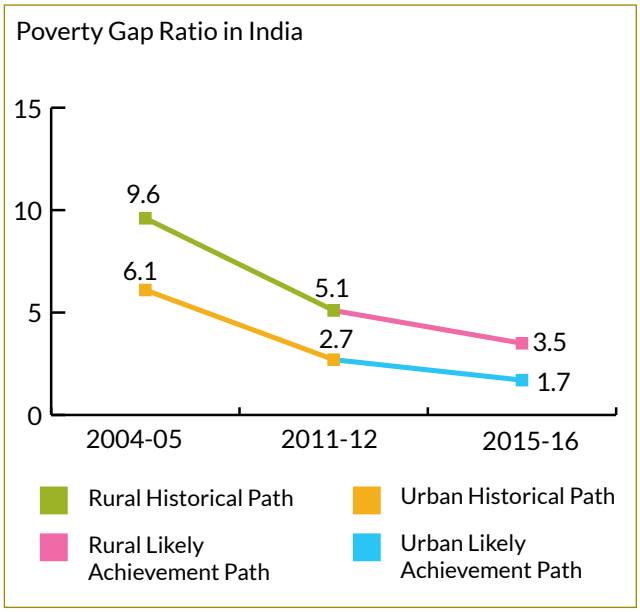
Chart 2.2 depicts the poverty gap ratio for Madhya Pradesh and all-India, rural and urban separately. Poverty gap ratio is higher for rural areas than the urban areas, i.e. destitution among the poor is more in rural areas than urban areas. Comparison of MP with all-India shows that Madhya Pradesh has a higher poverty gap ratio for the rural and urban sectors. The poverty gap ratio, however, has been falling between 2004-5 and 2011-12 and, if the present trend continues, it is expected to reduce further by 2015-16, signaling a drop in the depth of poverty.

A useful and easy to interpret measure of poverty and inequality are the shares of various quintiles in total consumption. Poorest quintile is the bottom 20% of the population, ranked by consumption levels. Higher the share of the poorest 20% in consumption of the total population, the more equal the consumption pattern. MDG framework has adopted the share of poorest quintile in national consumption as a measure of relative inequality for MDG 1.

In Madhya Pradesh, the share of the poorest quintile in total consumption in rural areas has been fairly high, both in comparison to urban Madhya Pradesh and all-India figures. Further, this share has been increasing, indicating a trend towards reduction in inequality. For the urban areas in MP the opposite is true; there is a trend towards growing inequality (Chart 2.3).

Chart 2.2: Poverty Gap Ratio (%)

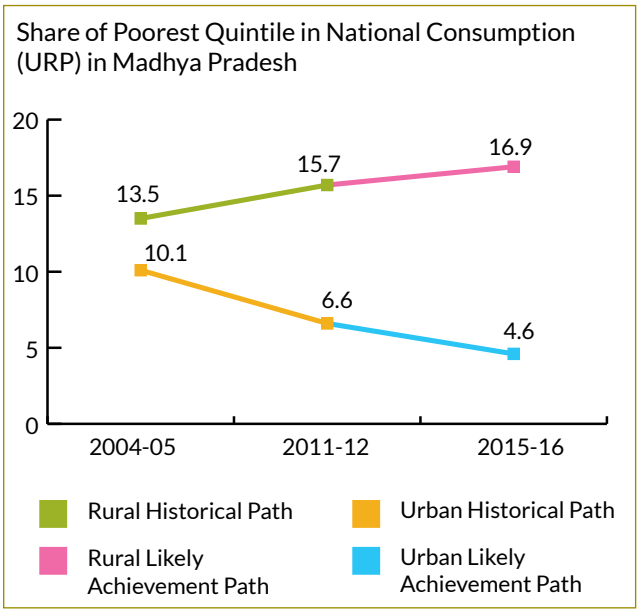


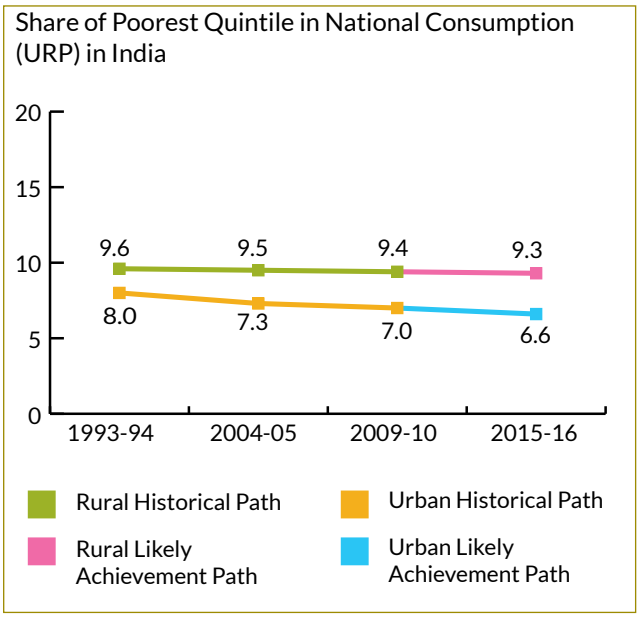


Note: 2015-16 is likely achievement path.

Source: Planning Commission, India, and authors' calculation.

Chart 2.3: Share of Poorest Quintile in National Consumption (%)





Note: 2015-16 is likely achievement path.

Source: Madhya Pradesh figures are calculated based on NSSO round 61st and 68th Consumption Expenditure Survey data. All India figures are from MDG Report, 2014, Social Statistics Division, MOSPI, GoI and authors' calculation.

Poverty by sectors and social groups

Poverty is generally observed to be concentrated among certain social groups and sectors. In MP, the incidence of poverty is highest among scheduled tribes (STs), followed by scheduled castes (SCs), other backward classes (OBC) and the rest, in that order. The burden of disadvantage is shared disproportionately by certain social groups and a dent in poverty requires attacking poverty amongst SCs, STs and other vulnerable groups. Similarly, rural poverty in most cases is higher than urban poverty (35.74% vis-à-vis 21% in 2011-12). As is well-known a large part of the urban poverty is an outcome of rural poverty. Development strategies with a rural focus thus become crucial for poverty reduction.

Table 2.2 presents the poverty head count ratio by social groups. The wide differences in

poverty across social groups are clearly seen for all sectors. In 2004-05, poverty among the ST population in the rural areas was as high as 80% and it has declined to 55% in 2011-12. Every second household among the ST community in the rural areas of MP is estimated to be poor even in 2011-12. The last three columns in Table 2.2 show the drop in poverty in the latest period. Given the high levels of poverty, the drop in poverty among SC and ST groups was high. The slow fall in poverty amongst other communities shows the difficulty in reducing poverty when the poverty levels are low.

To summarise the trends observed so far, the overall poverty in MP has declined, but it remains above the MDG target. During the 1990s there was an upturn in poverty; the gains in poverty alleviation are more recent and confined to the past decade. While the share of the poorest quintile in national consumption indicates that in rural MP there is more equality in consumption between different classes (compared to all-India), the poverty gap ratio indicates that many among the poor are very poor. Among the vulnerable groups, the situation of tribals (ST) and dalits (SC) is still a great cause for concern and needs focused policies.

Table 2.2: Proportion of Population living below poverty line by Social Groups: MP

Social Groups	Rural		Urban		Total		Drop in Poverty during 2004- 05 and 2011-12 (in %)		
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	Rural	Urban	Total
ST	80.02	55.34	42.6	32.27	77.02	53.17	24.68	10.33	23.85
SC	62.55	41.34	59.65	33.17	61.88	39.48	21.21	26.48	22.40
OBC	44.68	24.66	46.95	21.01	45.26	23.56	20.02	25.94	21.70
Others	22.89	19.63	14.55	13.12	18.79	16.40	3.26	1.43	2.39
All	53.59	35.74	35.05	21.00	48.59	31.65	17.85	14.05	16.94

Source: Calculations based on data from NSSO rounds.

Nutrition Measures

One of the basic indicators of overall food security and nutrition of the population is per person calorie intake. This was the original idea underlying poverty line in India. Poverty estimates essentially tried to capture the proportion of the population whose food intake falls below the minimum level of dietary energy requirements. This is also a measure of prevalence of under-nutrition. All households who are unable to meet the minimum level of dietary calorie are categorised as under-nourished.

Since the 1990s, a disturbing trend of decline in calorie intake per capita was witnessed in many states. In rural areas in MP, there was an 11% decline in estimated per capita calorie intake by 2004-5 compared to 1993-4. In urban areas in Madhya Pradesh, the trend fluctuated with an overall decline between the two years. The latest figures, however, show that per capita calorie intake has increased significantly both for rural and urban Madhya Pradesh and the decline in per capita calorie intake has reversed. If sustained, this would indeed be a welcome trend.

Table 2.3: Per Capita Calorie Intake in KCAL

Year/NSSO round	Madhya Pradesh		All India	
	Rural	Urban	Rural	Urban
1993-94	2164	2082	2153	2071
1999-00	2062	2132	2149	2156
2004-05	1929	1954	2047	2020
2011-12	2234	2209	2233	2206

Source: NSSO, 1993-94, 1999-00 (55th Round), 2004-05 (61st Round) and 2011-12 (68th Round)

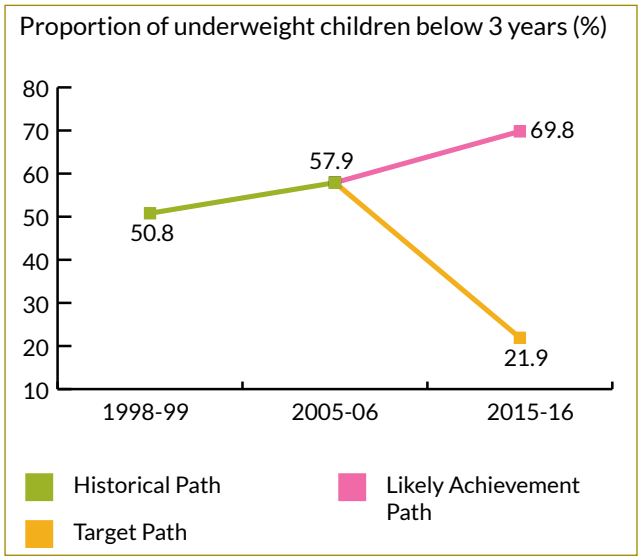
The worst sufferers of poverty and hunger are the children. Malnourishment in children, increases their risk of death, inhibits their cognitive development, and affects health status in the later stages (UN MDG Framework, 2003). Anthropometric measures of nutrition have shown the wide spread prevalence and intensity of malnutrition among children in India (NIN, 2012).

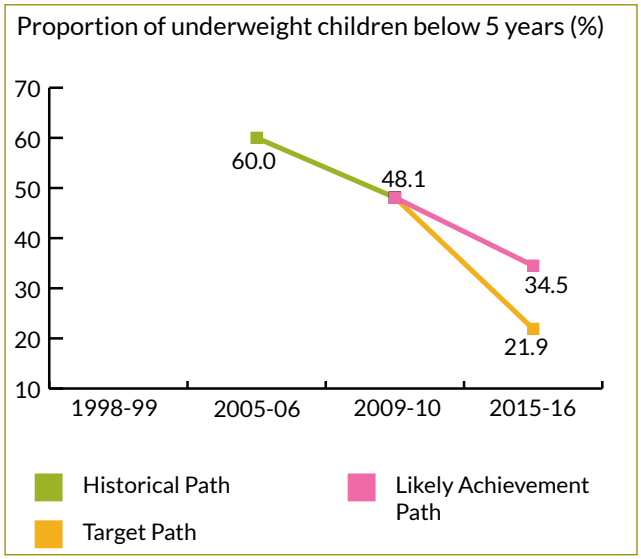
MDG indicator for malnutrition is the prevalence of underweight children in the age group 0-5 years. Children whose weight-for-age is below minus two standard deviations from the median of the reference population are classified as underweight. Nutrition is one important dimension where data availability in India is scarce and comparability across time difficult. The underweight data for under-5 age group is available only for NFHS, 2005-6 round, with previous rounds reporting prevalence of underweight in the age group 0-3 years. Chart 2.4(a)-(b) presents figures on underweight prevalence for under-5 and under three age groups respectively in Madhya Pradesh.

- Between 1998-99 and 2005-06, the incidence of underweight increased among the under-3 age group mirroring the increase in poverty. In the absence of a more recent data point on 0-3 age group, the trend on underweight between 1998-99 and 2005-06 when projected shows that the percentage might reach up to 70% by 2015-16.
- As per NFHS-III (2005-06), 60% of the children in the age-group 0-5 years were underweight in Madhya Pradesh, i.e. 3 out of 5 children in the age-group were under- weight. No updated information is available from the same source. A subsequent evaluation conducted by PMPSU, State Planning Commission, GOMP, 2009-10 shows that the proportion of underweight children in the age group 0-5 years declined to 48.1%.
- But the progress, though welcome, has been too little and MP is clearly off-track in terms of achieving the MDG target for nutrition. The gap between MDG target and the projection for 2015-16 in case of MP based on the latest available trend is as high as 13% (Chart 2.4 (b)). According to Rural Third Repeat Survey, 2011-12, conducted by National Nutrition Monitoring Board in ten major states of the country, not only was the prevalence of underweight the highest in MP at 54.2%, the prevalence of severe underweight was also highest in the state (23.2%) followed by the states of Gujarat and Uttar Pradesh.[6]

[6] *A child is severely under-weight if the weight for age is less than median (–) 3 standard deviation of the reference population (see Table 53.3 and Table AN-3 in NIN (2012)).*

Chart 2.4 (a)-(b): Proportion of underweight children in Madhya Pradesh





Source: NFHS rounds and impact assessment of ICDS, 2009-10 and authors' calculation

BOX: Burden of poverty and malnutrition

Madhya Pradesh contributes approximately 9% to total poverty in India, i.e. for every 100 people who are poor, 9 belong to the state. This is much more than the state's share in total population (6.3%). Also, Madhya Pradesh accounts for more than 18% of the poverty among the STs in India. There are more than 8 million tribal people in the state who have an absolutely fragile existence (based on 2011 census).

As for the prevalence of underweight children, Madhya Pradesh's contribution is estimated to be more than 9% (based on NFHS-3 figures). The state contributes 6.6% in the total 0-5 year children age group population, whereas 9.3% of underweight children in India come from here.

Burden Analysis of Poverty in Madhya Pradesh (%)

	Rural	Urban	Combined	Rural SC	Urban SC	Rural ST	Urban ST	SC	ST
Share of MP poor in all-India poor	8.77	9.64	8.66	7.05	9.89	18.54	13.31	7.62	18.04
Share of MP population in all-India population	6.3	5.32	6	5.37	6.47	15.17	9.94	5.63	14.65

2.2 Poverty, Hunger and Public Policy

To combat widespread and extreme poverty, hunger and under-nutrition, the need for multi-pronged approach is paramount. Measures to stimulate agriculture and the rural sector are just as fundamental as direct action against hunger. In the following section four key dimensions of public policy are discussed, each of which have a direct bearing on poverty, hunger, and malnutrition, namely, (i) agricultural growth; (ii) rural employment guarantee; (iii) public distribution system and (iv) nutritional support programmes.

High Agricultural Growth: High agricultural growth raises the employment opportunities and incomes for the rural workforce, and therefore contributes to poverty reduction. Madhya Pradesh boasts of a high growth in agriculture output in the recent years. As per the Agriculture Economic Survey of GOMP (2014), the growth rate of agriculture in the state in real terms during the XIth plan period (2007-12) was 9.04% on an average; the high agricultural growth has continued in 2012-13. Madhya Pradesh's agriculture growth rate for 2012-13 remained at 14.3% with overall GSDP growth at 10.02%. High growth of agriculture of the past few years is said to have made possible through gains in both areas under cultivation and increase in productivity.

Public expenditure and policy have played a definite role in reviving agricultural growth in the state. Looking at plan allocation across the last several Five Year Plans in the state, one observes that the allocations on agriculture and allied services after a complete stagnation in the eighth and ninth plan, began to revive in the tenth plan period (2002-2007). In the eleventh five year plan there was healthy growth, both in overall plan size and allocation for agriculture and allied services. Allocations on agriculture and allied activities have increased more than the overall allocations, signifying the priority accorded to this sector. When seen along with the allocations on irrigation and flood control, energy and rural development, all of which have a bearing on agricultural growth, the intervention is significant.

Not only, in respect to its own past, a comparison of expenditures on agriculture sector among different states shows that on an average the state is spending a comparatively higher percentage of its state budget on agriculture and allied sectors during 2010-11 to 2012-13 (GOMP, 2014; p.54). Besides, increased outlays the state government has also incentivized food grain production through higher price incentive (bonus on MSP) and effective procurement.

The importance of growth in agriculture and farm incomes cannot be over-stated. High agricultural growth impacts rural livelihoods, rural incomes and rural poverty directly and urban livelihood and poverty indirectly. Agriculture contributes between 1/3rd to 1/4th of GSDP of Madhya Pradesh depending on constant and current prices. According to Census 2011, 70% of total workers and 86% of the total workers in the rural areas in the state are dependent on agriculture for their livelihoods. Thus, high agricultural growth is crucial for reduction in poverty.

The impact of high agricultural growth on poverty, however, would also depend on its geographical spread as well as its class character. Whether all regions are part of the growth process or the growth phenomenon is concentrated to few clusters which have traditionally had favourable factors for growth (such as Malwa region or the Hoshangabad region) matters for poverty reduction. Since the major boost in agricultural production in MP has taken place in wheat, it would not be surprising if the growth impact were not so sharp in agriculturally backward areas, particularly the dry land areas of the state. Similarly, the impact on small farmers and the landless agricultural labourers is crucial if growth is to translate to better outcomes for poverty. For sustained poverty reduction, growth of agriculture and allied sectors and the dispersion of the growth are both necessary.

MGNREGS: Also known as the Right to work, MGNREGS (2005) aims to ensure livelihood security in rural areas by entitling 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. At a wage rate of Rs. 127/ day, for instance, a family can potentially earn Rs. 12,700 for 100 days of work, which can provide a measure of income security to the households.

Table 2.4 presents the status of MGNREGS in MP.

Table 2.4: MGNREGS in Madhya Pradesh

Particulars	FY 2013-2014	FY 2012-2013
Approved Labour Budget [In Lakhs Mandays]	1821	1960
Person days Generated so far [In Lakhs Mandays]	1229	1399
Average days of employment provided per household	42	40
Total no. of households completed 100 days of wage Employment	1,75,652	1,96,222
Percentage payments generated within 15 days	37	41
Total Households Worked [In Lakhs]	29	35
Total Individuals Worked [In Lakhs]	57	75
Percentage of Men Worked	56	56
Percentage of Women Worked	44	44
Percentage of SC Worked	18	19
Percentage of ST Worked	32	31
Percentage of Disabled Persons Worked	1	0
Total No. of Works Taken up (New + Spill Over) [In Lakhs]	10	8
Number of Ongoing Works [In Lakhs]	7	5
Number of Completed Works	2,86,270	3,04,694
% of Expenditure on Agriculture & Agriculture Allied Works	54	63
Wages (Rs. In Lakhs)	1,67,960	1,77,816
Material and Skilled Wages (Rs. In Lakhs)	76713	1,15,647
Total Adm. Expenditure (Rs. in Lakhs.)	19475	17616
Total Expenditure (Rs. in Lakhs.)	2,64,148	3,11,079
Average Wage rate per day per person (in Rs.)	139	127
Average Cost Per Day Per Person (in Rs.)	203	217

Source: http://nrega.nic.in/

In the year 2013-14, the workers received Rs. 1,67,960 lakhs as wages from the MGNREGS. In other words, the disposable income in the hands of the poor went up by Rs. 1,67,960 lakhs. 57 lakh individuals and 29 lakh households worked in the programme, which indicates the huge dearth of employment opportunities in the countryside and the importance of public policy and government as an employer of last resort. Of those who worked, 44% were women. Note the higher presence of SC and ST workers in MGNREGS, compared to their share in population. Thus, MGNREGS not only has bridged the unmet demand for livelihoods, it has also provided livelihoods to the vulnerable groups.

Many rural development works are completed under MGNREGS. Table 2.4 shows that 54% of the expenditure of MGNREGS was for projects on agriculture and agriculture allied works. Works such as soil and water conservation, land development, and afforestation done under MGNREGS not only add to immediate agriculture productivity, but also address the causes of degradation of natural resources (see Esteves et al, 2013).

One of the areas of concern is that out of 29 lakh household seeking work in 2013-14, only 1.76 lakhs completed 100 days of wage employment, i.e., 6% of total households who worked. In terms of financial allocation, of the approved labour budget of Rs. 1,821 lakhs, about 2/3rd was spent in 2013-14. Also, note that actual expenditure in 2013-14 was lower by 15% compared to 2012-13. And yet workers in Madhya Pradesh were seen migrating for work. The Impact Assessment Study of MGNREGS in MP (Samarthan, 2010) showed that MGNREGS didn't have a significant impact on migration and the perception of how MGNREGS affects migration is fairly negligible.

As per the respondents, the main reason is that the MGNREGS was not providing enough income to the households. "The only changing pattern in migration is that now mostly male members are migrating instead of the entire family." (p.. vii).

In a recent study on MGNREGS, Bhanumurthy et al (2014) have proposed to the government to expand the scope of the convergence of MGNREGS with other government programmes such as IAAY, Total Sanitation campaign and other development works. According to the authors, it would help to improve the scope and quality of work done through MGNREGS. While MGNREGS has brought in a measure of social security for the large number of poor families in rural areas, there is scope for improvement in planning, implementation, follow-up and fund-flows.

Public Distribution System (PDS): According to Kawadia and Phillips (2014), one of the important reasons for reduction in poverty in the state is the greater effectiveness of the public distribution system now as compared to what existed previously. In 2004-05, about 18% of rural households reported PDS rice consumption in MP. In a period of 5 years from 2004-05 to 2009- 10, MP registered a 5% increase in the share of households who consumed PDS rice. For wheat consumption the proportion increased from 20.3% in 2004-05 to 45.7% in 2009-10.[7] The improvement in the PDS coverage basically indicates reduction in leakages and better administration in terms of public delivery mechanism.

While MP may have improved on its past performance, compared to its neighboring state of Chhattisgarh (incidentally separated from MP in 2000), PDS is less effective. Table 2.5 compares the quantity of rice and wheat consumed from PDS per capita per month (kg) in MP, Chhattisgarh and all-India. On an average for a person living in rural MP, PDS ration of rice accounts for 21.3% of total consumption of rice. The figure for wheat is 17.8%. These proportions are far lower compared not only to the neighbouring state of Chhattisgarh, but also when compared with the all-India average. Thus, there appears to be large gaps in terms of implementation of the PDS in MP.

Table 2.5: Quantity of rice and wheat consumed per capita per month in 2011-12 (kg)

	Madhya Pradesh		Chhattisgarh		All-India	
	Rural	Urban	Rural	Urban	Rural	Urban
Rice PDS	0.468	0.229	4.316	2.575	1.67	0.882
Rice - other sources	1.726	1.647	6.935	6.123	4.306	3.605
PDS share	21.3	12.2	38.4	29.6	27.9	19.7
Wheat PDS	1.506	1.118	0.361	0.463	0.744	0.406
Wheat - other sources	6.978	6.732	0.514	1.572	3.544	3.605
PDS share	17.8	14.2	41.3	22.8	17.4	10.1

Source: Household consumption of various goods and services in India, NSSO, 68th round, 2011-12 (report No. 558)

[7] *Based on data from Ministry of Rural Development: Key Data on Rural Development from IDFC India Rural Development Report 2012-13 as cited in Kawadia and Phillips (2014)*

Nutritional Support Programmes: An estimated 4-5 million children in Madhya Pradesh in the age group of 0-5 years suffer from malnutrition.[8] Household food security has the closest link with malnutrition. In addition, antenatal care, infant and young child feeding practices (IYCF), iron, folic acid, Vitamin A and nutritional supplementation are crucial. The latter are clearly under the purview of direct nutritional support programmes.

Integrated Child Development Services (ICDS) – a centrally sponsored scheme of the government of India - seeks to provide a comprehensive package of services including supplementary nutrition, non-formal pre-school education, immunisation, health check-up, referral services and nutrition and health education. The beneficiaries of ICDS services are children of the age group 0-6 years, pregnant women, lactating mothers and adolescent girls.

Though the formal structures of ICDS have been in place for many years, the implementation of the programme has been far from successful, particularly, in backward regions and pockets of MP where the problem of food insecurity and malnutrition are severe.

The latest independent evaluation conducted by PMPSU, State Planning Commission, GOMP, 2009-10 has thrown up a large number of areas where the ICDS programme needs to be strengthened in Madhya Pradesh.

On infrastructure gaps, the survey pointed out that "approximately 54% of the anganwadi centers (AWCs) were run from rented buildings, drinking water was available only at 77% of the centers. 60% of the centers did not have toilet facilities. 67% anganwadi workers affirmed that they have the pre-school kits in their centers; however, some (37.5%) of them also told that kits with them are not sufficient in numbers as they were supplied long time back and by the time either they are of no use or have been lost by the children. Growth charts were available in 58% of the AWCs."

The manpower shortages were heavier among the monitoring and supervision staff like Assistant Child Development Project Officer (ACDPO) and Child Development Project Officer (CPDO). On the equity aspect, the survey reports that there are various types of exclusionary practices, which are directed at the most disadvantaged groups, STs and SCs.

"In many tribes in the state, especially in districts such as Dhar, Alirajpur and Jhabua, families primarily work as farmers, field labourers and have widely scattered villages. In many cases, the houses are located in the individual fields or in small settlements known as falias" (p. xx, ibid)

Anganwadi centers (AWC) are most often located in habitations where the majority households are from the general castes.

"Even in areas where geographically the anganwadi is only a few steps away from the house, its services may still be unreachable for eligible target beneficiaries. There may be children, and pregnant & lactating mothers who are excluded from the services of ICDS due to social reasons such as gender, caste and religion, disability and social stigma." (p. xx, ibid)

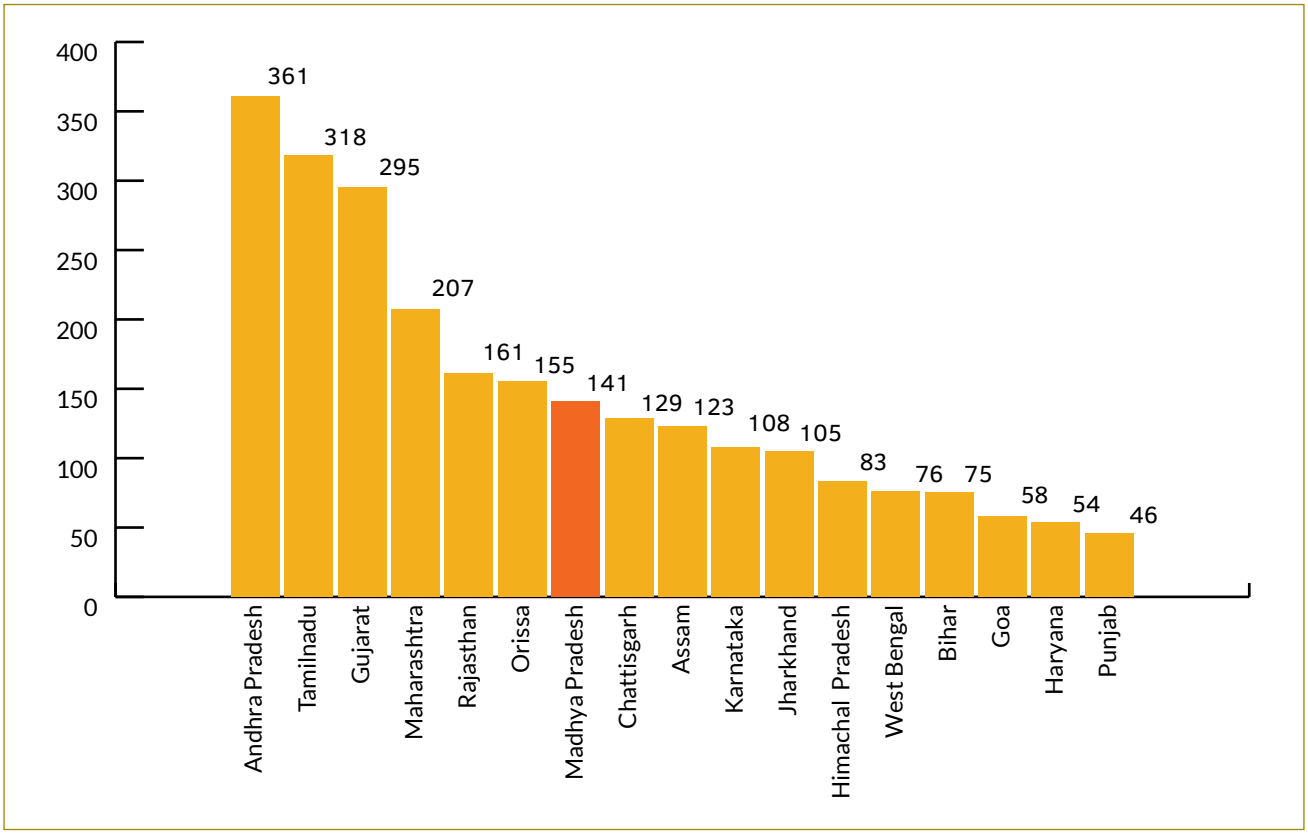
The issues in implementation are not independent of the priority accorded by the state to nutrition as witnessed in public expenditure. Most of the public expenditure on nutrition is under Integrated Child Development Services (ICDS) and Supplementary Nutrition Programme (SNP). These are centrally sponsored schemes with the centre contributing the majority of the funds available under these programmes. Chart 2.5 gives the per capita public expenditure on nutrition for 17 states of India. In the year, 2011-12, Madhya Pradesh spent Rs. 141 per capita on nutrition programmes. States such as Andhra Pradesh, Tamil Nadu and Gujarat were spending more than double the amount than what MP is spending. The two EAG states of Rajasthan and Orissa were also spending more than MP. High prevalence of malnutrition in MP raises questions on the adequacy of public expenditure. Better implementation of the programmes combined with considerably higher public spending would be necessary for Madhya Pradesh to catch up with the more developed states of India.

[8] *Authors' calculations using Census, 2011 population and ICDS Impact Assessment conducted by CARD and Sambodhi Research (2009-10).*

2.3 Summing Up

Madhya Pradesh has chosen a growth-oriented strategy supported by public allocations for agriculture and allied activities for its development path. Agriculture driven growth and MGNREGS have been the major anti-poverty strategies. As a result, absolute poverty fell in the state in the latest period, though it is likely to be short of MDG target with persistence of poverty across socially deprived communities. Public policy has failed to address the issue of malnourishment in children adequately. Madhya Pradesh is way off the target in prevalence of underweight among children. Prevalence of severe underweight is one of the highest in the state amongst all Indian states. Reforms of PDS and ICDS, with higher public allocations, could contribute to reversing the situation. Food security bill, ensuring minimum food entitlement for all, is especially relevant for the state.

Chart 2.5: Per capita public expenditure on nutrition in 2011-12 (Rs.)



Source: Finance accounts of respective state governments (CGA)

Status of MDG 1: Eradicate extreme poverty and hunger

Achievement of indicators having targets

MP and India	Indicators	Early Achiever- already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow - Expected to meet the target after 2015	Off Track: no progress/ regressing - Stagnating or slipping backwards
Madhya Pradesh	Head Count Ratio			√	
	Underweight Children < 3 years				√[9]
India	Head Count Ratio	√			
	Underweight Children < 3 years			√	

Achievement of Indicators without targets

MP and India	Indicator	Sector	Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Madhya Pradesh	Poverty Gap Ratio	Rural	√		
		Urban	√		
India	Poverty Gap Ratio	Rural	√		
		Urban	√		

As per the Rapid Survey on Children (RSOC) 2013-14, MWCD, GoI, key findings on Nutritional outcomes indicators for Madhya Pradesh are as mentioned below.

- Stunting in children below five years reduced from 50 % in 2005-06 to 41.5% in 2013-14.
- Data reveal that disparities are reducing - decline in stunting is faster among children from the scheduled caste and scheduled tribes, the caste group which are socially and economically the most disadvantageous.
- Good progress has been made in early initiation of breastfeeding within one hour of birth, between NFHS 2005-05 and RSOC. Early initiation of breastfeeding increased from 15.9% to 43.1% and exclusive breastfeeding in the first six months increased from 21.6% to 74.8%.
- There has been a significant increase in coverage for vitamin A supplementation from 14.1 % in NFHS 2005-06 to 45.3 % in 2013-14.
- There has been no change in the introduction of complementary feeding to children 6-8 months.
- A decline is seen in the frequency of feeding complementary foods to children below two years, from 45.7% in 2005-06 to 37.8% in 2013-14.

[9] *Considering 2009-10 data point of 48.1% on prevalence of underweight among 0-5 year old children from impact assessment of ICDS in MP, the projection for MP would show a downward trend. Position of Madhya Pradesh shifts to off-track but expected to meet the target after 2015.*

2

ACHIEVE UNIVERSAL PRIMARY EDUCATION

GOAL 2

Universalisation of Primary Education

Target: Children of all regions, boys and girls alike, to complete a full course of primary education.

Indicators:

- Net enrolment ratio in primary education - Enrolment in primary schools of children between 6-10 years/Population of children between 6-10 years
- Retention rate in primary education - Enrolment in Grade V (minus repeaters) in a year as a proportion to enrolment in Grade I four years back is termed as retention.
- Literacy rate among youth 15-24 years - The proportion of literate among the population aged 15-24 years.

Universalization of Primary Education

CHAPTER 3

Millennium development goal - 2 laid down the universalisation of primary education as a target to be achieved by 2015. The year 2015 is also the year by when the six 'education for all' goals as per the Dakar framework were to be met. Meanwhile, elementary education has been guaranteed as a fundamental right through a constitutional amendment and the subsequent act. The Right of Children to Free and Compulsory Education (RTE) Act, 2009, guarantees that 'every' child has a right to full time elementary education of satisfactory and equitable quality in a formal school which satisfies certain essential norms and standards.[10] Thus, not only primary but elementary education, which includes grades VI-VIIIth in school, of a decent prescribed quality is to be provided free to all children. In this chapter, the prospects of Madhya Pradesh achieving the MDG targets with respect to primary education, and the role of public policy are discussed.

3.1 Trends in Primary and Upper Primary Education

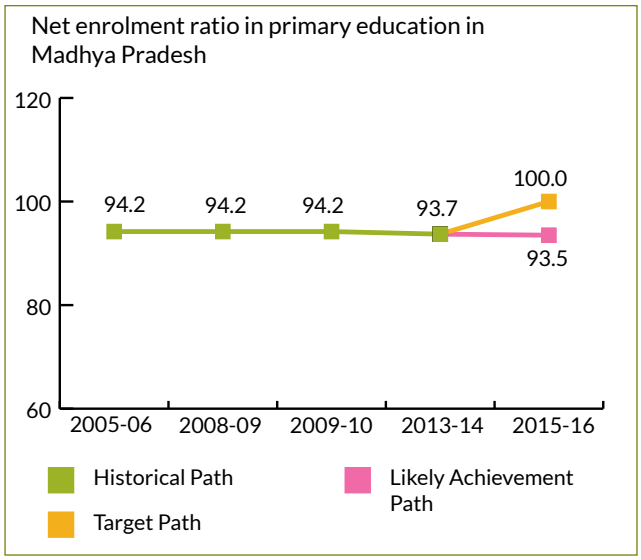
The basic indicator of access to education is the enrolment in schools MP has done reasonably well in regard to raising enrolments in schools. Net enrolment rate measures the enrolled children in the official school age group to total number of children in the official school age group. For primary education, the relevant age group is 6-10 years. By the year 2005-6, net enrolment rate (NER) in primary education in Madhya Pradesh had increased to 94.2% (Chart 3.1).

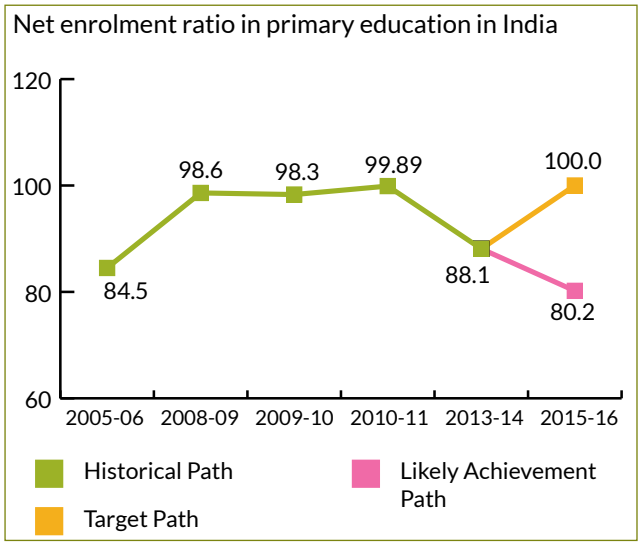
However, in the subsequent years NER didn't see further rise; rather it has shown a marginal fall to 93.7%, which is somewhat of an inexplicable phenomenon. Apparently, the problem is more a measurement issue due to interpolation of population data. Officials claim that the stagnation

[10] *See RTE, Ministry of HRD, http://mhrd.gov.in/rte*

in NER beyond 2005-6 is because the actual growth in child population of the relevant age group has been much slower than the projected population of school age children used in official calculations. Even if close to 100% of the children between 6-10 years of age are enrolled, until the slowdown in the growth of total pool of children is factored in, NER will be underestimated. Another reason for the break in trend is the introduction of UDISE system of reporting. These explanations however need to be validated.[11] Note that both for India and Madhya Pradesh, NER in primary education has shown a decline in the latest years.[12]

Chart 3.1 : Net Enrolment Rate in Primary Education (%)

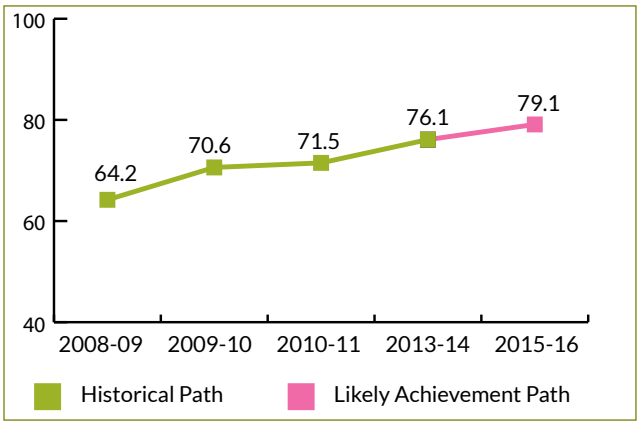




Source: DISE Statistics and authors' calculations.
Note: In the absence of data values for 2008-09 and 2009-10 for Madhya Pradesh are taken same as 2005-06.

While the issue of access may have been resolved at the primary level, the problem of enrolment clearly persists in the upper primary grades. NER in the upper primary grades has been increasing for Madhya Pradesh and is slightly higher than the all-India trend. In 2013-14, NER in upper primary grades (VI-VIII) was 76.1% (Chart 3.2). This is expected to reach 79.1% by 2015-16 based on the latest trend.

Chart 3.2 : Net Enrolment Rate in Upper Primary Education in Madhya Pradesh (%)



Source: Flash Statistics 2010-11 and DISE Statistics 2013-14 and authors' calculations.

What is the trend among the marginalised and underprivileged groups? Table 2.1 presents the share in enrolment of the marginalised groups SC, ST and Muslims, the underprivileged groups who have borne the huge burden of illiteracy, till recently. Children from the social and religious minorities have faced discrimination and exclusion from schooling in various forms, which continues to this day (Ramachandran and Naore, 2013).

The enrolment shares present an encouraging picture; enrolment shares of SC and ST children have exceeded their share in population. The share of Muslim children is school enrolments is lower in MP compared to the weight in population, both in the primary and upper primary level. One factor could be the exclusion of madrasa data, partly or fully from the DISE data

Table 3.1: Enrolment by Social Groups: 2013-14

	Population Share, 2011	Enrolment Share, 2013-14	
		Primary	Upper Primary
SC	15.6	17.1	18
ST	21.1	25.9	22
Muslims	6.37	5.2	4.7

Source: DISE, State Elementary Education Report Card, 2013-14.

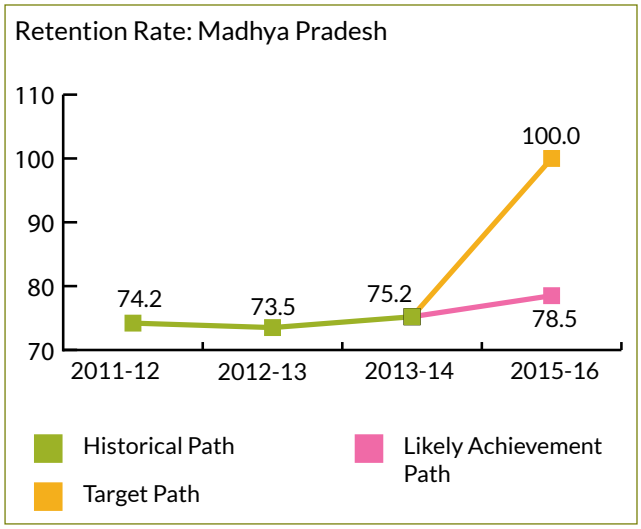
[11] *Conversations with RSK officials, Bhopal, Madhya Pradesh.*
[12] *Report of the 19th Joint Review mission of the Sarva Shiksha Abhiyan (SSA) in its state report on Madhya Pradesh (2014) has noted the phenomenon of decline in enrolment. Decline in enrolment of boys has been particularly sharp. No explanations have been furnished though.*

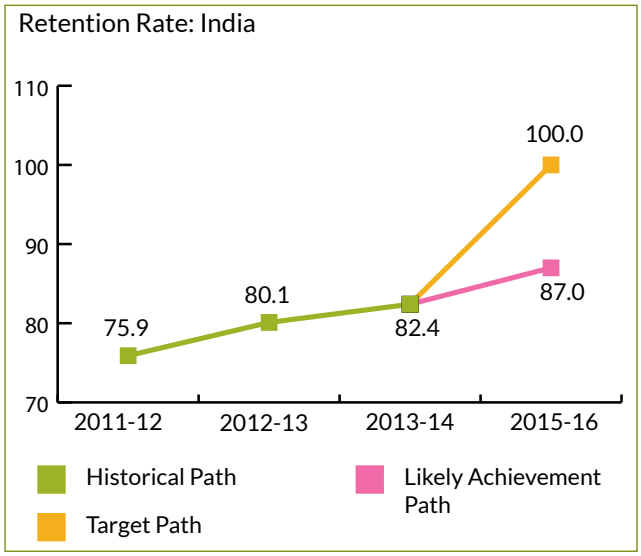
Following enrolment in schools, the question arises whether there is adequate participation and full completion of schooling. Only the latter has a formal target under MDG 2. One of the targets of MDG 2 is to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. The indicator retention rate can be used to capture this dimension. Retention rate is the enrolment in Grade V (minus repeaters) in a year as a proportion to enrolment in Grade I four years back is termed as retention.

In the absence of cohort mapping, DISE reports provide estimate of the indicator ratio of enrolment of Grade V (presently enrolled) adjusted for repeaters to Grade I (enrolled four years earlier)

Chart 3.3 depicts the retention rate in primary schooling in Madhya Pradesh. At 75% in 2013-14, the state will miss the target. The all-India retention rate is higher than the retention rate in Madhya Pradesh at present.

Chart 3.3: Retention rate at primary level (%)

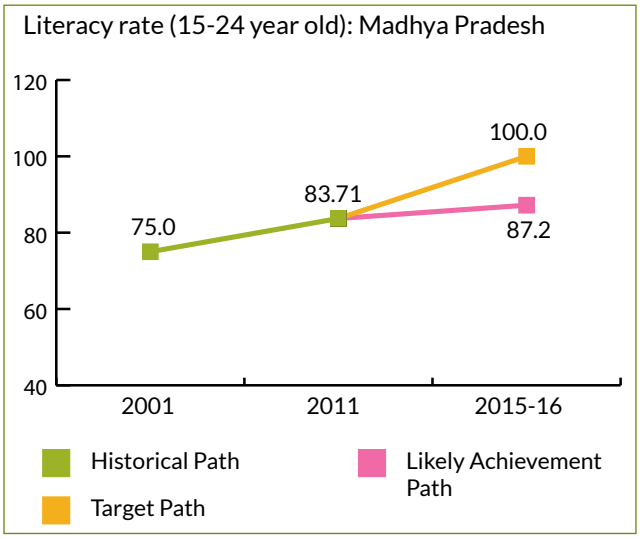




Source: DISE Flash Statistics 2011-12 and 2013-14.

The third indicator, youth literacy rate reflects the outcomes of primary education over the previous 10 years or so and thus has been selected as an indicator to track the universalization of primary education. It may also be broadly seen as a proxy measure for social progress and economic achievement (UN, 2003). Given India's commitment to universalization of elementary education a goal related to literacy of the youth (15-14 years) may seem like a non-challenge. By 2011, however, about 84% of the youth in the age-group 15-24 years were literate in Madhya Pradesh. The projection indicates 87.2% of youth in the age-group 15-24 years are expected to be literate by 2015-16.

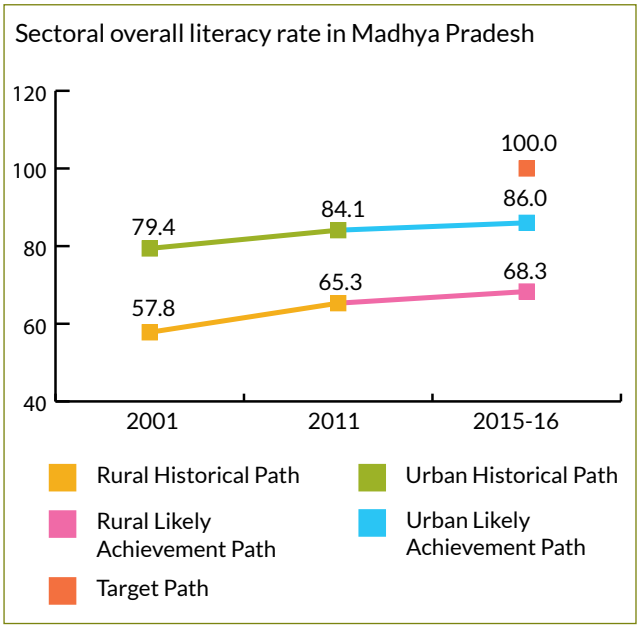
Chart 3.4: Literacy rate among youth aged 15-24 years in Madhya Pradesh

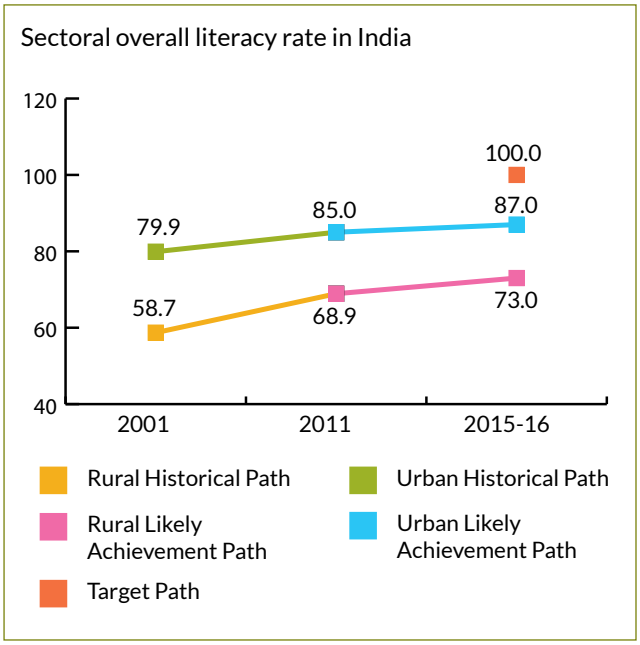


Source: MDG Report, Social Statistics Division, MOSPI and authors' calculations

As for overall literacy rate (defined as literacy among 7+ age group), it increased from 63.7% in 2001 to 70.6% in 2011. All-India literacy rate in 2011 was 74%. In rural areas, literacy rate rose from 57.8% to 65.3% and in urban areas, the progress was from 79.4% to 84.1% between 2001 and 2011 (see chart 3.5). While urban Madhya Pradesh is keeping pace with the all-India trends, rural parts of the state are lagging behind. By 2015-16, literacy in rural Madhya Pradesh is expected to be 5% behind the all-India literacy rate.

Chart 3.5: Literacy rate overall (rural and urban)





Source: Census 2001 and 2011, RGI and authors' calculations.

Comparison with EAG States

Table 3.2 presents the comparison of two of the schooling indicators of MDG 2 across the eight EAG states for the latest year. Madhya Pradesh exceeds the EAG average in net enrolment rate, but falls short in retention rate.

Table 3.2: Net enrolment rate and retention rate at the primary level (in %) across EAG states

EAG States	Net Enrolment Rate	Retention Rate
	2013-14	2013-14
Bihar	91.66	74.59
Chhattisgarh	93.79	82.95
Jharkhand	96.49	65.07
Madhya Pradesh	**93.66**	**75.16**
Odisha	89.05	84.77
Rajasthan	79.54	68.50
Uttar Pradesh	87.03	87.81
Uttarakhand	83.54	89.00
All EAG States (Avg)	89.35	78.48
All-India (Avg)	**88.10**	**82.38**

Source: DISE, Flash Statistics 2013-14.
Note: For Jharkhand, Madhya Pradesh and Uttar Pradesh data relates to 2005-6.

Issues regarding Quality of Primary Education

While the progress in terms of access and survival has been somewhat better, there seems to be serious issues on the quality of schooling in Madhya Pradesh. MDG 2 has no indicator related to the important aspect of learning. NCERT conducts periodic national assessment survey to evaluate students' learnings. The latest report based on survey conducted in 2010 shows that average reading comprehension of Grade V students in Madhya Pradesh was not significantly different from the group average comprising of most states and UTs of India. Average score for the state is 250 out of 500 (NCERT, 2012). Tamil Nadu had the best average score of 278. In mathematics, the average score of children sampled in the state was significantly above that of the group (265 against 251).

Surveys for Annual Status of Education Reports (ASER) however have found the learning outcomes in Madhya Pradesh to be far less favourable. The 10th ASER (2014) data shows that Madhya

Pradesh had a much higher learning level five years ago. The percentage of grade V children who can read grade II text (Hindi) showed that Madhya Pradesh had slipped to 34.1% in 2014 as against 77.4% in 2009. The national average in 2014 is 48.1% and Madhya Pradesh is the second lowest amongst states. In arithmetic, the percentage of children in Grade V who can do at least division had fallen to 13.9% as against 66.4 % in 2009. The ASER report suggests that not only in government schools, but learning levels in private schools have deteriorated as well.

One argument that has been made against taking these results too seriously is that learning cannot be confined only to mechanical and standardized content on which the above results are based. There is need for a richer and broader evaluation framework also given that the context of tribal lives is culturally very different. While this might be true, minimum level of reading, writing and computation are the least that one could expect as a schooling outcome. As the issues of enrolment and survival get resolved it is expected that there would be much greater emphasis on learning.

Burden of drop-outs from schools

Madhya Pradesh contributes 5.9% in the total 6-13 year age group population. But among out of school children in this age group in India, 7.4% come from the state. Also among all the drop-out children in this age group in the country, Madhya Pradesh accounts for 10.5% (National Sample Survey of Estimation of Out-of-School Children in the Age 6-13 in India, Draft Report, by Social & Rural Research institute, 2014).

3.2 Public Provisioning and Public expenditure on Elementary Education

The right to free and compulsory education act, 2009 (RTE) defines the present context of education policy in India. RTE lays down the norms and standards relating to pupil teacher ratios (PTRs), buildings and infrastructure, school-working days, teacher-working hour, etc. It provides for appointment of trained teachers, i.e. teachers with the requisite entry and academic qualifications.[13] The underlying idea behind these norms is that quality education entails certain minimum requirements.

Research on the status and implementation of the RTE has revealed large gaps existing in physical infrastructure. Despite continuing efforts, basic inputs such as adequate classrooms, assured drinking water, toilets, boundary walls, playgrounds, kitchen etc. are not fully available (Jha and Parvati, 2014). Many schools do not meet the RTE norms. Moreover, with massive teacher and staff shortages and the poor capacity of even those who are working, it doesn't seem as if the RTE requirements and quality education for all will be achieved in the next few years. The parliamentary Standing Committee Report on HRD (2012-13) noted that there were more than 37% vacant positions in regard to teachers in 2011. Bihar, UP, West Bengal, Jharkhand, Chhattisgarh, AP, Odisha, MP and Assam report a large proportion of untrained teachers .

In table 3.3, the condition of schooling in Madhya Pradesh using the official DISE statistics is presented.

About 80% of the schools in Madhya Pradesh are government schools. These schools account for a little more than 65% of the children enrolled between grades one to eight (2013-14). There has been increasing shift towards private schooling, and a slide in proportion of children enrolling in government schools in Madhya Pradesh, similar to the all-India trend.

[13] *http://mhrd.gov.in/rte*

Hierarchies of Access

Both private and public schooling are extremely differentiated with different types of institutions catering to different classes. Different types of private schools include the government aided private schools, unaided private schools (big and small), unrecognized private schools, among others. Among government schools there are schools run by department of education and others run by tribal and social welfare department. While 59% of the total schools in MP are run by the former, the tribal and social welfare department runs 21% of the schools. Then there are schools, very few in Madhya Pradesh, run by local bodies. Both departments also run residential schools and hostels.

Apart from differences based on management, education policy in India has been hung up on creating model schools. The latest such initiative aims to provide quality education to talented rural children by setting up model schools at the rate of one school per block as benchmark of excellence. One may wonder why everyone may not have quality education. JRM (2014) notes that there is a disparity between the types of provision and in the funding allocated to each type (eg. per child expenditure for girls' hostel is lesser than per child expenditure for KGBV). The range of schools with different financial allocations and therefore very different facilities have not helped the cause of quality education for all. There are hierarchies of access built into the schooling structure. Children have access to a fragmented and hierarchical schooling system.

Table 3.3: Status of Inputs in Elementary Education in Madhya Pradesh

S.No.	Indicators	RTE norm	2012-13	2013-14
	Schools			
1	Percentage of government schools to total schools		79.58	80.12
2	Percentage of schools in rural areas			85.31
3	Percentage of children enrolled in government schools			65.17
4	Ratio of primary to upper-primary schools		2.18	2.13
5	Average number of instructional days (primary)	200	218	
6	Average number of instructional days (upper-primary)	220	241	
	Teachers			
7	Percentage of single teacher schools (primary)		17.6	15.09
8	Percentage of enrolment in single teacher schools (primary)		13.68	11.39
9	Average number of teachers per school (primary)		2.4	2.5
10	Average number of teachers per school (government schools)		2.4	2.5
11	Average number of teachers per school (unaided schools)		6.8	7.9
12	Pupil-teacher ratio (PTR) (government schools)	30/35*	36	33
13	Pupil-teacher ratio (PTR) (all schools)	30/35*	32	29
14	Number of districts where PTR is above 30 (out of 50 districts)			23
15	Percentage of government schools with PTR > 30 (primary)			39.19
16	Percentage of government schools with PTR > 35 (upper-primary)			48.39
17	Percentage of SC teachers' to total teachers		12.77	12.57
18	Percentage of ST teachers' to total teachers		14.52	13.77
19	Percentage of female teachers' to total teachers		41.07	41.89
20	Percentage of professionally trained regular teachers		68.3	67.56

S.No.	Indicators	RTE norm	2012-13	2013-14
Physical Infrastructure				
21	Average Student classroom ratio, SCR (primary)	30	24	22
22	Percentage of schools with SCR > 30 (primary)	30	30.06	25.66
23	Percentage of schools with SCR > 35 (upper-primary)	35	30.61	27.81
24	Percentage of schools with drinking water facility	100	96.24	96.1
25	Percentage of schools having girls' toilet	100		88.75
26	Percentage of schools having boundary wall		43.91	44.15
27	Percentage of schools having computer		12.35	13.09
28	Percentage of schools having library			80.31
29	Percentage of schools having playground facility		56.71	60.37
30	Percentage of schools having kitchen shed		56.38	74.67
Governance				
31	Percentage of schools constituted SMC (govt and aided)	100	97.7	98.5

**The PTR norm is 30 for primary and 35 for upper primary schools.*

The greatest gap in public provisioning is the teacher gap. This is despite the fact that Madhya Pradesh has relied heavily on para-teachers etc., whose salaries are far less compared to regular teachers (Govinda & Josephine, 2004) As can be seen from Table 3.3, more than 15% of the primary schools in the state were single teacher schools, where one teacher manages multiple classes and also performs the administrative functions. About 12% of the children enrolled in primary school, which amounts to 7.88 lakh children, study in single-teacher schools in MP (2013-14). Almost all of these single teacher schools are located in remote tribal hamlets and villages and cater to the children from marginalized communities Teacher shortfalls particularly afflict the government schools. Note the sharp difference in the average number of teachers per school in the government school (2.5%) and in the private unaided schools (7.9%).

The overall PTR in Madhya Pradesh is close to the norm of one teacher for 30 children in primary and one teacher for 35 children in upper primary schools. However, the unequal distribution of teachers is clear from the fact that in 23 districts PTR is above 30. In the year 2013-14, 40% of the primary government schools had PTR exceeding 30 and 49% of the upper primary schools had PTR exceeding 35.[14]

Professionally trained teachers have been emphasized as a requirement under RTE. By 2013-14, only about 2/3rd of the teachers in the elementary schools of Madhya Pradesh were professionally trained. In this regard, the government schools are doing better than the private schools. A much larger percentage of teachers in government schools are professionally trained.

Improvements in physical infrastructure, though far from complete, have been faster than the improvement in teacher inputs. Probably it is the nature of the spending, most of which entails civil works and once-for-all capital expenditure that accounts for the faster progress. Even so, 26 % of schools had student to classroom ratio (SCR) exceeding 30, the stipulated SCR under RTE in the primary schools (Table 3.3). Majority of the schools have drinking water facility (96%) and girls' toilet (89%) in MP. The functionality of these facilities remains doubtful though. Kitchen sheds for preparation of the mid-day meals in the school have been constructed in 75% of total schools. This would entail that the mid-day meals can be prepared in clean hygienic conditions under supervision and served fresh to the children. 40% of the schools in the state are without a playground facility, and 20% are without library facilities. A paltry 13% of the schools in Madhya Pradesh have computer facilities.

[14] *Table 3.3 shows that at present the teacher composition is skewed against the scheduled castes & scheduled tribes and in favor of general castes. SC teachers comprise less than 13% of total teacher population against their share in population of around 16%. ST teachers comprise about 14% of total teacher population against the ST share in population of around 21%. Moreover, across the two years 2012-13 and 2013-14, the percentages have declined. Women comprise about 42% of the total teacher employed in MP. Caste and gender balance needs to be improved among the teacher cadre in Madhya Pradesh.*

Most schools today have got School Management Committees (SMC). RTE had spelled it clearly that every school will have a SMC, with a Parent Teacher Association (PTA) representative chairing it and parents, teachers, head, local body member, educationist/philanthropist/activist and an SHG representative as other members. SMC is supposed to monitor several aspects, including teachers' attendance, students' learning abilities and prepare a comprehensive school development plan. Most of the evidence from the ground in Madhya Pradesh shows that while SMCs have been constituted, their functions related to monitoring the quality of education is low (Joint Review Mission, 2014).

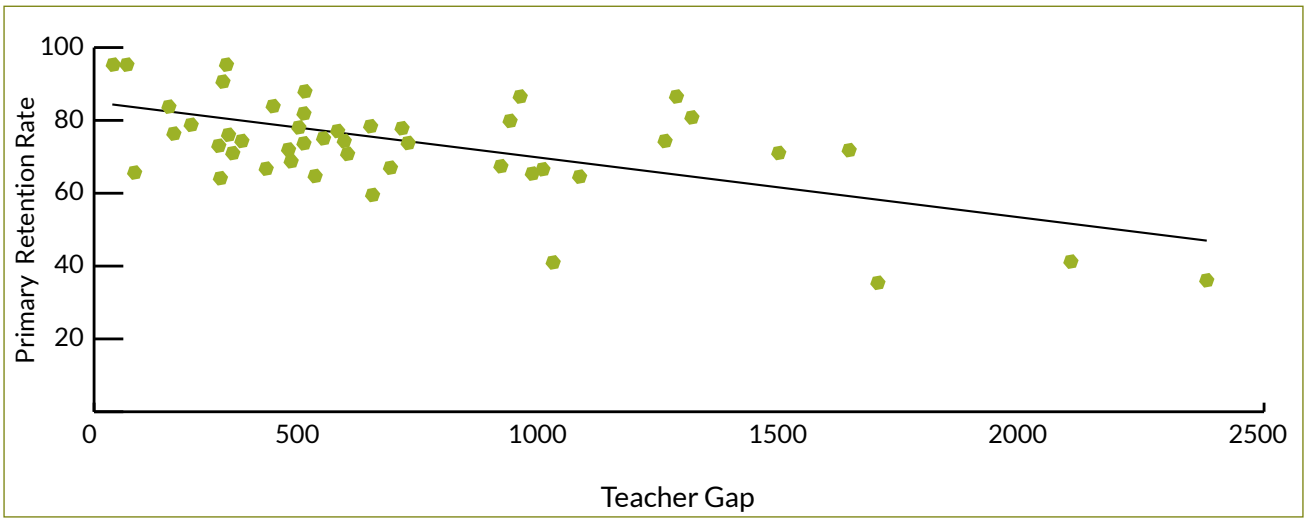
Is there a relationship between teacher shortfall and educational indicators?

The real time data on block-wise teacher recruitments and requirements shows that as per the RTE, 2009, norm there is a shortfall of a whopping 84,000 teachers in MP at the elementary school level. At the primary level, the shortage is a little under 34,000 teachers. In few urban blocks there are extra teachers, about 1100 (primary). This is the situation in Oct 2014, after almost four years of passing of the RTE act. RTE had emphasized the need for adequate teacher strength and the rational deployment of the teachers. As the RTE website, MoHRD says, "RTE provides for rational deployment of teachers by ensuring that the specified PTR is maintained for each school, rather than just as an average for the state, district or block, thus ensuring that there is no urban-rural imbalance in teacher postings." Even if one goes by the sanctioned posts, teacher vacancies amount to more than 20,000 (see AWP & B, 2013-14 cited in 19th JRM of SSA in MP, Jan 2014).

The distribution of the teacher shortfall is very unequal, which further aggravates the problem. The urban areas have surpluses while rural areas have shortfalls and such shortfalls are higher in the poorer districts of the state where the majority of the people of the marginalized social groups live. In MP the districts with the highest unmet teacher requirements are mostly the tribal districts: Jhabua (2393), Singrauli (2096), Alirajpur (1677), Mandla (1614), Barwani (1461), Chhatarpur (1269), Tikamgarh (1241), Shivpuri (1213) and Dhar (1028).

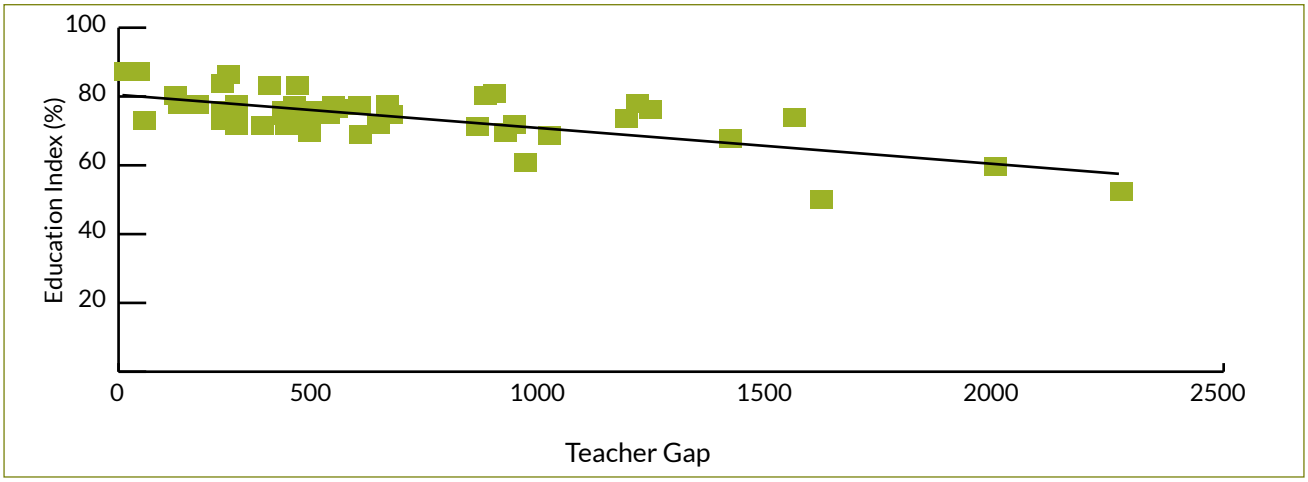
Given the large gap in teacher requirement, it may not be difficult to understand the declining educational outcomes in the state. Without having the minimum conditions of schooling it is hard to see why parents should keep sending their children to schools. The following graph shows the strong negative correlation that exists between teacher gap and the retention rate in the districts (Chart 3.6). Smaller the teacher gap, higher the retention rate of children in schools. The districts with very low retention rates have massive shortfalls in teacher recruitment.

Chart 3.6: Inverse Relationship between Teacher Gap and Retention Rate (primary)



Correlation coefficient -0.62

Chart 3.7: Inverse Relationship between Teacher Gap and Education Index



Correlation coefficient -0.71

Next, a simple education index is constructed by averaging the combining retention rate and literacy rate. Since net enrolment rate (NER) data is not available for all the districts, this was not considered.[15] The link between education index and the teacher shortfall is even stronger. Similarly, the correlations between teacher gaps and educational outcomes as reported in ASER surveys, were found to be significant.[16]

This exercise emphasizes the immediate need for recruiting more teachers for greater equity in educational outcomes. A key to fixing public schooling and its quality is to prioritize the policy that could bridge the teacher gap. This is not to say that other factors do not matter. However, every study acknowledges the graveness of the teacher situation in MP. Pratham (2013) in the Status of Implementation of the RTE act finds that "vacant posts of teachers and limited training programmes for them, poor anganwadi system, lack of innovative teaching methods and multi-grade classrooms are the main factors responsible for the decline in quality education in Madhya Pradesh (p.18)."

Public Financing

The main vehicle for operationalizing the RTE in states is the Sarva Shiksha Abhiyaan (SSA), a centrally sponsored scheme that predates the RTE act. SSA is designed to fill the gaps in infrastructure and teachers, and also enhance teacher quality and community participation. SSA works through state, district and lower level implementation societies, which were initially separate from the state education department in Madhya Pradesh, allegedly creating a parallel structure of governance (see Chakraborty et al, 2011). The financial expenditure under the Sarva Shiksha Abhiyan is borne by the centre and states together, with higher proportion of funding coming from the centre. In the year 2010-11, the utilization of the available funds under SSA in MP (83.7%) was close to the all-India average (84.2%). States like Andhra Pradesh (97%), Punjab(97%), Maharashtra (96%), Tamil Nadu (95%), Rajasthan (93%), West Bengal (91%), Chhattisgarh (91%) and Gujarat (91%) had higher utilization levels.[17]

Table 2.4 presents the per capita expenditure on education in seven of the eight EAG states. The first thing to note is that major portion of expenditure on education is borne mainly by the state government though SSA supplements up to 25% of the total expenditures on elementary education. In some states like Bihar and MP, the SSA spending may account for upto 30-33% of the total expenditure made by the states.

[15] *See Appendix 2*
[16] *Two of the ASER indicators children in Grades I-II who can read letters, words or more and children in grades I-II who can recognize numbers or more were plotted for correlation vis-à-vis teacher gap in districts. The coefficients are significant at 1% level of significance.*
[17] *Utilization of funds is defined as actual expenditure as a proportion of total available funds comprising of central government releases, state government releases, opening balance and 13th Finance Commission award.*

Table 3.4: Expenditure per capita on elementary education in Rupees (2011-12)

	Expenditure per capita under		Share in total		Total (Rs)
	SSA* (Rs)	State government (Rs)	SSA (%)	State government (%)	
Chhattisgarh	345	1339	20.5	79.5	1684
Bihar	299	607	33.0	67.0	906
Jharkhand	266	958	21.7	78.3	1224
Madhya Pradesh	**357**	**857**	**29.4**	**70.6**	**1214**
Orissa	296	925	24.2	75.8	1221
Rajasthan	374	995	27.3	72.7	1369
Uttar Pradesh	205	857	19.3	80.7	1062
Average	**306**	**934**	**24.7**	**75.3**	**1240**

Source: Computed using data from SSA website.
Note: Includes contribution of 25% by the state respective state governments to SSA.

Among the seven EAG states, there are large variations in expenditure per capita on elementary education. States such as Chhattisgarh, Rajasthan, Jharkhand and Orissa have higher per capita elementary education than Madhya Pradesh. Given the huge gaps in educational inputs existing in the state, there is a great need to increase the public spending on education in MP.

Compared to the expenditure by the states on elementary schooling, SSA expenditure shows less variability. Rajasthan had the highest SSA expenditure per capita among the seven EAG states followed by Madhya Pradesh. SSA expenditure in Madhya Pradesh accounted for close to 30% of total expenditure on elementary education. There is a sense that some of the legitimate state government expenditures are probably being pushed into SSA by the state government. JRM (2014) notes that state sanctioned posts for teachers have been decreasing over the last three years and SSA sanctioned posts have been increasing. It is important that the state doesn't substitute its own expenditure by the SSA expenditure. Rather, the demands for funds for academic improvement plan like activity based learning methodology, active learning methodology and other curricular reforms and training to be implemented across the state are legitimate demands and need to be met by SSA[18].

Chapter 10 delves further into the public expenditure on elementary education at the district level for Madhya Pradesh both by the state government and via SSA.

3.3 Summing Up

MDG 2 targets are fairly simple given the universalization of elementary education as a fundamental right for children of 6-14 age group in India. However, Madhya Pradesh is likely to miss these seemingly easy targets. Quality of education has been of great concern in the state. One of the prime reasons for quantity sans quality is the massive teacher shortage and its uneven distribution in the state. Low public expenditure on education out of state budget (compared to EAG states) and greater reliance on SSA appears to be the pattern in MP. With 14th Finance Commission Recommendations and greater devolution of untied funds, the state has much greater freedom to fix its priorities. Greater attention and allocations to elementary education are possible and essential for MP.

[18] *Jha and Pravati (2014) argue in detail there aren't adequate provisions for many of the functions and functionaries under SSA at present.*

Status of MDG 2: Achieve Universal Primary Education

Achievement of indicators having targets

MP and India	Indicators	Early Achiever - already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow - Expected to meet the target after 2015	Off Track: no progress/ regressing - Stagnating or slipping backwards
Madhya Pradesh	Net enrolment ratio in primary education				√
	Retention Rate at primary level			√	
	Literacy rate among youth (15-24 year old)			√	
India	Net enrolment ratio in primary education				√
	Retention rate at primary level			√	
	Literacy rate among youth (15-24 year old)			√	

GOAL 3

Promote Gender Equality and Empower Women

Target: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education, no later than 2015.

Indicators:

- Ratio of girls to boys in primary, secondary and tertiary education (Gender Parity Index)
- Ratio of literacy rate of women to men
- Share of women in wage employment in the non-agricultural sector
- Proportion of seats held by women in Legislature/Parliament.

Promote Gender Equality and Empower Women

CHAPTER 4

Gender equality and female empowerment are the fundamental human rights and is now universally recognized as key to effective and sustainable development outcomes. "Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance." - Kofi Annan[19]. Gender equality refers to parity in the numbers of women and men and it involves women working together with men to bring about changes in attitudes, behaviors, roles and responsibilities at home, in the workplace, and in the community. It involves expanding freedom.

And gender empowerment refers to equal power of women and men to act freely, exercise their rights, and fulfill their potential as full and equal members of society. "Empowerment is an on going and dynamic process, which enhances women's and any other marginalised and alienated groups' abilities to change the structures and ideologies that keep them subordinate. It is a process of making present power structures more inclusive, including all women and men, senior citizens, dalits, indigenous people and people with disabilities." [Bhasin and Dhar 1998]

Gender equality is an area of grave concern in India. The situation is more or less similar in all the EAG states. Within the EAG states, the position is comparatively less satisfactory in Madhya Pradesh. The current performance of Madhya Pradesh is below national average for all the MDG 3 indicators and also below EAG average for almost all the indicators of gender equality, except for ratio of literate women to men (7 years & above) and share of wage employment in the non-agricultural sector. There also persists gender inequality in health sector which is discussed in detail in the next chapter. Numbers of female deaths are more than number of male deaths per thousand live births among infants and children below 5 years.

[19] *Provisional Population Totals Paper 1 of 2011: Madhya Pradesh, Chapter-5, Census of India, RGI.*

Recently, the child sex ratio (CSR), which is not a part of MDG indicator, has become a matter of solicitude for all-India. CSR is the ratio of female child per thousand male child in the age group of 0 to 6 years. CSR in the country as well as in EAG states shows a declining trend over the period as shown in Table 4.1[20]. A lower CSR indicates gender bias in the society. CSR at country level was 945 in 1991, 927 in 2001 and has now declined to 919 in 2011. In case of Madhya Pradesh, it was 941 in 1991, 932 in 2001 and now stands at 912 in 2011. CSR at country level has declined by 62 points, in Madhya Pradesh by 29 points and in EAG states by 31 points during the period 1991-2011.

Table 4.1: Child Sex Ratio in EAG States (0-6 Years)

EAG States	1991	2001	2011
Bihar	953	942	933
Chhattisgarh	974	975	964
Jharkhand	979	965	943
Madhya Pradesh	941	932	912
Orissa	967	953	934
Rajasthan	916	909	883
Uttar Pradesh	927	916	899
Uttarakhand	948	908	886
India	945	927	919
EAG Average	951	938	919

Source: Census of India, RGI.

Literature shows that major reason for falling trend in CSR is attributed to abortion of the female fetus and discrimination against girl child that leads to higher mortality rates. A fall in CSR reflects not a rise in female child mortality, but a fall in female births vis-a-vis male births, and it is almost certainly connected with the increased availability and the greater use of gender discrimination of fetuses. It appears that the law enforcement has been comprehensively neglected. (Sen, 2001). The government of India has passed the Pre-natal Diagnostic Techniques (PNDT) Act, 1994 which came in to force in 1996[21] to ban pre-natal sex determination to tackle the decline in CSR. Despite the act, CSR has registered a falling trend from 1991 to 2001 to 2011.Studies show that falling CSR is mainly because of pre-birth intervention and strong preference of boys' birth. Hence, along with stricter act, mindset of people also needs to change in preference of girl child and people need to come out of strong preference for son. In dealing with gender inequality, the injustice related to female births needs to be washed off from the society (Sen, 2001).

The trend analysis of indicators under MDG 3 is explained below along with their likely achievement by 2015 using line charts. Almost all the indicators of MDG 3 of Madhya Pradesh shows deterioration over time except for ratio of literacy rate of women to men (7 years & above) and proportion of seats held by women in state assembly.

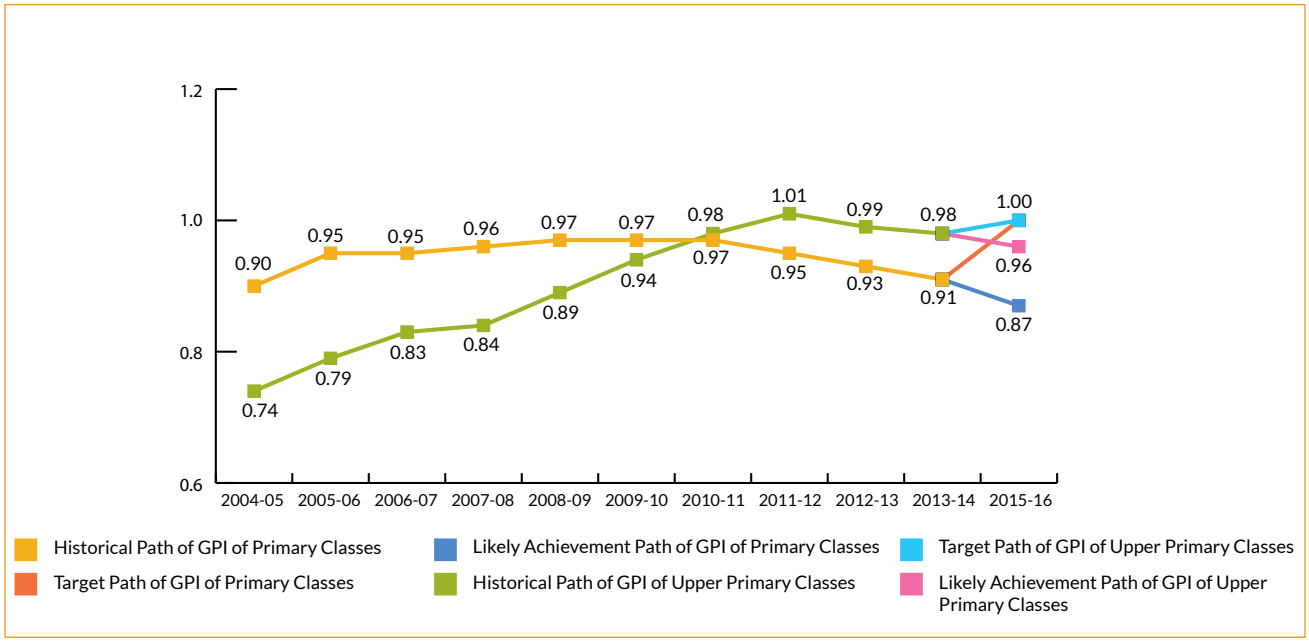
4.1. Ratio of girls to boys in primary, upper primary, secondary and tertiary education

In Madhya Pradesh, ratio of female to male enrolment in primary classes (I-V), also known as Gender Parity Index (GPI) in primary education, has come down from 0.93 in 2012-13 to 0.91 in 2013-14. It can be seen from Chart 4.1 that GPI of primary classes is indicating an increasing trend throughout from 2004-05 to 2010-11 but from 2011-12 onwards it started declining. GPI of upper primary classes (VI-VIII) and secondary classes (IX-X) is also depicting a declining trend over time. A fall in GPI of upper primary classes is observed from 2011-12 (Chart 4.1) and that for secondary classes is observed from 2007-08 (Chart 4.2). GPI of Tertiary Education shows an increase trend from 0.52 in 2004-05 to 0.79 in 2007-08 and thereafter, it remains constant at 0.79 (Chart 4.2).

Ratio of girls to boys in primary, upper primary, secondary and tertiary education in Madhya Pradesh reveals that the progress on MDG 3 about gender equity in all these four indicators has not been satisfactory and extrapolation suggests that all the indicators are expected to be off-track by 2015-16 from its target. Except for GPI of primary and upper primary classes, male-female equity is not in sight for rest of the indicators; recently these two indicators have also started moving away from their path of equity.

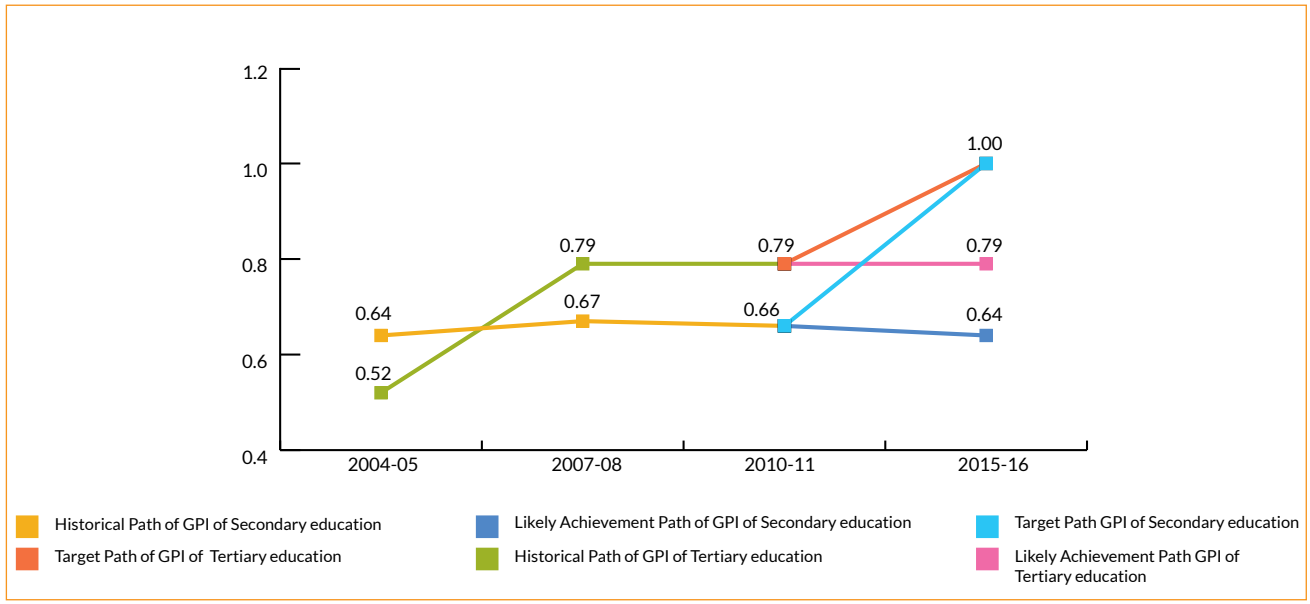
[20] *There is a slight increase in CSR in age group 0-4 years in Madhya Pradesh and Jharkhand from 931 (2010-12) to 932(2011-13) and 912(2010-12) to 916 (2011-13) respectively, as per SRS, Statistical Report, 2013.*
[21] *R.S Bora (2007), Imbalance in Child Sex Ratio: Trends, Causes and Emerging Issues.*

Chart 4.1: GPI of Primary (I-V) and Upper Primary (VI-VIII) Classes in Madhya Pradesh



Source: DISE, Flash Statistics, 2005-06 to 2013-14 and authors' calculations.

Chart 4.2: GPI of secondary and tertiary education in Madhya Pradesh



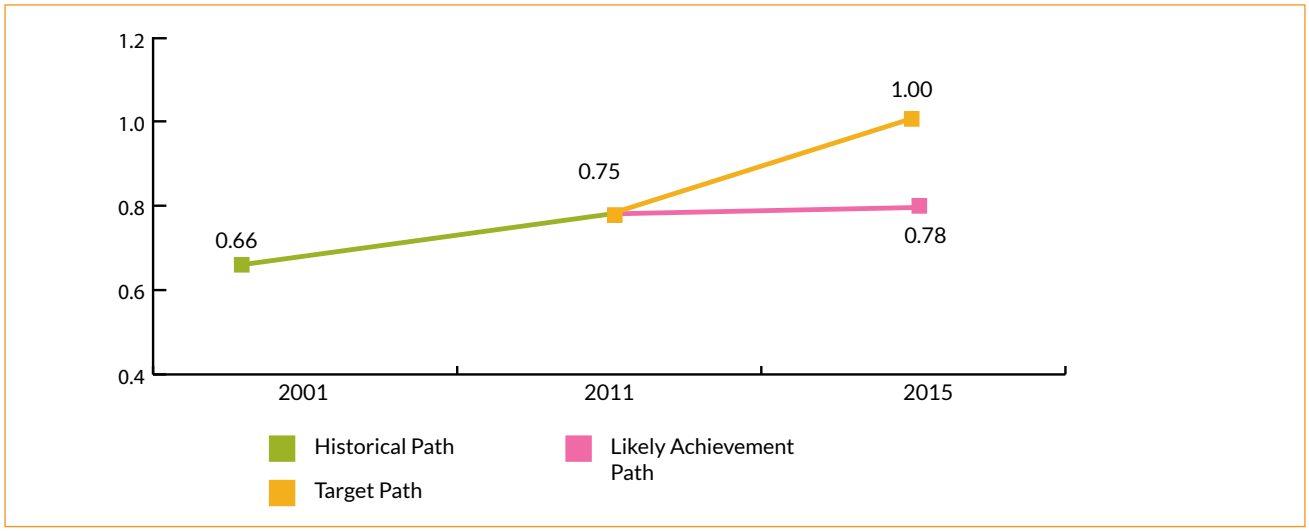
Source: DISE, Flash Statistics, 2005-06 to 2013-14, and authors' calculations.

4.2. Ratio of literacy rate of women to men (7 Years & above) in Madhya Pradesh

The gap in ratio of literacy rate of women to men aged 7 years & above has been narrowing down. The ratio has seen an upward trend. In 2001 the ratio stood at 0.66 and in 2011, it is observed to be 0.75. Although the indicator is increasing, the rate at which it is increasing suggests that this indicator would be off-track by 2015. The likely achievement path along with historical path and target path is explained below in Chart 4.3 with the help of line diagram.

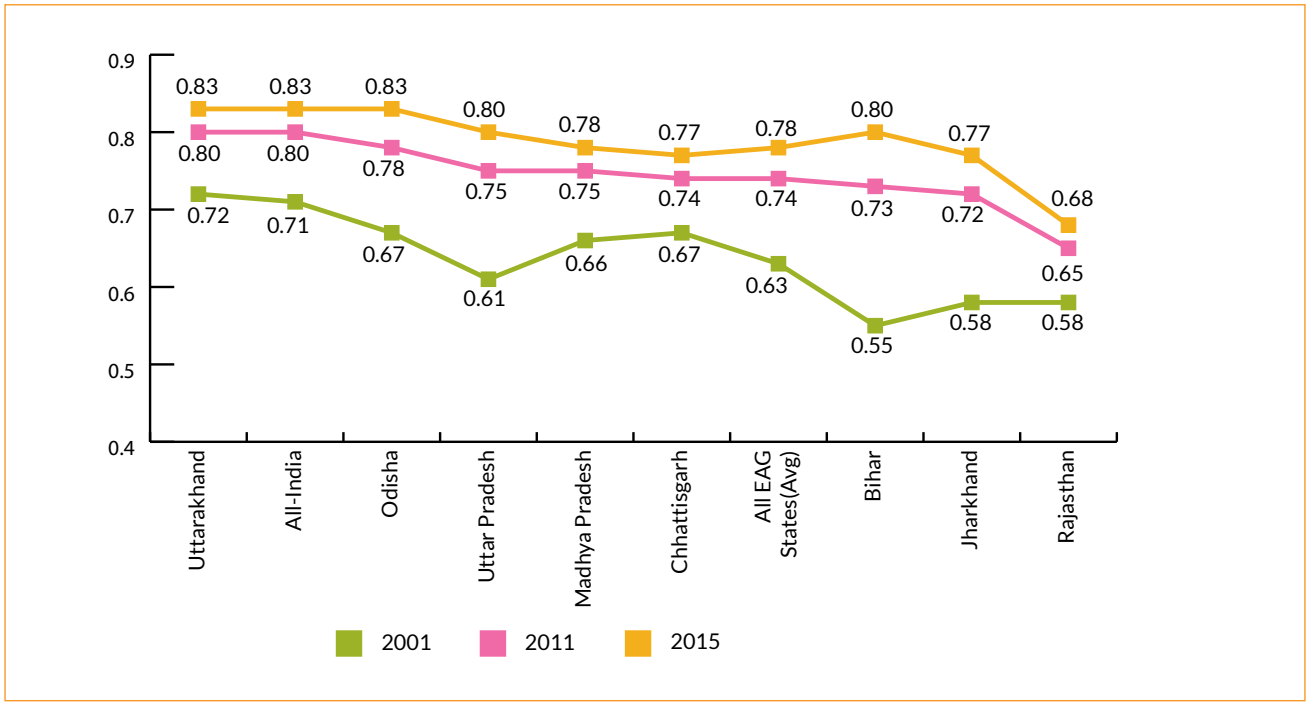
Comparison of Madhya Pradesh with other EAG states shows that the rank of Madhya Pradesh remains same at 4th in both time periods 2001 and 2011 as well as it is above EAG average in both the periods. The comparison of EAG states between two time periods is shown below in Chart 4.4.

Chart 4.3: Ratio of literacy rate of female to male in Madhya Pradesh



Source: Census of India, RGI, 2001 and 2011 and authors' calculations.

Chart 4.4: EAG states' comparison of ratio of literacy rate of women to men



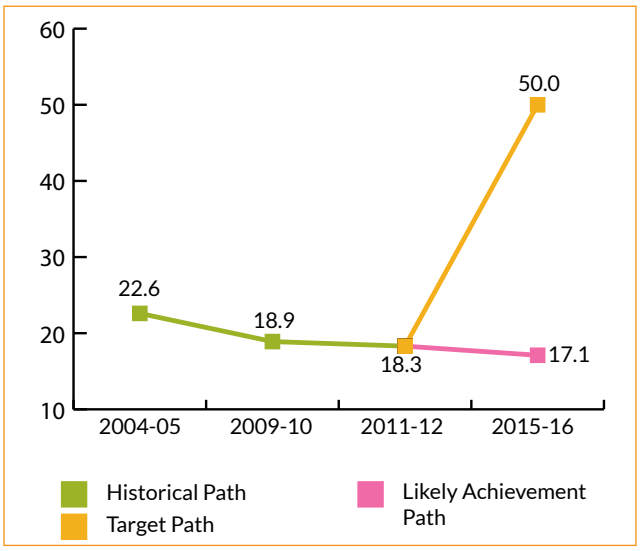
Source: Census of India, RGI, 2001 and 2011 and authors' calculations.
Note: Values for 2015 are projected values.

Historically, education of girls lagged behind that of boys. The persisting gender inequality in education can be attributed to several social and economic factors. Economic conditions of households act as a hindrance for girls' education. Studies show that poverty plays a major role in the attitude to girls' education especially for people below subsistence level. In predominantly agrarian household, a substantial number of girls are expected to contribute to the family's income by their own labour or to look after their younger siblings. The opportunity cost of educating girls is thus especially large in rural and low-income families (Sengupta & Guha, 2002). In patriarchal society daughter's education is considered as waste because 'expected returns from educated daughters do not exceed the costs'. Therefore, investment on daughter's education becomes unattractive to parents (Arokiasamy & Pradhan, 2006). Literature shows that parental education, religion and region are important determinants of girl's education. Returns to educational investments in girls are considered lower than boys by parents because of their limited opportunities in the labour market and the near certainty that they will marry out of the family and devote their future time and earnings to their husband's family. Caste and religion are also considered to be an important determinant of schooling. Studies have found that Muslim girls receives less schooling than girls in other communities (Divya, 2004). Also purported violence and lack of safe environment are responsible for lower enrolment of girls as compared to boys. To overcome the problem of gender gap in education, various government policies have been enforced in the country and all the states. Effectiveness of various polices related to mitigating gender disparity is discussed in the last section of this chapter.

4.3. Share of women in wage employment in the non-agricultural sector

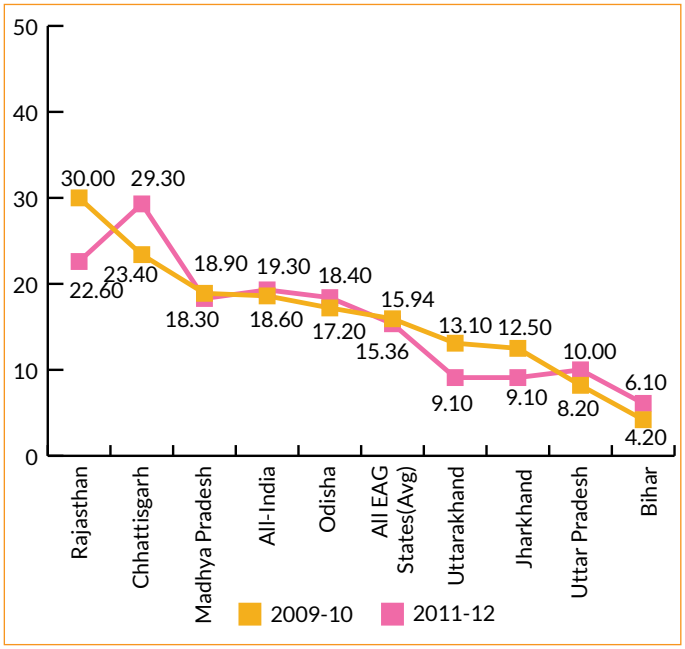
The share of women in wage employment in the non-agricultural sector measures the degree to which labour markets are open to women in industry and services. It focuses on raising the status of women and for ensuring their full participation and integration in development at all levels. It is observed that the women participation in wage employment in non-agricultural sector have variation among and within the states in India. The share of women in wage employment in non-agricultural sector is very low in Madhya Pradesh and rest of the EAG states. The gender disparity seems to be increasing in Madhya Pradesh with respect to this indicator and the share of women in non-agricultural sector is indicating a declining trend in Madhya Pradesh (Chart 4.5). Given the current trends, this indicator appears to be is off track to meet the MDG by 2015.

Chart 4.5: Share of women in wage employment in the non-agricultural sector in Madhya Pradesh



Source: NSS 61st, 66th and 68th round and authors' calculations.

Chart 4.6: Comparison of share of women in wage employment in the non-agricultural sector among EAG states



Source: NSS 66th and 68th round

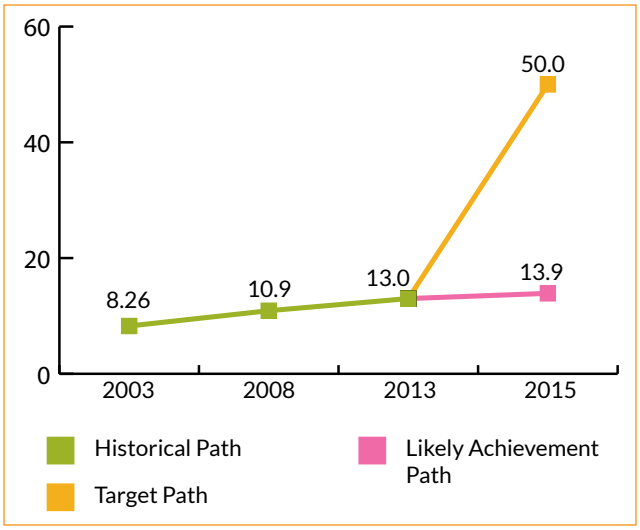
The comparison shows that the share of women in non-agricultural sector in EAG average has come down over time. Madhya Pradesh, Jharkhand, Uttarakhand and Rajasthan show a declining trend from 2009-10 to 2011-12. Position of Madhya Pradesh has deteriorated over the period. Rest of the EAG states shows only a marginal increase over time.

In India it is seen that not only female work participation in manufacturing sector is low but also wage differentials with respect to industry divisions and States are alarming. It is found that industries with a comparatively higher proportion of female workers are paying them lower than the average male wages. Thus, wage differentials could be one of the reasons for less participation of women in non-agricultural sector (Chaudhuri & Panigrahi, 2013). Agriculture continues to register highest share of female employment (Khanna, 2012). The reason for variation in women participation in non-agricultural sector among states and a decrease in participation rate may be due several important factors such as wage differentials, social restrictions, higher engagement in informal sectors, the position of industrialization in the State, etc.

4.4. Proportion of seats held by women in national parliament in Madhya Pradesh

Women in the state are yet to find their political voice in any significant way. Amendments in the Panchayati Raj Acts in 1992 to ensure political space for women has been a path breaking opportunity for women to participate in the political process. Madhya Pradesh has been one of the first states to make amendments in the Madhya Pradesh Panchayati Raj Act, 1993 in accordance with the 73rd and 74th Constitutional Amendment. It has provided 50% reservations for women in the total number of seats at each of the three tiers of the Panchayati Raj system. The trend of proportion of seats held by women in Madhya Pradesh assembly is gradually increasing (Chart 4.7) but the increase is very slowand is expected to be quite far away from the MDG target.

Chart 4.7: Proportion of seats held by women in State Assembly in Madhya Pradesh



Source: Election Commission of India (eci.nic.in) and authors' calculations

4.4. Schemes promoting gender parity

In order to improve the survival and welfare of girls and reverse the distorted sex ratio at birth, both the national and the state governments have launched special financial incentive schemes for girls. To attain the special financial incentives, families have to comply with certain minimum requirements such as registration of birth, childhood immunization, enrollment and retention in school, and delaying the age of marriage beyond 18 years. These incentive based schemes aim at improving the status of the girl child on the premise that financial benefits would trigger behavioral changes among parents and communities. There are also state specific schemes to improve the conditions of girls in respective states. In Madhya Pradesh, there are schemes such as Ladli Lakshmi Yojana and Kanyadan. Most of these schemes are administered through the Department of Women and Child Development using the vast network of ICDS and anganwadi workers. In April 2007, the state government launched the Ladli Lakshmi Yojana towards fostering a positive attitude for girl children in society to improve the gender ratio, the education and health of girls and lay the foundation for their future. Mukhyamantri Kanyadan Yojana was introduced in April 2006 to provide financial support to girls of marriageable age from poor families. Evaluation of Ladli Lakshi Yojana reveals that actual number of beneficiaries has turned out to be greater than the targeted number of beneficiaries.

Table 4.2: Beneficiaries of Ladli Lakshmi Yojana and Fund Allocation

Year	Allotted funds (Rs. Crore)	Money Spent (Rs. Crore)	Targets of Beneficiaries	Actual Beneficiaries
2007-08	276	250	207560	214134
2008-09	135	100	209000	209848
2009-10	24	26	30000	40854

Source: Special Financial Incentive Schemes for the girl child In India: A Review of Select Schemes, 2010.

Table 4.3: Beneficiaries of Mukhyamantri Kanyadan Yojana and Fund Allocation

Year	Allotted funds (Rs. Crore)	Money Spent (Rs. Crore)	Actual Beneficiaries
2007-08	19.20	19.57	32621
2008-09	26.18	25.98	43297
2009-10	25.00	14.88	19579

Source: Special Financial Incentive Schemes For The Girl Child In India: A Review of Select Schemes, 2010.

However, review of these schemes by several studies shows that there is a lack of field level monitoring and various problems arises in implementing the schemes.[22]. Explaining the scheme to the people becomes a challenging task. People are suspicious about the benefits that are being promised. Some NGOs felt that the scheme indirectly promotes patriarchy in society. Some were of the opinion that since the girl child received monetary benefits once she is 18 or is of marriageable age, such a practice supports dowry. Involvement of local Panchayats are strongly recommended by various studies to successfully implement the programme. Panchayats are considered as better in identifying the beneficiaries, monitor the progress of implementation and ensure timely transfer of funds. Studies state that Ladli Laxmi Yojana has received popularity amongst people. However, the lengthy processes of departmental formalities and collection of various documents create challenges.

4.5. Effectiveness of Gender budgeting in mitigating gender disparity

In India, gender perspective on public expenditure had gained interest since the publication of the report of the Committee on Status of women in 1974. Gender budgeting was adopted as a concept in 1992, but action was taken only after the year 2000 when the government of India adopted the Women's Component Plan approach for ensuring gender sensitive resource allocation. Later, this was implemented at the state level as well (Gender Responsive Budgeting in Madhya Pradesh: A Report, 2013). With the consistent initiative by the gender economists and women's groups, the Ministry of Finance, for the first time, gave a mandate to all ministries to establish a Gender Budgeting Cell by January 2005, and 18 ministries and departments were asked to submit annual reports and performance budgets highlighting budgetary allocations for women. Madhya Pradesh holds the distinction of being the first state in the country to introduce gender responsive budgeting in 2007-08. The effort has covered 13 departments in its gender budget. The Department of Finance is the nodal agency and a Gender Budgeting Cell is being set up under a budget director to monitor the flow of funds to women-specific schemes and pro-women schemes in these 13 departments. Number of departments under gender budgeting has increased from 13 in 2007- 08 to 25 in 2013-14.

With the increase in departments under gender budget, the outcomes are expected to improve over time. However, it is observed from the trend analysis of indicators of gender, the effort of the gender budget does not appear to translate to

[22] *Sekher (2010)*

better outcome indicators, instead, the indicators are worsening over time. Indicators such as Child sex ratio, GPI of primary and secondary classes and share of women in wage employment in non-agricultural sector are becoming issues of concern in the state as they are deteriorating over time. Various analysis of gender budgeting on Madhya Pradesh, however, has been criticized on the ground of existing schemes under several departments which are not directly related to reduce gender inequality. For example, in case of Mukhyamantri Mazdoor Suraksha Yojana of the Department of Welfare of Farmers and Agricultural Development, most of the provisions relate to assistance for marriage, delivery and children thereby reinforcing women's reproductive role in the family. Though this scheme is necessary, there is a need to provide more than this. There is a need for policies that can enhance the skills of the women labourers so as to enable them get better remuneration. Another scheme, Sampoorna Shikshit Gram Yojana of the Department of School Education incentivises the teachers and the community to promote education. While promoting education of girls and boys is the eventual goal of the scheme, it does not in any way directly address gender inequities in the society (CBGA, 2012).

4.6 Summing Up

Madhya Pradesh holds the distinction of being the first state in the country to introduce gender responsive budgeting in 2007-08. Despite the increase in number of departments under gender budgeting from 13 in 2007-08 to 25 in 2013-14, indicators like child-sex ratio, GPI of primary and secondary classes and share of women in wage employment in non-agricultural sector are worsening over time. Effective monitoring mechanism of gender budget is found absent in the state.

Status of MDG 3: Promote Gender Equality and Empower Women

MP and India	Indicators	Early Achiever - already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow- Expected to meet the target after 2015	Off Track: no progress/ regressing- Stagnating or slipping backwards
Madhya Pradesh	Ratio of girls to boys in primary, secondary and tertiary education				
	i) GPI for Primary Classes (I-V)				√
	ii) GPI for Secondary Classes (IX-X)				√
	iii) GPI for Tertiary Education				√
	Ratio of literacy rate of female to male			√	
	Share of women in wage employment in the non-agricultural sector				√
	Proportion of seats held by women in state assembly			√	
India	Ratio of girls to boys in primary, secondary and tertiary education				
	i) GPI for Primary Classes (I-V)				√
	ii) GPI for Secondary Classes (IX-X)			√	
	iii) GPI for Tertiary Education		√		
	Ratio of Literacy rate of female to male			√	
	Share of women in wage employment in the non-agricultural sector			√	
	Proportion of seats held by women in national parliament			√	

4
REDUCE
CHILD MORTALITY

GOAL 4 Reduce Child Mortality

Targets: Reduce by two-thirds, between 1990 and 2015, the Under-Five Mortality Rate.

Indicators:

- Under-Five Mortality Rate - Probability of dying between birth and exactly five years of age expressed per 1,000 live births.
- Infant Mortality Rate - Probability of dying between birth and exactly one year of age expressed per 1,000 live births.
- Immunization - Proportion of one year old children immunized against measles.

Reduce Child Mortality

CHAPTER 5

Improvement of child health status is the key to socio-economic development of any society or a nation. Childhood is a significant stage of life and deprivation during this period can have a long-term adverse impact on the wellbeing of children (Sharma, 2008). The status of child health plays a significant role in determining the priority given by a country towards child health. However, it is very distressing that around 10 million children under five years of age meet their last breath every year across the world. More than 70% of these child deaths every year are attributable to diarrhea, malaria, delivery, etc[23]. The major reasons for such miserable child health can be negligence of common illnesses and lack of appropriate measures needed to protect mothers and infants during pregnancy and childbirth.

The decline of child mortality is not only desirable but is an indicative of an improvement in general standard of livings. This goal have to be achieved through improving the access to and utilization of health services, family welfare and nutrition services with special focus on under privileged segments of population.

The government of India has adopted several health policies for improvement of health condition of its population. National Rural Health Mission (NRHM) was launched on 12th April, 2005 with the objective of providing accessible, affordable and quality healthcare to the rural population. The pace of decline in infant mortality rate in India has quickened in recent years after the introduction of NRHM. However, the degree of reduction varies among states.

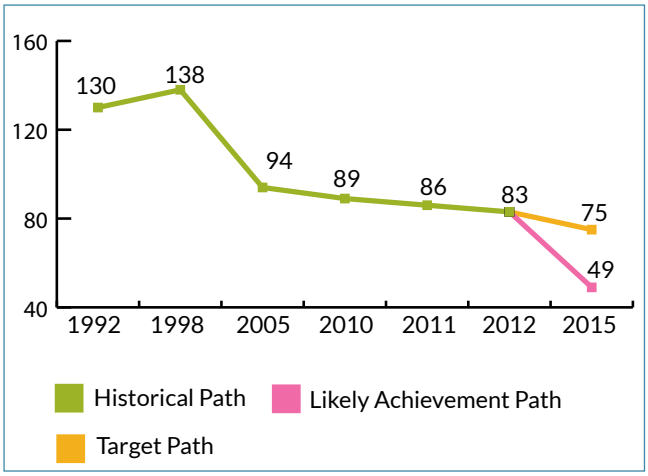
This section looks at the trends in child mortality indicators of Madhya Pradesh and analyzes whether the state will achieve MDG 4 target by 2015.

[23]*Child Mortality and Child Health Madhya Pradesh, Vikas Samvad.*

5.1. Under-Five Mortality Rate: Trend analysis and comparison with MDG 4 Target

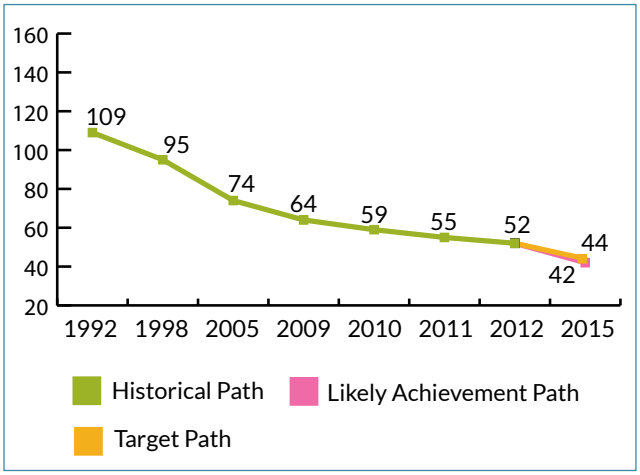
Under-five Mortality Rate (U5MR) is the probability of number of children dying under five years of age per 1,000 live births. In other words, it is the probability of not surviving till age five. U5MR in Madhya Pradesh is depicting a downward trend from 1998 onwards. From 1992 to 1998 there was a steep rise in U5MR but it started falling from 1998 onwards. U5MR sharply declined from 138 per thousand live births in 1998 to 83 per thousand live births in 2012. It is expected to fall further to 75 in 2015. However, due to decline in U5MR in a slow pace, the state is estimated to achieve its MDG target of 49 per thousand live births after 2015. India is expected to meet its MDG target by 2015 due to the increasing rate of decline. The trend analysis of India and Madhya Pradesh, along with their likely achievement by 2015 is shown below using line diagrams 5.1 and 5.2.

Chart 5.1:Under-Five Mortality Rate in Madhya Pradesh



Source: NFHS from 1992 to 2005 and AHS from 2010 to 2012 and authors' calculations

Chart 5.2: Under-Five Mortality Rate in India



Source: NFHS from 1992 to 2005 and SRS Bulletin from 2009 to 2013 and authors' calculations.

Burden analysis shows that Madhya Pradesh accounts for 10.5% of the U5MR in India as per 2012-13 (Share of MP in total population of age 0 to 5 years is 6.6%).

Gender and sectoral analysis of U5MR shows that the indicator is skewed towards female child in Madhya Pradesh and is higher in rural areas as compared to urban areas. In both rural and urban sectors female has higher U5MR than male.

Table 5.1: Under Five Mortality Rate (U5MR) in Madhya Pradesh (Per thousand live births)

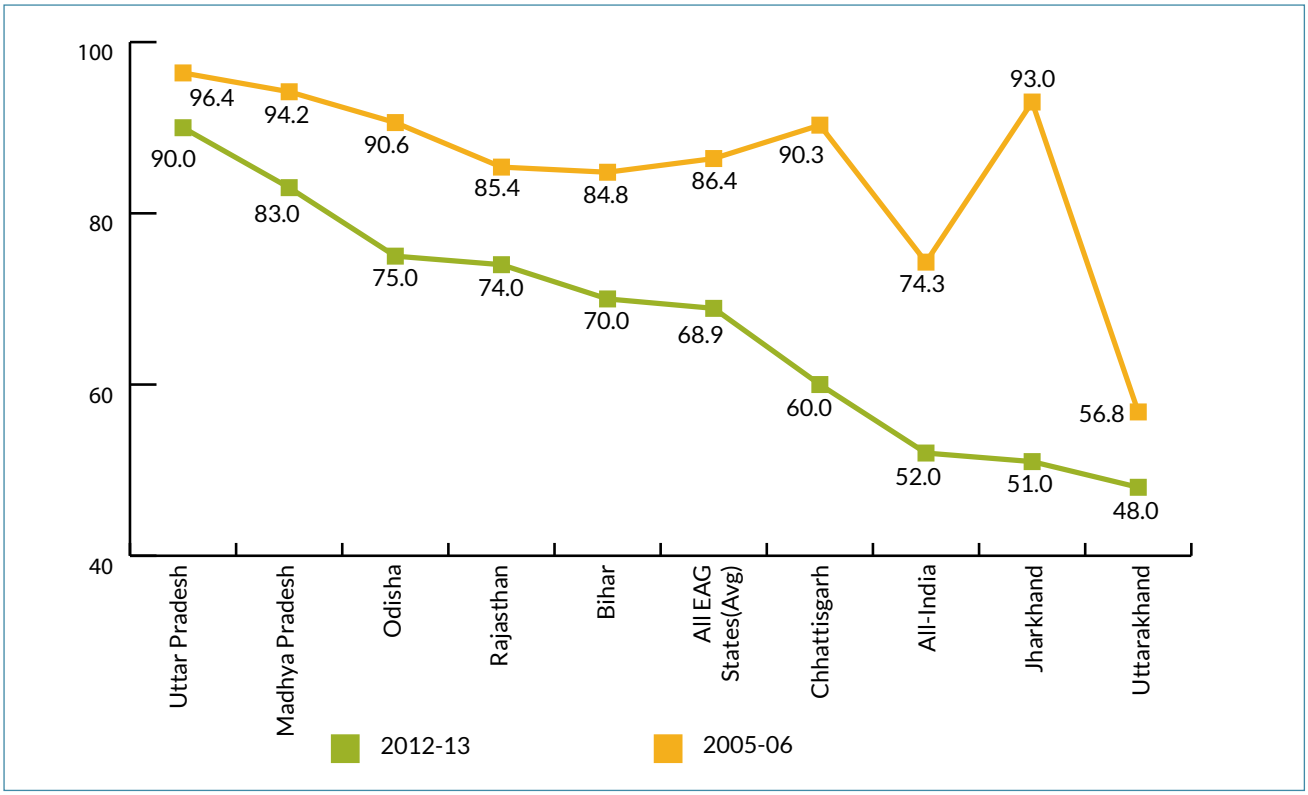
Year	Total			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
2010-11	89	86	93	99	96	103	62	60	64
2011-12	86	82	89	96	92	100	60	58	62
2012-13	83	80	86	93	90	96	57	55	59

Source: AHS, Madhya Pradesh

5.2. Comparison of Under-Five Mortality Rate between EAG States

In India, U5MR has reduced from 74.30 per thousand live births in 2005-06 to 52 per thousand live births in 2012-13. The declining rate (30%) of IMR is remarkable for the country in 7 years from 2005-06 to 2012-13. Maximum U5MR was registered in Uttar Pradesh in 2005-06. Madhya Pradesh was at second position after Uttar Pradesh with IMR of 94.2 per thousand live births. The position of Madhya Pradesh remained same in 2012-13 with an IMR of 83 per thousand live births. EAG states average shows a decrease of 20% in the same period from 86.44 to 68.88 per thousand live births. U5MR in Madhya Pradesh has reduced from 94.2.20 per thousand live births in 2005-06 to 83 per thousand live births in 2012-13 with a decreasing rate of 12%. Madhya Pradesh is the second worst performing EAG state in terms of U5MR after Uttar Pradesh in both 2005-06 and 2012-13. The comparison of Madhya Pradesh with other EAG states and All India is depicted in the following diagram.

Chart 5.3: Comparison of Under-Five Mortality Rate between EAG States

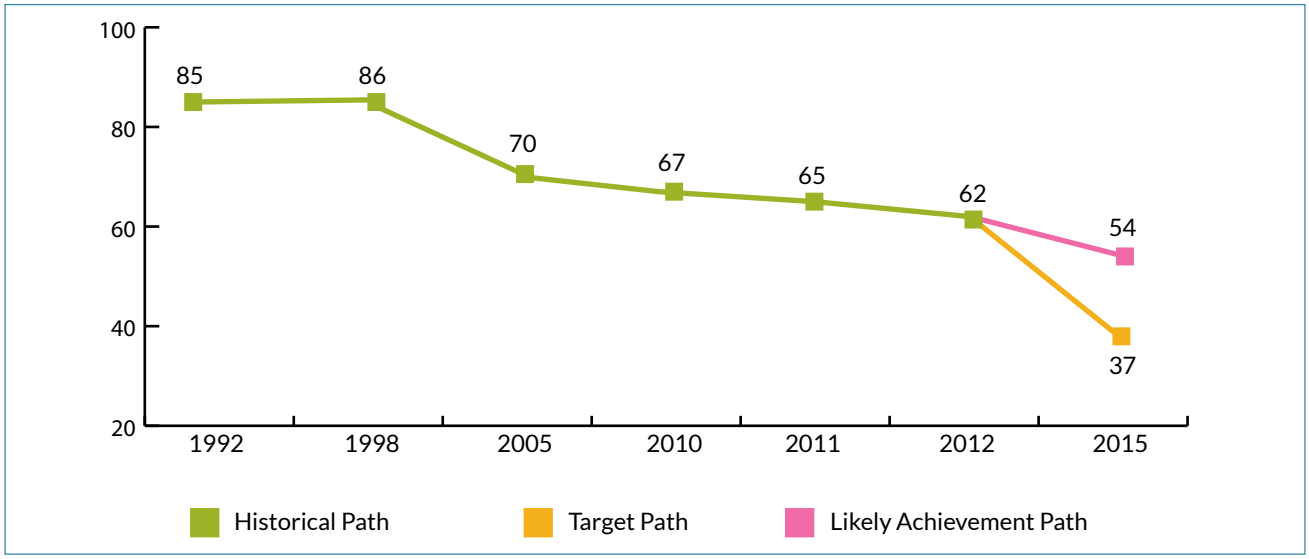


Source: NFHS-III for 2005-06 and AHS for 2012-13 and for India, the source is SRS Bulletin, 2013 and authors' calculations.

5.3. Infant Mortality Rate: Trend analysis and comparison with MDG 4 Target

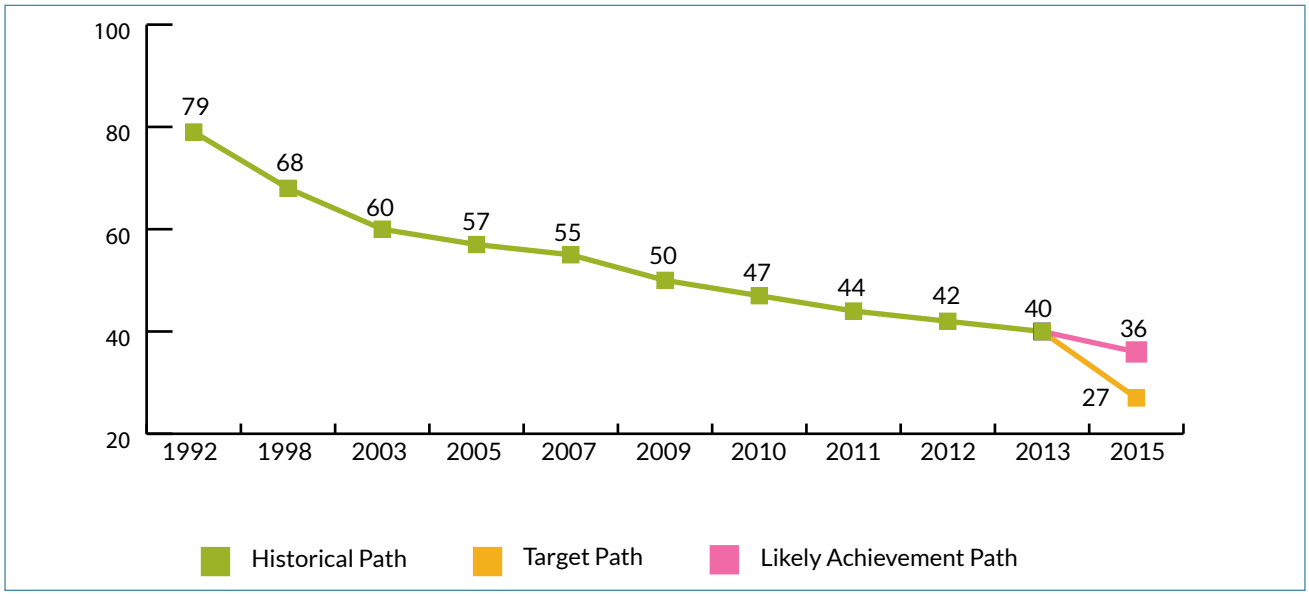
Infant mortality rate (IMR) measures the number of deaths of infant (less than 1 year of age) per thousand live births. IMR in India has registered a decline of 2 points from 42 in 2012-13 to 40 per thousand live births in 2013-14. The IMR for the country has shown a steady decline from 79 per thousand live births in 1992 to 40 per thousand live births in 2013. In Madhya Pradesh IMR shows a steep decline from 1998 to 2005. Thereafter, the rate of decline has become slow. There is 27% decrease observed in IMR from 1992 to 2012. The trend shows that Madhya Pradesh is likely to achieve IMR of 54 per thousand live births and India to achieve 36 per thousand live births for the year 2015. However, the goals for Madhya Pradesh and India are to bring down infant mortality rate to 37 and 27, respectively, for the year 2015 under MDG. Therefore, both Madhya Pradesh and India are estimated to be off track from MDG 4 and Madhya Pradesh to share of burden in national average with respect to IMR is more than 9% (share of MP in total population of age 0 to 1 is 6.8%).

Chart 5.4: Infant Mortality Rate in Madhya Pradesh



Source: NFHS from 1992 to 2005 and AHS from 2010 to 2012 and authors' calculations.

Chart 5.5: Infant Mortality Rate in India



Source: NFHS from 1992 to 2005 and SRS Bulletin from 2009 to 2013 and authors' calculations.

Table 5.2: Infant Mortality Rate (IMR) in Madhya Pradesh (Per thousand live births)

Year	Total			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
2010-11	67	64	69	72	70	75	50	49	52
2011-12	65	62	67	70	67	73	49	47	50
2012-13	62	60	65	68	66	71	47	45	48

Source: AHS, Madhya Pradesh

Table 5.3: Neo-natal and post neo-natal mortality rate in Madhya Pradesh (Per thousand live births)

Year	Neo-natal Mortality Rate			Post Neo-natal Mortality Rate		
	Total	Rural	Urban	Total	Rural	Urban
2010-11	44	49	32	22	24	18
2011-12	43	47	31	21	23	17
2012-13	42	46	30	21	22	16

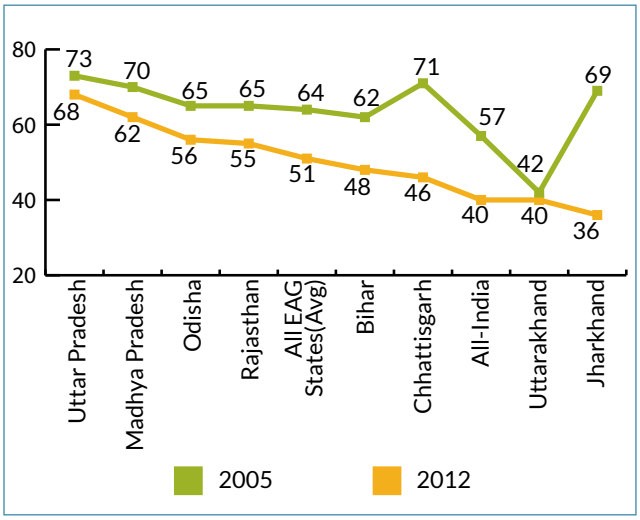
Source: AHS, Madhya Pradesh.

IMR in Madhya Pradesh follows similar trend like U5MR. IMR is higher in rural areas and higher numbers of female deaths compared to male deaths per thousand live births are registered in the age group of less than 1 year. Data from above table 5.3 states that neo-natal mortality rate[24] is higher than post neo-natal mortality rate[25] in Madhya Pradesh, in both rural and urban areas. Hence, neo-natal mortality accounts for high IMR in MP.

5.4. Comparison of Infant Mortality Rate between EAG states

The position of Madhya Pradesh within the EAG states is above average and above national average in the time periods, 2006 and 2012, indicating worst situation of the state as compared to all-India and EAG average. Comparing between 2006 and 2012, it is observed that IMR declined at the rate of 30%, 20% and 11% in All-India, EAG average and Madhya Pradesh, respectively. The positions of Madhya Pradesh and India have deteriorated from 2005 to 2012. The rank of Madhya Pradesh has gone up from 3rd to 2nd. Madhya Pradesh being the second worst performing EAG state with respect to IMR, its burden on national average is estimated to be at 9.2% in 2012. With a slow pace of decline in IMR, India and all the EAG states are expected to be off track from MDG 4 target. Analysis of burden of a state on the country becomes important as several researchers indicate that the achievement of MDG depends on the performance of poor performing states in the country.

Chart 5.6: Comparison of Infant Mortality Rate between EAG states



Source: NFHS-III for 2005-06, AHS, 2012-13 and SRS Bulletin, 2013 for All India and authors' calculations.

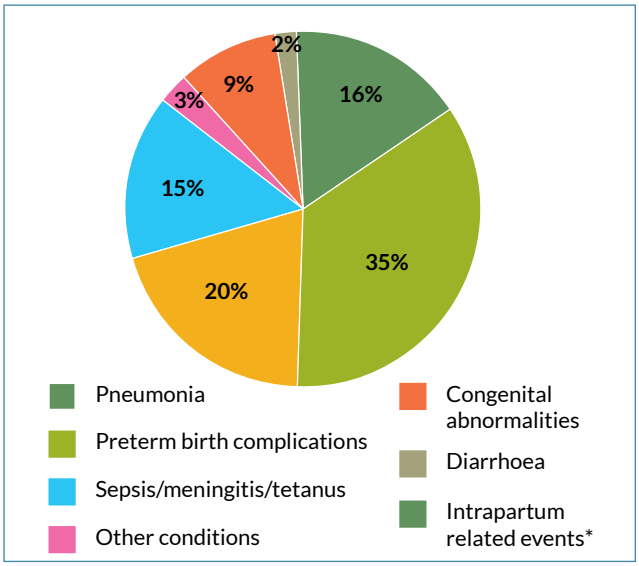
[24] *Neo-natal mortality rate measures the number of deaths of infants of age between 0- 28 days per thousand live births*
[25] *Post neo-natal mortality rate measures the number of deaths of infants of age between 29 days to 1 year per thousand live births*

5.5. Causes of Child mortality

India has the highest under-five mortality in the world as per the report on Levels and Trends in Child Mortality, 2013 by UNICEF, WHO, World Bank, UN-DESA Population Division. As per World Health Statistics report 2012, India stands 47th in IMR in the world (PIB, August, 2012).Understanding the factors behind such high mortality among infants and children under age 5 becomes important to reduce child mortality and also to monitor its progress. Most studies have found that globally more than one third of child deaths are due to malnutrition. Children are at greater risk of dying before age five if they are born in rural areas, poor households, or to a mother denied basic education. Among children who die before five years, almost one third of them die of infectious causes, of which nearly all are preventable. As per CHERG, WHO, 2010, the maximum causes of deaths in India of children between 0-27 days are due to preterm birth complications and intra-partum related events. About 32% of children of age group 1-59 months die out of pneumonia and 24% because of diarrhea as shown in the following Charts 5.7 and 5.8.

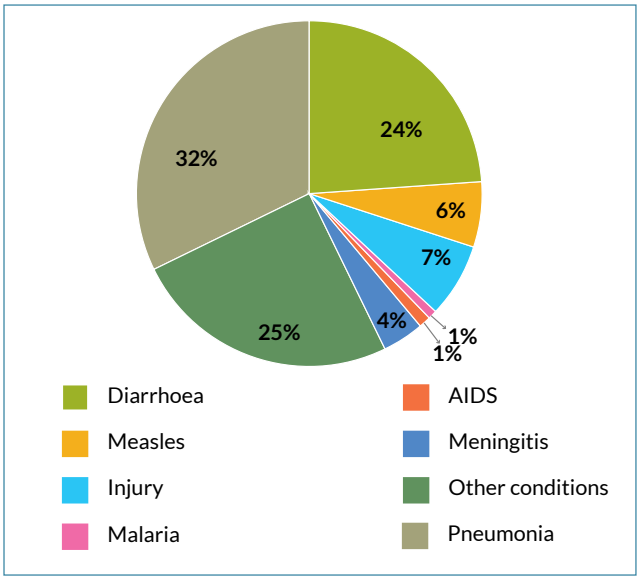
The reduction in infant mortality rate and under-five mortality is possible by expanding effective, preventive and curative interventions by targeting the main causes of child deaths such as pneumonia, diarrhea and under nutrition and by improving the birth delivery system.

Chart 5.7: Cause of deaths in children of age 0-27 days in India, 2010



Source: Child Health Epidemiology Reference Group, WHO, 2010 and authors' calculations.
*Note:*Referred to "birth asphyxia".*

Chart 5.8: Cause of deaths in children of age 1-59 months in India, 2010



Source: Child Health Epidemiology Reference Group, WHO, 2010 and authors' calculations

It is important to note that, neo-natal mortality accounts for high IMR in India as noted above in table 5.3. Studies shows that factors contributing to high IMR are home delivery by unskilled persons, lack of essential new born care for asphyxia and hypothermia, poor child care practices, lack of early detection of sick newborn, delayed referral mechanisms, inadequate infrastructure at health care facilities for specialized care of sick newborn etc and Regressing IMR on female literacy, poverty ratio, safe delivery, shows that poverty has strong relationship with ante natal care and female literacy and therefore affects IMR (Ram et al., 2009). The study also shows that women's education is the most significant predictor of reduction in infant and childhood mortality.

The prospect of IMR needs to be seen with respect to maternal and child health care. Encouraging progress in ante natal care, institutional deliveries, mother's education and immunization is highly recommended to achieve remarkable improvements in IMR in states and in the country as a whole. Also, the success of achieving the MDG target of reducing IMR depends largely on reducing inter-state and intra-state disparities in the level of IMR.

Studies reveal that over the last decade, post-neonatal mortality has declined much faster than neonatal mortality. This is mainly due to increased programme interventions focused

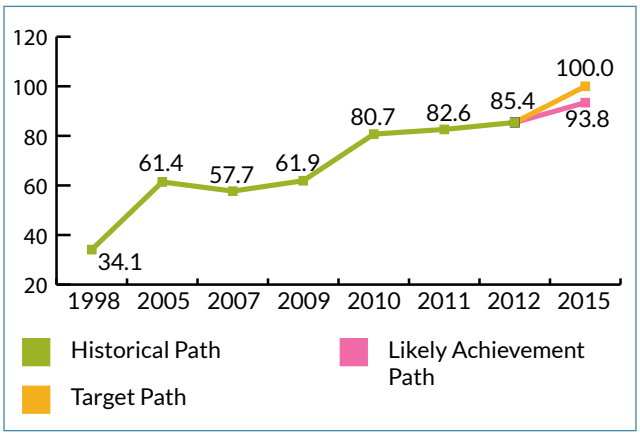
on post neonatal care such as immunization, management of diarrhea, etc. However, policies should emphasis on neonatal mortality. Antenatal care, safe delivery and quality of new born care are key requirements for reduction of all types of mortality. Other than institutional causes there are also social and geographical causes that lead to high child mortality such as gender disparity and urban-rural bias. There are gender differences in IMR. Though there is no biological reason for a higher mortality rate in females in the age group 0- 4 years, it is the presence of social causes that adversely affect the mortality rate of girls, and this needs to be tackled. Urban-rural bias is another challenge to be tackled. There is a large urban-rural disparity in the infant, under-five mortality rates and immunization coverage for measles. One of the reasons for such bias is the lack of accessibility to services due to remoteness of the location and higher proportion of disadvantaged groups. Providing adequate services to specific vulnerable groups and those in the remote areas is the key to bring down the gap.

5.6. Proportion of one year old children immunized against measles: Trend analysis and comparison with MDG 4 Target

Children are vulnerable to diseases. Every year large number of children under 5 years of age die due to childhood illnesses like measles, diarrhea, fever, abdominal pain, infections etc., which can be easily prevented through provision of health care services. It is imperative to immunize each and every child to achieve better child heath. Inadequate immunization is one of the major causes of child mortality along with various other reasons including poor nutrition of pregnant women & lactating mothers, poor health care facilities, inadequate nutrition to the children.

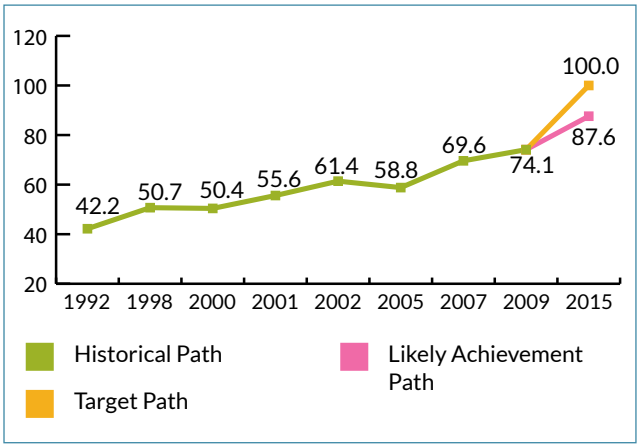
Considering the MDG indicator, proportion of one year children immunized against measles shows that in India such immunization is increasing between 1998 and 2009, albeit at a slower pace. This lower pace of immunization against measles may be associated with smaller percentage of incidence of measles among children under age 5 (6% among overall diseases). The vaccination of children against six serious but preventable diseases including polio, measles, diphtheria, whooping cough, mumps, tetanus etc., has been a cornerstone of the child health care programme under the public health system in Madhya Pradesh. About 66.4% children are fully immunized in the state with 63.5% children in rural areas and 73.8% in urban areas. There is an increasing trend observed in Madhya Pradesh with respect to proportion of one year old children immunized against measles. The estimation for 2015 is close to the MDG target but still there remains a gap when comes to achieving the MDG target. India as a whole is also estimated to have large gap in this indicator compared to the target.

Chart 5.9: Proportion of one year old children immunized against measles in Madhya Pradesh



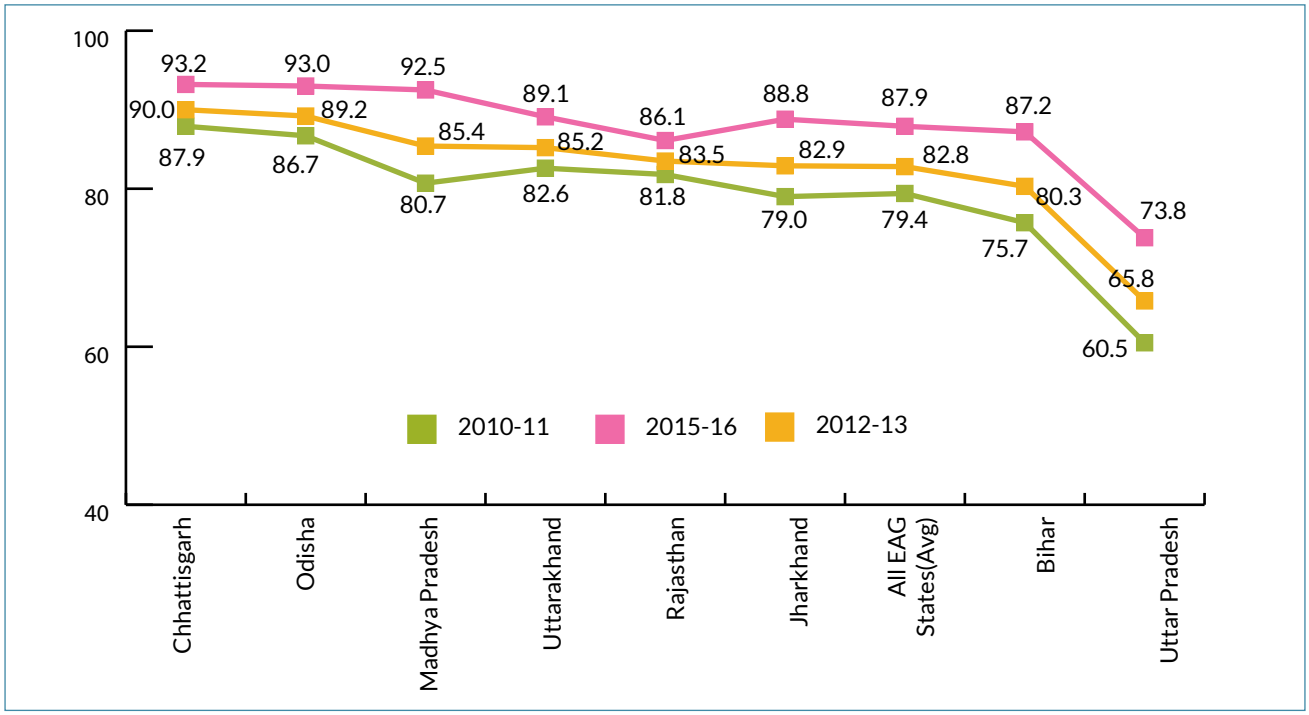
Source: DLHS -3, 2007-08, Coverage Evaluation Survey, UNICEF and GOI 2009 and AHS (2010-11 to 2012-13) and authors' calculations

Chart 5.10: Proportion of one year old children immunized against measles in India



Source: DLHS -3, 2007-08, Coverage Evaluation Survey, UNICEF and GOI 2009 and authors' calculations.

Chart 5.11: Comparison of Proportion of one year old children immunized against measles between EAG states



Source: Annual Health Survey 2010-11 and 2012-13 and authors' calculations.

The comparison of proportion of one year children against measles between EAG states show that all the EAG states have improved over time. The performance is outstanding in Uttar Pradesh, Madhya Pradesh and Bihar with a change of 5.3, 4.7 and 4.6, respectively between 2010 and 2012.

5.7. Impact Evaluation of Health Policies in Madhya Pradesh

With a view to reduce high levels of maternal and neonatal mortality, the National Rural Health Mission launched the Janani Suraksha Yojana in 2005, which emphasizes on institutional deliveries. The programme provides financial support for transport and incentives to Accredited Social Health Activists (ASHA) for encouraging mothers to go for institutional delivery. The scheme is fully sponsored by the Central Government and is implemented in all states and Union Territories (UTs), with special focus on low performing states. The performance of Madhya Pradesh till 2008 after introduction of JSY is summarized in table below with the help of secondary source.

Table 5.4: Assessment of JSY under NRHM in Madhya Pradesh

Indicators	(In %)
Place of delivery in 2008	
Home	27.3
Institutional	72.8
Government facility	67.8
Accredited private facilities	0.2
Other private facilities	4.8
Trends in institutional delivery	
NFHS - 1 (1992-93)	15.9
NFHS - 3 (2005-06)	26.2
DLHS - 3 (2007-08)	47.1
United Nations Population Fund ,2008	72.8
CES,2009	81.0
Main reasons for non-institutional delivery	
Home is convenient	7.3
No need since pregnancy was normal 1	11.3
Cost of the institutional delivery	2.4
Delivery institution is far off	13.4
Nobody to take me to hospital for delivery	3.4
Untimely delivery	61.9
% of women registered for Ante Natal Care(ANC)[26]	91.3
% of women received at least 3 ANC checkups during last pregnancy	64.5
% of institutional deliveries received post natal care[27]	67.9
% of newborn received BCG vaccine	91.7
% of newborn received zero polio vaccine	92.5
% of mothers delivered at institution got advice for breastfeeding	55.2

Source: Concurrent Assessment of Janani Suraksha Yojana (JSY) in Selected States, United Nations Population Fund, 2009, India.

It is observed that there is a drastic change in institutional deliveries from 2005-06 onwards. There is a huge increase in number of institutional deliveries in Madhya Pradesh. Evaluation study of NRHM in 7 states, 2011, have indicated that in Madhya Pradesh the referral transport services viz. Janani Express Vehicles are functional in all the first referral units (FRU). However, human resource shortage seems to be still serious in the state. The shortage of obstetricians & gynecologists are growing over time as can be seen from the table 5.5.

[26] Antenatal care (ANC) refers to pregnancy-related health care, which is usually provided by a doctor, an Auxiliary nurse midwife (ANM), or another health professional. Antenatal care monitors pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counseling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues.

[27] Postnatal check-ups or care refers to checks on the woman's health within 42 days of the birth.

Table 5.5: Facilities and Personnel Available at Community Health Centres in Madhya Pradesh

Year	Number of CHCs Functioning	Obstetricians & Gynecologists at CHCs	Shortfall in Obstetricians & Gynecologists at CHCs	Pediatricians at CHCs	Shortfall in Pediatricians at CHCs	With functional Labor Room	With functioning Stabilization Units for New Born	With New Born Care Corner
2011	333	73	260	67	266	331	17	308
2012	333	73	260	67	266	331	41	331
2013	333	55	278	85	248	333	41	331

Source: NRHM, Rural Health Statistics

Although the progressive scheme of Janani Suraksha Yojana had been successful in bringing mothers to the institutions, the state still lacks the desired facilities to ensure the safe child birth & medical care. As per DLHS-3, there are only 14.3% labour rooms in use in sub- centres with very negligible numbers in districts. Similarly, new born care equipment's are also not enough in numbers in the state and it is negligible in districts.

JSY is not only related to institutional deliveries but safe births and maternal care are its integral objectives. In the absence of corresponding human resources, adequate labour rooms and functional new born care units, neo-natal and post neo-natal mortality rates cannot be improved. It is recommended that quality of facilities should be monitored in the State to provide qualitative services and for successful implementation of the programme. Financing health expenditure too plays a major role in determining the health condition of the state. Studies show that, in India, actual public health spending is below than what is required. The low levels of spending have had an adverse impact on the creation of a preventative health infrastructure. With over 70 percent of the spending on health being out of pocket, the low level of public spending and its uneven distribution have been a major cause of the immiseration of the poor. (Rao & Choudhury, 2012). With an initiative to increase the level of public spending, NRHM was established and recently, Rashtriya Swastya Bima Yojana (RSBY), a national health insurance scheme for people below the poverty line, has been launched. State governments have also come up with their own health insurance schemes. Studies claim that despite such initiatives, public spending on health is still unsatisfactory.

The trend of per capita expenditure on health and nutrition shows that health expenses in Madhya Pradesh and Bihar has always remained low as compared to other EAG states (table 5.4).

Table 5.6: Per capita expenditure on health and nutrition in EAG states

State	2004-05 Prices			
	2009-2010	2010-2011	2011-2012	2012-2013
Bihar	413	448	427	570
Chhattisgarh	748	843	898	920
Jharkhand	647	730	800	740
Madhya Pradesh	501	610	595	615
Orissa	654	630	667	625
Rajasthan	667	663	638	636
EAG Average	605	654	671	684

Source: Finance Accounts, Controller General of Accounts and RGI.

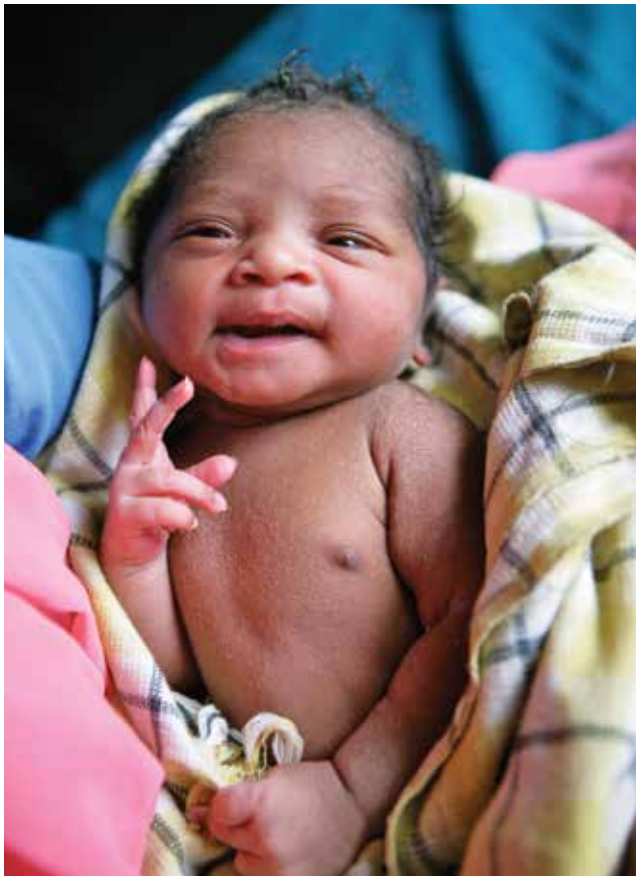
It is observed by various studies that government spending on health is constrained by several factors. Low health spending states are generally found to be low-income states and have limited ability to generate additional resources. Central transfers to these states have not been able to offset their fiscal imbalances fully, and this is mirrored in the strong correlation between per capita health spending and income levels across states (Rao & Choudhury, 2012). The existing resources are not enough to increase spending on health care of states after meeting the committed liabilities of the states. Also studies have analyzed that after enactment of Fiscal Responsibility Budget Management Act (FRBM) in all the states, the states are left with very little scope for increasing allocation on public sector such as health and education.

'The FRBM Act enforces the government to reduce the fiscal and revenue deficits, either by increasing the revenue resources or by restructuring/ curtailing the overall public expenditure. The results also show that in this process the public

expenditure on health has reduced significantly'[28]. Increase in expenditure on health infrastructure and human resources is necessary for the state to achieve MDG and other development goals.

5.8 Summing Up

U5MR and IMR both are skewed towards female child and are higher in rural areas as compared to urban areas. Both U5MR and IMR are off-track. Child deaths are highly associated with both maternal and child health care. Ante natal care need to progress. Also nutrition and child health are highly related as mentioned in Chapter 2. Synerigies of ICDS with child health programme is recommended to be improved. However, in the absence of corresponding human resources, adequate labour rooms, functional new born care units, neo- natal and post neo-natal mortality rates cannot be improved. Reforms in the health sector needs to address efficient increase on health sector and focus on preventative health care, ensure greater access to health care by the poor, and significantly improve the productivity of public spending.



Status of MDG 4: Reduce Child Mortality

MP and India	Indicators	Early Achiever -already achieved the 2015 target	On Track - Expected to meet the target by 2015	Off Track: Slow - Expected to meet the target after 2015	Off Track: no progress/ regressing - Stagnating or slipping backwards
Madhya Pradesh	Under-Five Mortality Rate			√	
	Infant Mortality Rate			√	
	Proportion of one year old children immunized against measles			√	
India	Under-Five Mortality Rate		√		
	Infant Mortality Rate			√	
	Proportion of one year old children immunized against measles			√	

[28] *Hooda, 2013*

5
IMPROVE MATERNAL HEALTH

GOAL 5 Improve Maternal Health

Targets: Reduce Maternal Morality Ratio by three quarters between 1990 and 2015.

Indicators:

- Maternal Mortality Ratio (MMR) - proportion of maternal deaths per 1,00,000 live births.
- Proportion of births attended by skilled health personnel.

Improve Maternal Health

CHAPTER 6

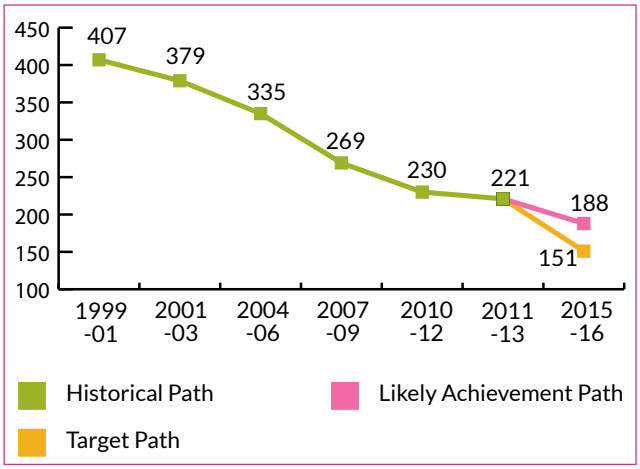
Reduction of maternal mortality has been an area of concern in India and across states. There has been an appreciable decrease in maternal mortality in the country, although the pace of decline is not sufficient to meet the Millennium Development Goal 5. Deaths of mother during pregnancy and child births still remain a threat for women in the country. Maternal deaths are preventable if deliveries are attended by skilled health personnel, births delivered in institutions and proper antenatal and post natal care are received by mothers. Government intervention for improvement in maternal health is essential for women's health as well as for improving survival of newborn as mother's health has an important bearing on the health of the child. Empirical and theoretical evidences illustrates that the provision of maternal health services has a positive effect on the health of the mother and her child.

6.1. Maternal Mortality Ratio: Trend analysis and comparison with MDG 5

Maternal mortality ratio (MMR) refers to number of deaths of women aged 15-49 years as a result of maternal causes (complications of pregnancy or childbearing) in a given year per 100,000 live births. There is an appreciable decrease in MMR in India as well as in Madhya Pradesh from 1999-2001. MMR in India declined from 254 in 2004-06 to 212 in 2007-09 to 178 in 2010-12 to 167 in 2011-13. Based on the estimation for 2015-16, MMR for India at 129 is close to MDG target of 109 but is considered to be off track from the goal.

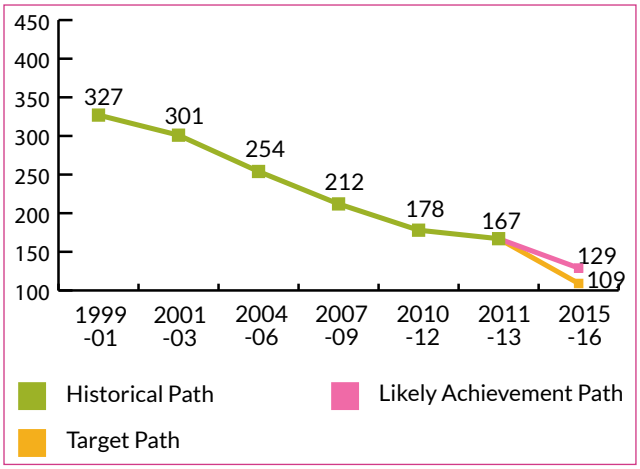
Also in Madhya Pradesh, MMR is illustrating a declining trend. MMR has fallen from 407 in 1999-2001 to 221 in 2011-13. Both in Madhya Pradesh and India the greater percentage of fall in MMR was observed in the year 2007-09. There is a decline of 20% in MMR of Madhya Pradesh in 2007-09 compared to its past year. There is a slow rate of decline observed in Madhya Pradesh from 2010-12 onwards. The falling rate of MMR has reduced from 20% in 2007-09 to 14% 2010-12 to 3% in 2011-13. Based on the estimation of 2015-16, the MMR of 188 in Madhya Pradesh is far from the MDG target of 151 and therefore is indicated to be off track in the case of achieving MDG 5 target.

Chart 6.1: Maternal Mortality Ratio in Madhya Pradesh



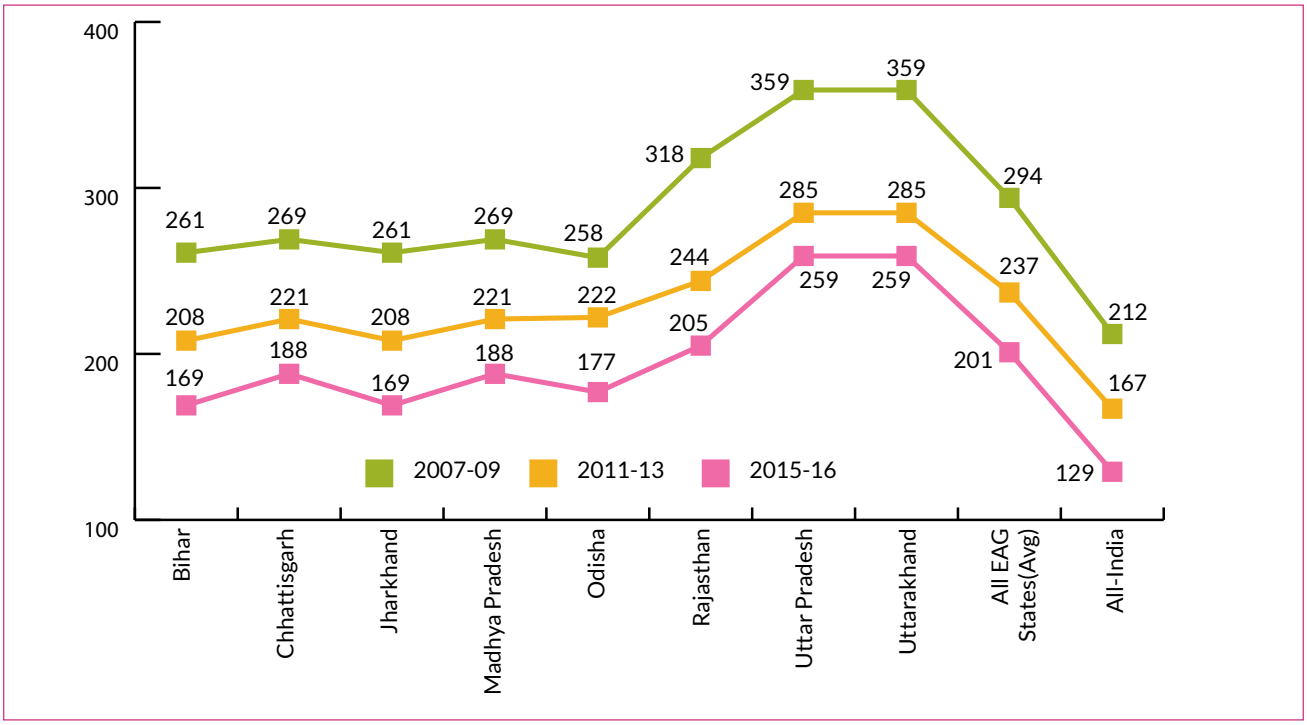
Source: Special Bulletin on Maternal Mortality in India, SRS and authors' calculations.

Chart 6.2: Maternal Mortality Ratio in India



Source: Special Bulletin on Maternal Mortality in India, SRS and authors' calculations.

Chart 6.3: Comparison of maternal mortality ratio between EAG states



Source: Special Bulletin on Maternal Mortality in India, SRS,RGI and authors' calculations.

6.2. Comparison of maternal mortality ratio between EAG States

All the EAG states and India show a decline in MMR over time. Uttar Pradesh, Uttarakhand and Rajasthan are the states with highest MMR in both 2007-09 and 2011-13. The positions of Madhya Pradesh, Chhattisgarh, Bihar and Jharkhand have deteriorated between 2007-09 and 2011-13. The rank of Madhya Pradesh has gone up from 5th in 2007-09 to 6th in 2011-13. This increase in rank is worrisome, MMR being a negative indicator. Madhya Pradesh is better off than EAG average and worse off than national average in both the time periods. Except for Bihar and Jharkhand, India along with other EAG States are likely to be off track from MDG 5 target.

Considering the large number of maternal and child deaths, it becomes essential to underline the causes of deaths. The causes of maternal deaths in India and Madhya Pradesh are given below in table 6.1 and table 6.2.

Table 6.1: Causes of deaths due to Complication of Pregnancy, Childbirth and the Puerperium[29] under Medical Certification of Cause of Death (MCCD) 2008 in India

Causes of death	15-24	25-34	35-44	45-54	Not stated	Total	%
	Age group						
Pregnancies with abortive	130	135	77	19	30	391	10.3
Oedema, proteinuria and hypertensive disorders	323	466	155	15	21	980	25.9
Complications pre-dominantly related to the puerperium	176	174	51	103	29	533	14.1
Other complications of pregnancy and delivery	418	473	149	26	39	1105	29.2
Indirect obstetric deaths	156	210	76	30	8	480	12.7
Obstructed labour	26	24	63	14	1	128	3.4
Total Medically Certified Deaths due to Complication of Pregnancy, Child Birth & Puerperium	1262	1547	633	208	131	3781	

Source: Report on Medical Certification of Cause of Death -2008, RGI.

[29]Puerperium is the period of about six weeks after childbirth during which the mother's reproductive organs return to their original non-pregnant condition.

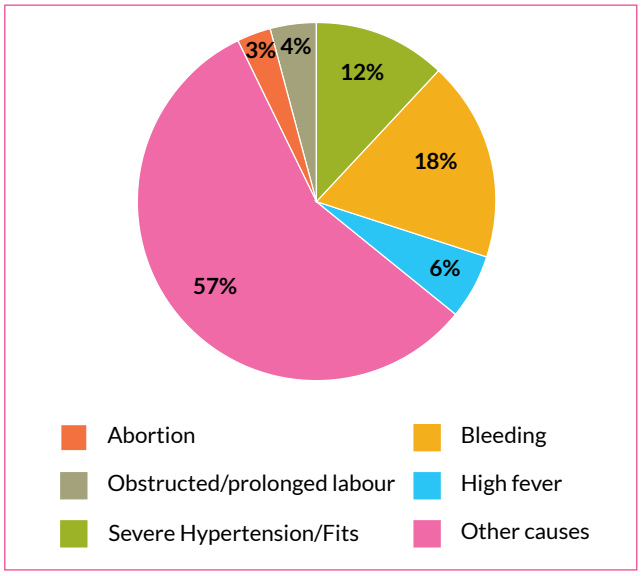
Data from RGI indicate that the major causes of maternal mortality in India are pregnancy and delivery complications, hypertensive disorders, complications related to puerperium, obstructed labour, etc. The trend in causes of maternal deaths in Madhya Pradesh as identified by NHM Health Management Information System (HMIS) portal is as follows:

Table 6.2: Causes of Maternal Deaths in Madhya Pradesh

Causes of Maternal Deaths	2010-2011	2011-2012	2012-2013	2013-2014
Abortion	1.6	2.8	2.1	2.8
Obstructed/ Prolonged Labour	7.6	4.9	5.6	4.2
Severe Hypertension/ Fits	12.9	11.7	14.4	11.8
Bleeding	20.6	25.7	22.9	18.6
High Fever	5.2	6.1	4.6	5.7
Other Causes	52.1	48.8	50.4	57.1
Total Reported Maternal Deaths	100.0	100.0	100.0	100.0

Source: HMIS, Analytical Reports.

Chart 6.4: Causes of Maternal Deaths in Madhya Pradesh in 2013-14



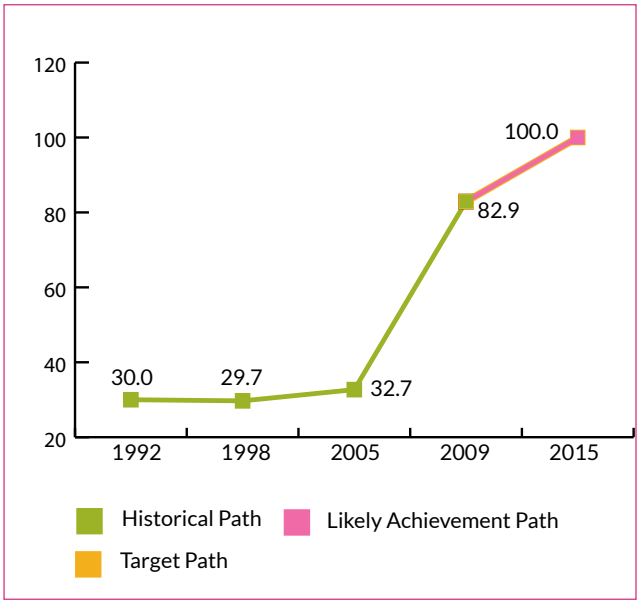
It is worth noting that the 'other causes' responsible for maternal deaths contributes higher proportion among total reported maternal deaths. To reduce the number of maternal deaths it is vital to identify the causes of deaths. One of the major objective of RMNCH+A is to address the major causes of death but the data from HMIS shows that other causes of maternal deaths has been increasing throughout the time period as can be shown from above table 6.2.

Various studies reveal that most of the maternal deaths could have been prevented by the provision of early antenatal care, treatment of ill-health during pregnancy and timely availability of medical care. It is also worth noting that along with medical causes, various social factors are responsible for high MMR. Some of the social factors are marriage at very young age, early age of pregnancy, high birth rates, less spacing between two deliveries, etc.

6.3. Proportion of births attended by skilled health personnel: Trend analysis and comparison with MDG 5

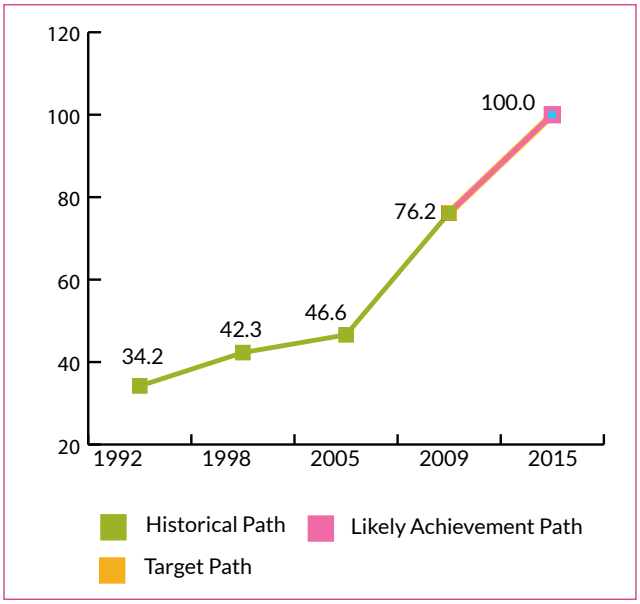
According to NFHS, skilled health personnel include doctor, Auxiliary nurse midwife (ANM)/ nurse/midwife/ lady health visitor (LHV), and other health personnel. Maternal deaths are highly correlated with unskilled birth attendant. Most maternal deaths can be prevented if deliveries are attended by skilled health personnel and proper ANC and PNC are provided to mothers. One of the main objectives of NRHM is to promote institutional deliveries. However, it should be noted that institutional deliveries are different from births attended by skilled health personnel. Institutional deliveries are considered to be safe and qualitative when deliveries are attended by skilled birth attendants. Tenth Five year Plan strategy for maternal health stressed on skill upgradation training for birth attendants to improve ANC and PNC as ANM are considered to be the most important person in promoting institutional and safe deliveries. The indicator, proportion of births attended by skilled health personnel depicts an increasing trend in India and as well as in Madhya Pradesh. There has been a steep rate of increase in this indicator from 2005 onwards both in Madhya Pradesh and India. With its increasing trend, the indicator is likely to be on track with respect to MDG 5 in India and Madhya Pradesh.

Chart 6.5: Proportion of births attended by skilled health personnel in Madhya Pradesh



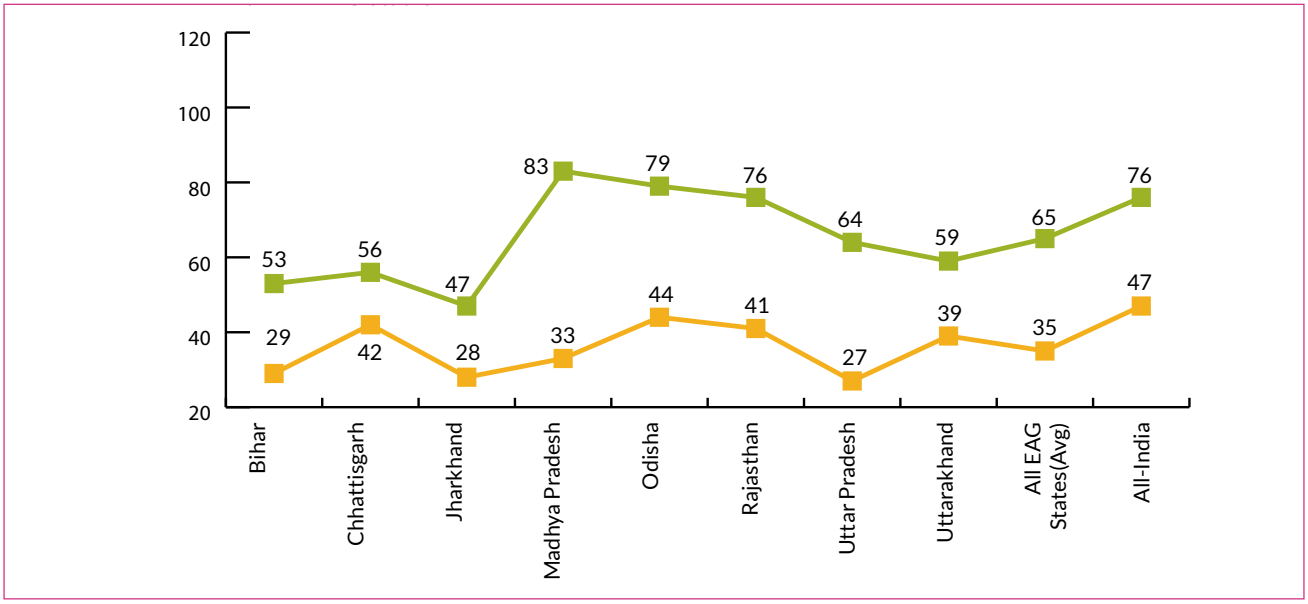
Source: NFHS (I, II, III) and CES, UNICEF, 2009 and authors' calculations.

Chart 6.6: Proportion of births attended by skilled health personnel in India



Source: NFHS (I, II, III) and CES, UNICEF, 2009 and authors' calculations.

Chart 6.7: Comparison of proportion of births attended by skilled health personnel between EAG States



Source: NFHS 2005-06 and Coverage Evaluation Suvey (CES), UNICEF, 2009 and authors' calculations.

Positive change in proportion of births attended by skilled health personnel is observed in India along with all EAG States. There has been a sharp increase in this indicator in 2009- 10 when compared with 2005-06. The proportion is highest in Madhya Pradesh in 2009-10 compared to its 7th rank in 2005-06. Going by the current trends of proportion of births attended by skilled health personnel, India and most of the EAG States are likely to meet the MDG 5 target by 2015-16 except for Bihar, Chhattisgarh, Jharkhand and Uttarakhand.

6.4. Evaluation of Policies on Maternal Health

Existence of high child and maternal mortality has always been a source of concern in the country. The Ministry of Health and Family Welfare initially have launched Reproductive and Child Health Programme in 1997 as an integrated approach to family welfare that include maternal and child healthcare. Later, the National Rural Health Mission (NRHM) was launched in 2005 which seeks to strengthen public health care delivery system in the rural areas with a special focus on women and child health. The Mission seeks to provide effective health care to the rural population throughout the country with special focus on the States and Union Territories (UTs), which have weak public health indicators and weak infrastructure. Antenatal care and post natal care has been the major components of the Family Welfare Programme for reducing maternal mortality. With a view to accelerate the reduction in maternal mortality, Government of India initiated a scheme called Janani Suraksha Yojana (JSY) in 2005 under NRHM. In order to bring greater impact through RCH programme, reproductive, maternal, newborn, child and adolescent health services (RMNCH+A) has been adopted under NRHM in 2013. This approach brings focus on adolescents as a critical life stage and linkages between child survival, maternal health and family planning efforts. It aims to strengthen the referral linkages between community and facility based health services and between the various levels of health system itself.

Under the RCH programme, efforts were made to improve the coverage and quality of ANC in order to reduce MMR. Following were the objectives under ANC and intra partum care:

- Early registration of pregnancy (12 - 16 weeks).
- Minimum three ante-natal Check-up
- Screening all pregnant women for major health, nutritional and obstetric problems
- Identification of women with health problems/ complications, providing prompt and effective treatment including referral wherever required.
- Universal coverage of all pregnant women with TT immunisation.
- Screening for anemia; providing IFA tablets to prevent anemia or providing appropriate treatment for of anemia.
- Advice on food, nutrition and rest.
- Promotion of institutional delivery/safe deliveries by trained personnel; advising institutional delivery for those with health/obstetric problems.

Among the high focus states of National Health Mission, 2005, Madhya Pradesh is one of them. The impact of NHM in Madhya Pradesh is visible from decrease in MMR in the state. MMR in Madhya Pradesh have come down from 335 in 2004-06 to 221 in 2011-13, however, it is not likely to be proportionate to the MDG 5 target because of the slowdown in the pace of decline of MMR in the state. Assessment of maternal health policies shows that institutional deliveries in Madhya Pradesh have been increasing. The first two indicators under ANC, percentage of mothers received at least 3 ANC checkups and mothers received at least one TT injection among total ANC registered has been decreasing over time. PNC is indicating an improvement pattern over time.

Table 6.3: Assessment of Maternal Health Policies

Madhya Pradesh	2010-2011	2011-2012	2012-2013	2013-2014
Total reported Institutional deliveries (to reported deliveries)%	83.9	86.1	85.2	86.3
Antenatal Care(ANC)				
Mothers who had at least 3 ANC check ups (to total ANC regd.) %	78.0	76.6	78.9	76.8
Mothers who got at least one TT injection (to total ANC regd.)%	73.6	74.5	76.2	73.2
Mothers who received 100 IFA tablets (to total ANC regd.)%	89.1	90.0	92.6	99.8
Post Natal Care(PNC)				
Post-Partum check up with in 48 hrs of delivery	72.1	74.2	73.4	80.2
Post-partum check up between 14 days and 48 hrs of delivery	39.6	40.0	44.4	50.9

Source: HMIS, Analytical Reports

A decrease in number of mothers receiving ANC is an issue of concern. Various studies have identified some of the major problems related to ANC. They are classified as inadequate coverage, lack of training of health personnel in antenatal, poor content and quality of antenatal screening, lack of systematic recording of findings, poor referral system, etc. (Hunter, et al. 2014).

The data on human resources in health facilities for selected high priority districts of Madhya Pradesh as studied by UNICEF (2014) are shown below:

	Anuppur		Mandla		Shahdol		Umaria	
	Sanctioned posts	In position	Sanctioned posts	In position	Sanctioned posts	In position	Sanctioned posts	In position
ASHAs	901	901 (100%)	1224	1224 (100%)	1031	1026 (99.5%)	635	643 (101%)
ASHA Supervisors	87	0 (0%)	123	0 (0%)	72	72 (100%)	30	40 (103%)
1st ANM	194	194 (100%)	296	296 (100%)	242	237 (97.9%)	89	87 (97.8%)
2nd ANM	71	75 (106%)	110	94 (85.5%)	82	78 (95.1%)	35	35 (100%)
Specialists	8	5 (63%)	38	12 (31.6%)	43	10 (23.3%)	20	4 (20%)
Obstetricians & Gynecologist	2	1(50%)	13	1 (7.7%)	14	5 (35.7%)	5	1 (20%)

Source: RMNCH+A District Gap Analysis (Phase I)

It is important to note that cent percent ASHAs are in position as per cent of total sanctioned posts in all the four districts, however, there is no ASHA supervisors in Mandla and Annupur. The data also shows that there is a shortage of obstetricians & gynecologist in all the four districts which could be one of the reasons behind high IMR. U5MR and MMR in these districts.

Also high child and maternal deaths could be associated with availability of health centres within reach of households. So far the health centres were based on population norms and distance criteria was out of the priority. Recently, as per NHM, the distance criteria as a norm has been adopted for setting up a SHC based on time to care within 30 minutes by walk from a habitation for selected district of hilly and desert areas.

Studies indicate that the JSY has been successful in increasing institutional deliveries but institutional deliveries does not guarantee a decrease in maternal mortality ratio without having access to proper health infrastructure, sufficient health man power in hospitals and availability of health centres within reach of habitats.. A shortage of obstetricians & gynecologists in the state is also discussed in the previous chapter on 'Reduce Child Mortality'. Surveys indicate that the increased workload in health institutions leads to women with complications not getting proper treatment.

6.5 Summing Up

To sum up, MMR in the states is decreasing but at a slow pace and is off-track. Proportion of births attended by skilled health personnel is showing a steep rise and is likely to meet the MDG target. However, a fall in number of mothers receiving ANC is an issue of concern as maternal health care is highly correlated to better ANC. Ante natal care need to progress. Analysis of health man power as indicated in the previous chapter shows the shortfall of obstetricians & gynecologists at CHCs have increased in recent time. Institutional deliveries are higher in numbers than births attended by skilled health personnel. An increase in institutional deliveries which is the major objective of JSY, will imply a reduction in child deaths and MMR only when it is supported by adequate human resource, health infrastructure, adequate labour rooms and functional new born care units supported with training of ANMs.

Status of MDG 5: Improve Maternal Health

MP and India	Indicators	Early Achiever- already achieved the 2015 target	On Track -Expected to meet the target by 2015	Off Track: Slow- Expected to meet the target after 2015	Off Track: no progress/ regressing- Stagnating or slipping backwards
Madhya Pradesh	Maternal Mortality Ratio (MMR)			√	
	Proportion of births attended by skilled health personnel		√		
India	Maternal Mortality Ratio (MMR)			√	
	Proportion of births attended by skilled health personnel		√		

Under Performance of Health indicators in Madhya Pradesh

(Source: Rapid Survey on Children 2013-14, Madhya Pradesh and India, MWCD.)

A) Maternal Health Care

- Pregnant women who have received at least one ante-natal check-up (ANC) (75.4%) in MP is less than All India (85.2%).
- The percentage of pregnant women who received full ANC in MP (12.1%) is much lower than All-India (19.7%).
- The performance of almost all the indicators under maternal health care are worse in MP than All-India except for two indicators, mothers visited by primary health worker at home within one week of delivery or discharge from health institution (64.1% in MP and 51% in All-India) and mothers availing benefit from JSY (66.1% in MP and 47.7% in All-India).
- Similar pattern is observed for Scheduled tribes in MP in terms of performance of maternal indicators.

B) Immunization

- Percentage of children aged 12-23 months who are fully immunized in MP (61.9%) is less than that in All-India (65.3%).
- The pattern is similar for ST in MP. Percentage of children aged 12-23 months who are fully immunized is 54.3% in MP against All- India (55.7%).


...कराये टीकाकरण
बचाएँ बच्चों की जिन्द

6

COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

GOAL 6

Combat HIV/AIDS, malaria and other diseases

Targets:

- Have halted by 2015 and begun to reverse the spread of HIV/AIDS.
- Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

Indicators:

- HIV prevalence among pregnant women aged 15-24 years.
- Condom use rate of the contraceptive prevalence rate.
- Malaria Incidence rate (%) - People affected by malaria as percentage of total population.
- Death rates associated with malaria.
- Proportion of tuberculosis cases detected and cured under DOTS.
- Death rates associated with tuberculosis.

CHAPTER 7

Combat HIV/AIDS, Malaria and other Diseases

The existence of HIV & AIDS and their rapid spread poses a serious challenge to all the nations irrespective of level of development. The impact of HIV and AIDS is so damaging that it has the potential to nullify the massive improvements that have been made in health sector around the globe over the years. Apart from being a serious health problem, the multi-dimensional impact of the epidemic on the socio-economic fabric of whole nations, makes HIV and AIDS a threat to development. No country of the world is free from its threat. Although AIDS cannot be cured, it can be prevented. Unlike other infectious diseases, HIV selectively and disproportionately targets two groups - the young adults and the very poor, economically marginalized population due to migration for the wage employment. The prognosis for people infected with the virus is bleak. There is no vaccine against HIV and no effective medical cure for HIV infection. HIV/AIDS is essentially an incurable and fatal disease. HIV destabilizes societies because of the fear, blame and stigma attached to it .It threatens basic human rights and invades even the right to privacy and human dignity. No other disease affects human society in this way or to this extent. The first case of HIV/AIDS was detected in Madhya Pradesh in 1988, and since then the number of AIDS cases is rising. In view of the seriousness of the problem, the state government constituted AIDS control cell in 1992 under Medical Education department. Subsequently Madhya Pradesh State AIDS Control Society (MPSACS) was constituted in June 1998. MPSACS takes policy decisions for effective implementation of AIDS control programme in MP. It is an autonomous institution, funded by National AIDS Control Organization (NACO), Government of India.

Malaria has been a major menace in India till 1953, when the government of India launched National Malaria Control Programme (NMCP). DDT residual spray undertaken in the country resulted into a sharp decline in malaria cases in the country. NMCP was converted into National Malaria Eradication Programme (NMEP) in 1958. Initial success reduction in malaria incidence due to NMEP did not last long. Due to drug resistance, various operational technical reasons, resurgence of malaria in 1976 resulted into Modified Plan Operation (MPO) by the Government of India to reduce the death rate due to malaria. An early diagnosis and prompt treatment through Primary Health centers under MPO resulted in decline of malaria incidence from 6.44 million cases in 1976 to 1.66 million in 1987. With another upsurge in 1996, MPO was replaced by National Anti-Malaria Programme (NAMP) in 1999 by shifting the focus from eradication to control of malaria incidence. With upsurge of few other vector borne diseases like kala-azar, encephalitis, etc., NAMP was renamed as National Vector Borne Disease Control Programme (NVBDCP) in 2003 by converging all other vector-borne disease control programmmes. Subsequently NVBDCP became an integral part of National Rural Health Mission (NRHM) in 2005.

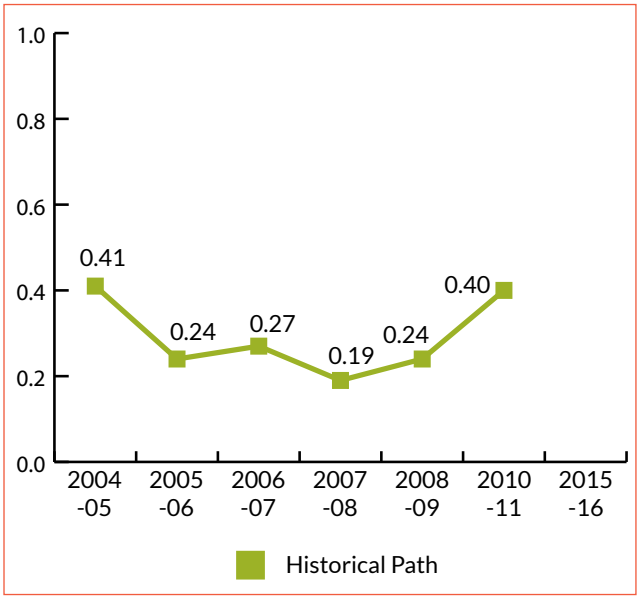
In the case of tuberculosis (TB), nearly one fourth of TB affected people in world live in India. As per WHO, out of 8.6 million global TB cases in 2012, nearly 2.3 million were in India. It is a huge challenge for India to control TB given such high incidence in the country. As per WHO estimations, at the global level, TB prevalence per lakh population has reduced from 465 in year 1990 to 230 in 2012 thus registering 51% reduction. In absolute numbers, prevalence has reduced from 40 lakhs to 28 lakhs annually. In India, incidence of TB per lakh population has reduced from 216 in year 1990 to 176 in 2012. Similarly, tuberculosis mortality per lakh population has also reduced from 38 in year 1990 to 22 in 2012 amounting to reduction of 42%. In absolute numbers, morality due to TB has reduced from 3.3 lakhs to 2.7 lakhs annually. While such numbers suggest that the performance on prevalence, incidence and mortality have improved over years, still lot more has to be done in this direction to reduce the direct and indirect losses being incurred by the country.

7.1. Trends in HIV prevalence, malaria, tuberculosis: Inter and Intra regional patterns

7.1.1. HIV prevalence among pregnant women aged 15-24 years

The HIV epidemic in India continues to decline at the national level with an overall reduction in adult HIV prevalence. But in the case of Madhya Pradesh seems to be going other way. The latest HIV estimates for Madhya Pradesh provide an alarming evidence on the current trend of the epidemic. The adult (15-24 years) HIV prevalence has decreased from 0.41% in 2004-05 to 0.19 in 2007-08 but started increasing from 2008-09 onwards from 0.24 to 0.40 in 2010-11. With current trends, it is likely to go up to 0.65 by 2015-16[30].

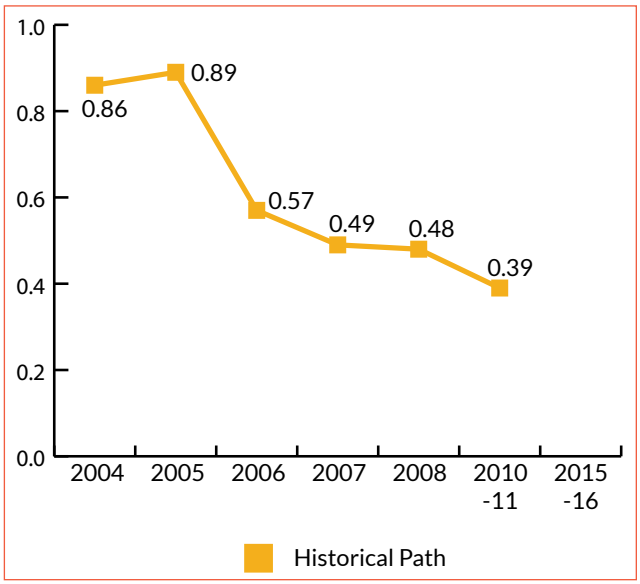
Chart 7.1: HIV Prevalence among Pregnant Women Aged 15-24 Years in Madhya Pradesh



Source: HIV Sentinel Surveillance

[30] *Projecting the figures for 2015 will not be meaningful as the spread does not depend on the historical trends or interventions.*

Chart 7.2: HIV Prevalence among Pregnant Women Aged 15-24 Years in India



Source: HIV Sentinel Surveillance

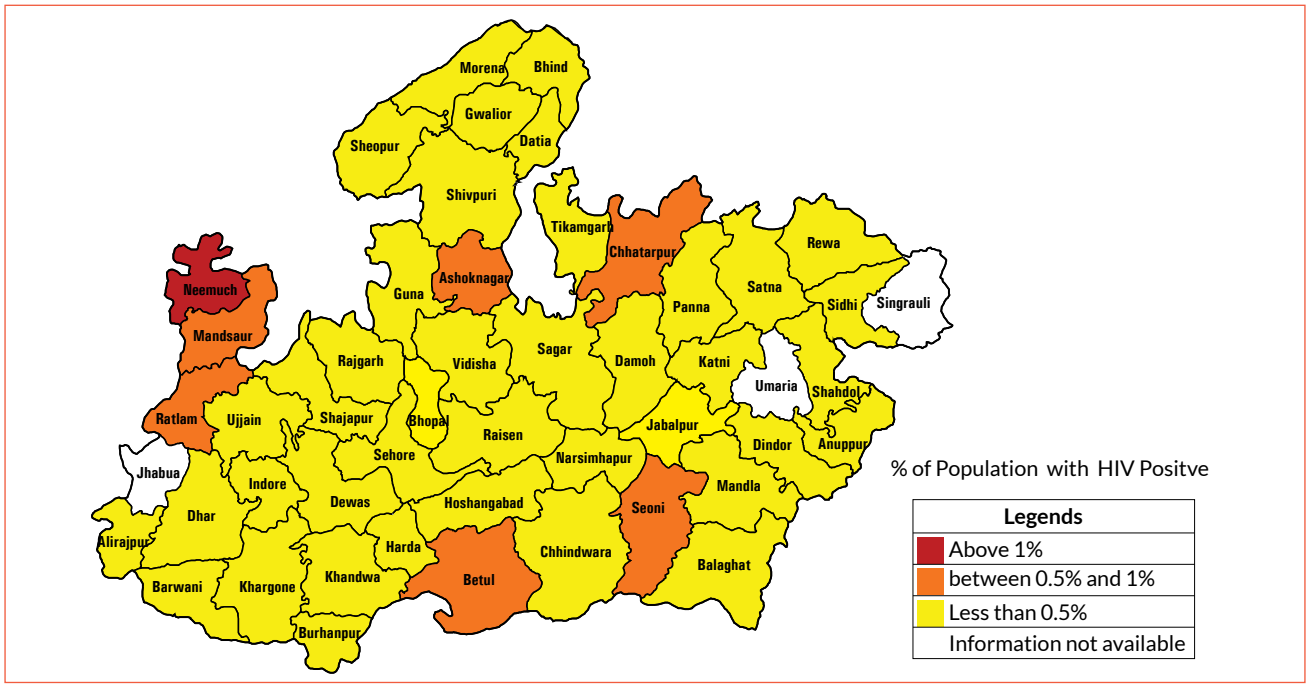
At all India Level, there is an overall reduction in HIV prevalence among pregnant women from 0,86% in 2004-05 to 0.39% in 2010-11 and is likely to be 0.24% in 2015-16. HIV prevalence among the pregnant women in 8 EAG states shows similar regressing trend as that of Madhya Pradesh. Only exceptions among the EAG states are Bihar and Orissa. This regressing trend in EAG states is worrisome particularly for Madhya Pradesh as it is one of the low focus states in all HIV control programmes and has potential to worsen further if preventive measures are not taken on a priority basis.

Table 7.1: HIV prevalence among pregnant women aged 15-24 years (in %)

EAG States	2006-07	2010-11	Achievement		
			Trending in the right direction	No change over the period	Regressing - trending in the wrong direction
Bihar	0.30	0.17	√		
Chhattisgarh	0.11	0.38			√
Jharkhand	0.14	0.52			√
Madhya Pradesh	**0.27**	**0.40**			**√**
Odisha	0.58	0.45	√		
Rajasthan	0.28	0.53			√
Uttar Pradesh	0.24	0.29			√
Uttarakhand	0.10	0.33			√
All EAG States (Avg)	0.25	0.38			√
All-India	**0.57**	**0.39**	**√**		

Source: HIV Sentinel Surveillance, NACO, Ministry of Health and family welfare, GoI.

Map 7.1: District-wise Spread of HIV Prevalence in MP in 2011-12



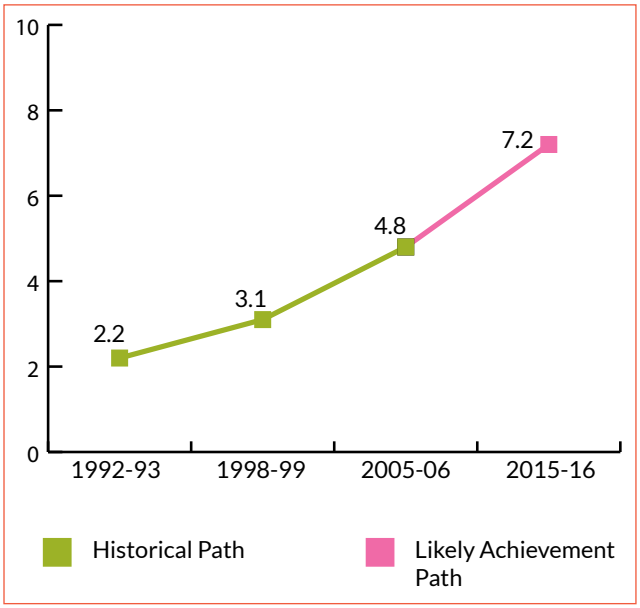
Source: NACO, State Fact Sheets

Inter-district dispersion of HIV prevalence is again concentrated in few districts having higher than 0.5% population with HIV positive. Districts such as Neemuch, Ratlam, Betul, Ashok nagar, Seoni, Chhatarpur and Mandsaur have HIV prevalence of more than 0.5%, whereas, all other districts has a prevalence rate less than 0.5%. Neemuch is only the district which has prevalence rate of more than 1%. District level HIV prevalence data is drawn from NACO, State Fact Sheets.

7.1.2. Condom use rate of the contraceptive prevalence rate among the married women aged between 15 to 49

Condom use rate of the contraceptive prevalence rate which is basically the ratio of condom use to overall contraceptive use among the married women aged between 15 to 49 is one of the indicators to measure the awareness and measures to control the spread of HIV. Availability of information, (though not available for the recent period) shows improvement between 1998-99 and 2005-06. According to NFHS III, condom use rate to overall contraceptive use among married women aged 15-49 was around 5.2% at national level in 2005-06, while for Madhya Pradesh it is lower at 4.8%. Both at national and state level there is an improvement when we compare to 1998-99. Even in Madhya Pradesh, although the condom use rate is lower than the national average, there is improvement in the condom use rate and is close to the national level. Among EAG states Rajasthan, Uttar Pradesh and Uttarakhand are performing better than MP and all the EAG states are trending towards right direction.

Chart 7.3: Condom use rate of the contraceptive prevalence rate: Madhya Pradesh



Source: NFHS and authors' calculations

Consistent use of condoms can reduce the chances of getting HIV as the major reason for HIV is through sexual contact. This is more so in Madhya Pradesh as drug injection and other non-conventional modes of HIV infections are rarely reported in Madhya Pradesh (State Factsheets, NACO)[31]. As per NFHS III, awareness among men and women about condom use reducing the chances of HIV is high in Madhya Pradesh.

7.1.3. Malaria Incidence Rate and Death Rates Associated with Malaria:

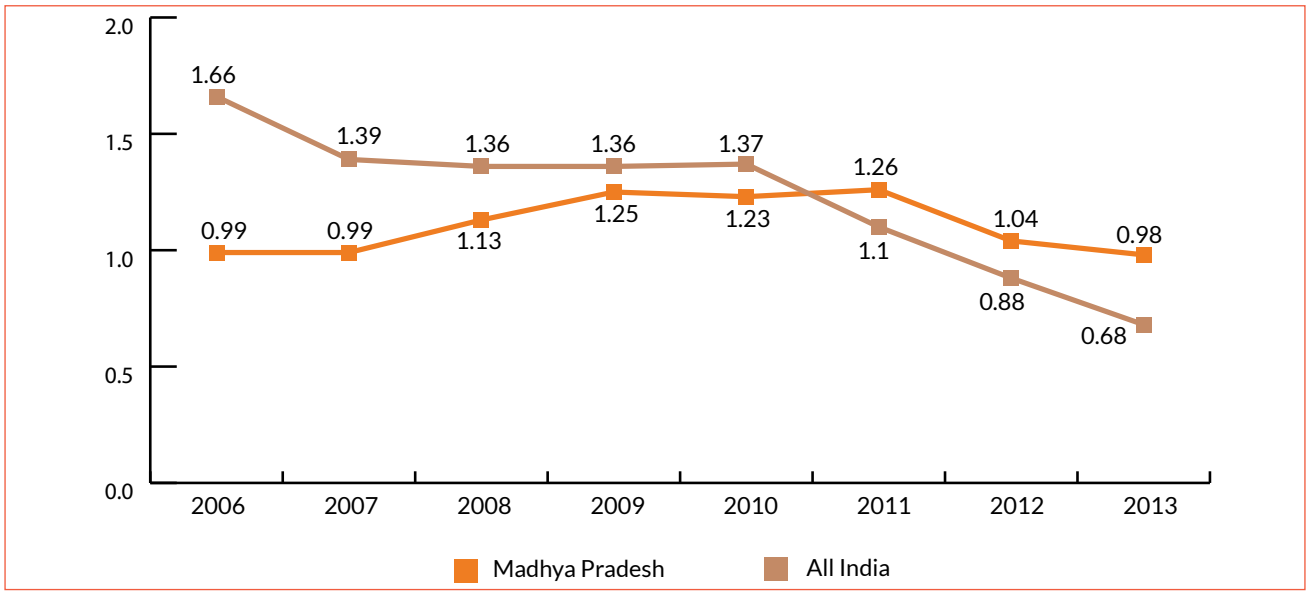
Annual Parasite Incidence (API)- confirmed cases during one year of the population under surveillance multiplied by 1000 is one the measures of incidence of malaria. The API increased from 0.99 per thousand population in 2006 to 1.26 in 2011 and is declining since then in Madhya Pradesh. Initially the API was lesser than the national level upto 2009 and has increased and is above the national average after 2011. Though API of Madhya Pradesh is declining since 2011, being above national average is a matter of concern.

Table 7.2: Condom use rate of the contraceptive prevalence rate (%)

EAG STATES	1998-99	2005-06	Projection 2015	Achievement		
				Trending in the right direction	No change over the period	Regressing-trending in the wrong direction
Bihar	0.60	2.30	4.73	√		
Chhattisgarh	2.10	2.90	4.04	√		
Jharkhand	1.10	2.70	4.99	√		
Madhya Pradesh	**3.10**	**4.80**	**7.23**	**√**		
Odisha	0.90	3.00	6.00	√		
Rajasthan	3.10	5.70	9.41	√		
Uttar Pradesh	4.00	8.60	15.17	√		
Uttarakhand	6.20	15.70	29.27	√		
All EAG States(Avg)	2.64	5.71	10.11	√		
All-India	**3.10**	**5.20**	**8.20**	**√**		

Source: NFHS I and III

Chart 7.4: Annual Parasite Incidence Rate



[31] *State Fact Sheets, National AIDS control Programme, Phase III, March 2012, NACO, Government of India.*

Table 7.3: Status of Malaria in India and Madhya Pradesh

Year	API (per 1000 population)		Deaths due to malaria		Deaths due to Malaria (per hundred malaria cases)	
	India	Madhya Pradesh	India	Madhya Pradesh	India	Madhya Pradesh
2009	1.36	1.25	1144	26	0.07	0.03
2010	1.37	1.23	1018	31	0.07	0.04
2011	1.10	1.26	754	109	0.05	0.12
2012	0.88	1.04	519	43	0.04	0.06
2013	0.68	0.98	379	49	0.03	0.07

Source: Directorate of National Vector Borne Disease Control Programme, MoHFW, Govt. of India.

Death rate due to malaria is also high compared to national average. Although it was lower than the national average up to 2011, higher deaths compared to national average after 2011 is a point to be noted (see table-3). Such trends in malaria incidence since 2011 suggest that the state needs to increase its efforts to control incidence and death due to malaria. Overall situation reveals that while the increasing trend of malaria incidence has already been halted and being reversed at the national level, however, at state level, more efforts needed to arrest the recent increasing trend in both incidence and deaths.

Comparison with EAG states

It is visible from the tables 4 to 6 below that Madhya Pradesh is doing well along with other EAG states in controlling the spread of Malaria and reducing its incidence. Malaria incidence rate is below 1% in MP, Rajasthan and Uttarakhand among EAG states and is declining since 2010. Higher incidence is visible in Odisha and Chhattisgarh. MP is successful in controlling the incidence of malaria. Deaths rates associated with malaria is fluctuating in all EAG states. MP has higher death rates compared other EAG states and need to pay more attention.

Table 7.4: Malaria Incidence Rate (%)

EAG States	2006	2010	2011	2013	Achievement		
					Trending in the right direction	No change over the period	Regressing-trending in the wrong direction
Bihar	1.14	1.43	1.58	1.37		√	
Chhattisgarh	5.05	4.44	3.97	2.91	√		
Jharkhand	9.25	5.91	4.67	2.75	√		
Madhya Pradesh	0.99	0.94	0.93	0.80	√		
Odisha	7.67	7.55	6.64	4.51	√		
Rajasthan	1.15	0.58	0.63	0.37	√		
Uttar Pradesh	2.32	1.59	1.39	1.13	√		
Uttarakhand	0.38	0.78	0.52	0.44	√		
All EAG States(Avg)	3.49	2.90	2.21	1.67	√		
All-India	1.67	1.47	1.2	0.78	√		

Source: Directorate of National Vector Borne Disease Control Programme, MoHFW, Govt. of India

Table 7.5: Death Rates Associated with Malaria

EAG States	2006	2010	2011	2013	Achievement		
					Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Bihar	0.04	0.05	0.00	0.04	√		
Chhattisgarh	0.06	0.03	0.03	0.04	√		
Jharkhand	0.04	0.01	0.01	0.01	√		
Madhya Pradesh	0.06	0.04	0.12	0.06		√	
Odisha	0.07	0.06	0.03	0.03	√		
Rajasthan	0.06	0.05	0.08	0.05	√		
Uttar Pradesh	NA	NA	0.00	0.00			
Uttarakhand	NA	NA	0.08	0.00			
All EAG States(Avg)	0.04	0.03	0.04	0.03	√		
All-India	0.1	0.06	0.06	0.05		√	

Source: Directorate of National Vector Borne Disease Control Programme, MoHFW, Govt. of India
Note: Due to non-availability of data on 2006 for Chhattisgarh and Jharkhand, they have been substituted with the values of Madhya Pradesh and Bihar respectively.

7.1.4. Incidence, prevalence and cases detected and cured under DOTS

The strategy of DOTS is based largely on research done in India in the field of TB over the past 35 years. Since 1997, after successful piloting, DOTS has been implemented in India as the Revised National Tuberculosis Control Programme (RNTCP). In the RNTCP, both the proportion of TB cases that were confirmed in the laboratory and the cure rate are more than double that of the previous programme. The operational feasibility of DOTS in the Indian context has been demonstrated, with 8 out of 10 patients treated in the programme being cured, as compared with approximately 3 out of 10 in the previous programme. Multi-drug resistant tuberculosis (MDRTB) is a result and symptom of poor management of TB patients. DOTS has been shown to prevent the emergence of MDRTB and to reverse the trend of MDRTB in communities in which it has emerged. TB is the most common infection among people living with HIV. The Ministry of Health and Family Welfare has reported that the latest status of Prevalence and Treatment outcome of TB cases in India and Madhya Pradesh reveals that prevalence was lower in the state than that of national level in 2010 and was almost equal to national level average. Cure rate of new Sputum +ve cases was at par with national level in 2010 before that it was lower than national average. The success rate among new positive smear has also improved in the state. The percentage of people died of new smear +ve cases in the state stands at 3.9 against 4.1 of national level.

Success rate of detecting and curing TB cases under DOTS has been more successful and Madhya Pradesh compared to other EAG states. Other EAG states where it successful are Rajasthan, Uttar Pradesh and Odisha. Cure rate of TB cases in Madhya Pradesh is around 88% in 2010. Neighboring states of Bihar, Chhattisgarh and Jharkhand among EAG states have not shown any improvement in these years.

Table 7.6: Prevalence and Treatment Outcome TB cases

Outcome Indicators	2004		2008		2010	
	India	MP	India	MP	India	MP
Prevalence Rate (per lakh population)	125.4	98.1	30.6	26.9	32.6	32.8
Cure rate of new smear +ve cases (%)	85	81	84	83	85	85
Success rate among new smear +ve cases (%)	86	84	87	86	87	88
% died of new smear +ve cases	4.7	5.3	4.6	4.6	4.1	3.9

Source: RNTCP Reports, MoHFW, Government of India

Table 7.7: Proportion of Tuberculosis Cases Detected and Cured under DOTS – Cure Rate of TB Cases

EAG States	2004	2010	Achievement		
			Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Bihar	87.00	80.00			√
Chhattisgarh	83.00	78.00			√
Jharkhand	91.00	84.00			√
Madhya Pradesh	**84.00**	**88.00**	√		
Odisha	80.00	83.00	√		
Rajasthan	87.00	88.00	√		
Uttar Pradesh	83.00	86.00	√		
Uttarakhand	92.00	82.00			√
All EAG States(Avg)	85.50	83.25			√
All-India	**85.00**	**85.00**		√	

Source: Revised National Tuberculosis Control Programme Reports, MoHFW

Table 7.8: Deaths Due to TB per lakh Population

EAG States	2004	2010	Achievement		
			Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Bihar	1.77	0.56	√		
Chhattisgarh	4.49	1.2	√		
Jharkhand	2.35	1.18	√		
Madhya Pradesh	**5.19**	**1.27**	√		
Odisha	6.75	1.51	√		
Rajasthan	5.89	1.38	√		
Uttar Pradesh	5.68	1.24	√		
Uttarakhand	2.93	1.16	√		
All EAG States(Avg)	4.38	1.19	√		
All-India	**5.89**	**1.33**	√		

Source: Revised National Tuberculosis Control Programme Reports, MoHFW

7.1.5. Death Rates Associated with TB

Deaths due to TB per lakh identified population have declined from 5.2 in 2004 to 1.27 in 2010 in Madhya Pradesh and is in line with the all India trends. All the EAG states have shown a declining trend in controlling death rate due to TB. Such declining trend is more significant in Madhya Pradesh and is likely to bring the same down to 0.39 by 2015 while other EAG states are lagging behind Madhya Pradesh in bringing down the death rate.

7.2 Public Policy on HIV, Malaria and Tuberculosis

7.2.1. Public Policy on HIV

The first case of HIV/AIDS was detected in Madhya Pradesh in 1988, and since then the number of AIDS cases is rising. In view of the seriousness of the problem, Madhya Pradesh government constituted AIDS control cell in 1992 under medical education department. Subsequently, Madhya Pradesh State AIDS Control Society (MPSACS) was constituted in June, 1998. MPSACS takes policy decisions for effective implementation of AIDS control programme in Madhya Pradesh. It is an autonomous institution, funded by National AIDS control organization (NACO), Government of India.

Although Madhya Pradesh is still a low prevalence state, the land locked status of the state surrounded by five states with higher pressure of migration and varied socio-cultural practices it necessitates close monitoring and implementation of AIDS Control Programme.

The first National Aids Control Programme (NACP) was launched in 1992, followed by NACP-II in 1999. Phase III of NACP, launched in July 2007, had the goal to halt and reverse the epidemic in the country over the five-year period (2007-2012) by scaling up prevention efforts among High Risk Groups (HRG) and general population, and integrating them with Care, Support & Treatment services. Prevention and Care, Support & Treatment (CST) form the two key pillars of all HIV/AIDS control efforts in India.

Consolidating the gains made till now, National AIDS Control Programme aims at accelerating the process of reversal and further strengthens the epidemic response in India through a cautious and well defined integration process in the next five years. Madhya Pradesh is implementing the national policy in reversing the trends.

7.2.2. Public Policy on Malaria

Malaria has become resistant to traditional drugs and major species of anopheline mosquitoes which transmit malaria has become immune to some of chemicals used to control them. Under these circumstances, the main challenge is to sustain the trend in long run.

Malaria is a public health problem in several parts of the country. About 95% population in the country resides in malaria endemic areas and 80% of malaria reported in the country is confined to areas consisting 20% of population residing in tribal, hilly, difficult and inaccessible areas. Directorate of National Vector Borne Disease Control Programme (NVBDCP) has framed technical guidelines/ policies and provides most of the resources for the programme. Indicators have been developed at national level for monitoring of the programme and there is uniformity in collection, compilation and onward submissions of data. Passive surveillance of malaria is carried out by PHCs, Malaria Clinics, CHCs and other secondary and tertiary level health institutions that patients visit for treatment. Apart from that, ASHA a village volunteer is involved in the programme to provide diagnostic and treatment services at the village level as a part of introduction of intervention like Rapid Diagnostic Tests and use of Artemisinin Combination Therapy (ACT) for the treatment of P.falciparum cases.

Trends of these indicators from 2011 onwards caution state to increase its efforts to control incidence and death due to malaria. Overall situation reveals that the increasing trend of malaria incidence has already been halted and being reversed at national and at state level more efforts needed to arrest recently increased trend of incidence and deaths.

7.2.3. Public Policy on TB

The vision of the Government of India is for a TB-free India. To achieve this vision, the programme has now adopted the new objective of Universal Access for quality diagnosis and treatment for all TB patients in the community. This entails sustaining the achievements of the programme to date, and extending the reach and quality of services to all persons diagnosed with TB.

In particular, by end-2015, the programme aims to achieve the following:

- Early detection and treatment of at least 90% of estimated TB cases in the community, including HIV associated TB;
- Initial screening of all re-treatment smear-positive TB patients for drug-resistant TB and provision of treatment services for MDR-TB patients;
- Offer of HIV Counseling and testing for all TB

patients and linking HIV-infected TB patients to HIV care and support;

- Successful treatment of at least 90% of all new TB patients, and at least 85% of all previously-treated TB patients;
- Extend RNTCP services to patients diagnosed and treated in the private sector.

The programme plans to achieve this by deploying new rapid diagnostics, expanded services for management of MDR-TB. The state TB control programme division needs to closely co-ordinate with NACO in achieving the TB-HIV national scale-up. The state should strengthen urban TB control and PPM initiatives in addition to improving the quality of basic DOTS services. TB control division need to align with NRHM supervisory structures.

In order to achieve the targets, each district has a TB centre. 158 Tuberculosis Units (TUs) and 756 Designated Microscopy Centers (DMCs) have been established for effective management of RNTCP. More than 3000 medical officers, 1000 laboratory technicians, 17000 health care workers and other community volunteers have been trained. The Designated Microscopy Centers have been upgraded, established and fitted with binocular microscopes since the inception of the RNTCP to provide easy and universal access to diagnosis and treatment facilities for suspected Tuberculosis patients. About fourteen thousand treatment observation points have been established to facilitate directly observed treatment nearest to the patients. Publicity and IEC of the programme providing treatment for tuberculosis patients has been taken to grass root level to apprise the community of the facilities under RNTCP.

TB-HIV collaborative activities are being implemented in collaboration with (National AIDS Control Programme) to provide TB treatment and care and support for TB-HIV co- infected patients. In Madhya Pradesh, the intensified TB-HIV package was implemented from October 2011.

India is one of the high burden countries for tuberculosis as well as drug-resistant tuberculosis. The Programmatic Management for Drug Resistant TB (PMDT) for quality diagnosis and treatment of drug resistant TB cases were initiated in 2007, the programme has extended drug susceptibility testing to all smear positive retreatment cases on diagnosis, and all cases on first line TB treatment that are smear-positive on any follow-up.

Diagnostic services for Drug Resistant TB to first Line drugs by Culture and Drug Susceptibility Testing is available at Bhopal, Jabalpur and Indore using Solid and Rapid diagnostics (Line Probe Assay-LPA). By February, 2013, all the 50 districts in the state have rolled out Programmatic Management of Drug Resistant TB Cases (PMDT services) free of cost to the confirmed Drug Resistant TB cases. At present there are three functional DR-TB Centers namely at TB Hospital Id Gah Hills Bhopal, MR TB hospital Indore & R D Gardi Medical college Ujjain. They provide services of pre-treatment evaluation, initiation of treatment with Category IV drugs & management of the adverse drug reaction for the DR TB patients. At the end of the 3rd Quarter of 2013 there were 977 Drug resistant patients taking category IV treatment in the State.

There have been some lacunae in implementation of RNTCP, as the state largely depends on Central government for the drugs and equipment. Nearly 7500 children diagnosed with TB went without medicines due to shortage[32]. Apathy is that the State cannot even procure from private sources and completely dependent on center for the supply of drugs. The State government should find alternatives of procuring these drugs for any shortages.

Malnutrition is one of the main causes for the spread of TB. Therefore containing the under nutrition and maintain the food security should help the state in containing the spread of TB and deaths due to TB.

7.3. Conclusion:

Madhya Pradesh is one of low HIV prevalent state and is not among the high focus states of National AIDs Control programme. The spread of HIV is limited to seven districts and concentrated efforts in these districts should restrict the spread and incidence of HIV. But HIV prevalence has increased in the recent past and is closer to national level in 2011. Major influencing factor of HIV spread in Madhya Pradesh is sexual transmission and not due to drug injection or blood transfusion. High prevalent districts are the border districts of the state and could be largely due to migration. With

[32] Down to Earth date March 22, 2013 (http://www.downtoearth.org.in/content/7500-child-tb-patients-go- untreated-madhya-pradesh)

spread of awareness of condom use, the state can restrict the increase in the prevalence of HIV. Although condom use rate has increased during various NFHS rounds, it is not very significant compared to neighboring state of Uttar Pradesh.

Decline in malaria incidence rate in recent past is a positive sign. The Incidence rate in the state was lower than all India average. But recently the decline in incident rate of malaria in MP is lower than all India average and the state's incidence rate appears to increase the national burden. Additional efforts are needed to bring this below the national average. In terms of TB, prevalence rate in Madhya Pradesh is fluctuating and is at national average levels as of now. However, the fluctuating trend also reflects that the state is at high risk and needs to be prepared for effective implementation of the central programme.

All the disease control programmes, both communicable and vector borne, are majorly strategized and supported by the Government of India through centrally sponsored programmes. The technology and treatment drugs are supported by the Center. An effective administration and implementation of these schemes, which is in state government domain, could result in restricting the incidence and deaths associated with these diseases. The state government needs to supplement the central assistance through human resources, purchase of drugs and equipment.

Status of MDG 6: Combat HIV/AIDS, Malaria and other diseases

MP and India	Indicators	Trending in the right direction	No change over the period	Regressing-trending in the wrong direction
Madhya Pradesh	HIV Prevalence among Pregnant Women Aged 15-24 Years (%)			√
	Condom use rate of the contraceptive prevalence rate (%)	√		
	Malaria Incidence Rate (%)	√		
	Death Rates Associated with Malaria	√		
	Deaths Due to TB per lakh population			√
	Proportion of Tuberculosis Cases Detected and Cured under DOTS	√		
India	HIV Prevalence among Pregnant Women Aged 15-24 Years (%)	√		
	Condom use rate of the contraceptive prevalence rate (%)	√		
	Malaria Incidence Rate (%)	√		
	Death Rates Associated with Malaria	√		
	Deaths Due to TB per lakh population	√		
	Proportion of Tuberculosis Cases Detected and Cured under DOTS	√		

7 ENSURE ENVIRONMENTAL SUSTAINABILITY

8 A GLOBAL PARTNERSHIP FOR DEVELOPMENT

GOAL 7 Ensure Environmental Sustainability

Targets:

- Integrate the principle of sustainable development into country policies and programmes and reverse the loss of environmental resources.
- Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.
- By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

Indicators:

- Forest area as percentage of total geographical area.
- Ratio of area protected to maintain biological diversity to surface area.
- Solid Fuel Consumption- Per Cent of Households Consuming Solid Fuels like fire wood, cow dung etc.
- Households with drinking water within premises and households with access to tap water.
- Households without access to sanitation.
- Slum population as percentage of urban population.

Ensure Environmental Sustainability & Develop A Global Partnership For Development

CHAPTER 8

GOAL 8

Develop a global partnership for development

Target: In co-operation with the private sector, make available the benefits of new technologies, especially information and communication.

Indicators:

- Telephone lines and cellular subscribers per 100 populations.
- Internet subscribers per 100 populations.

As the effects of climate change are being increasingly felt, concerns about sustainable development have been rising across the globe. Issues such as degradation of natural resources, pollution and loss of bio diversity and their impact on livelihood are being emphasized upon. Scarcity of water, health hazards, adverse impact on agriculture, climate change are some of the key concerns related to unsustainable use of environmental resources. These issues are even more important in relation to the MDGs as environmental hazards are thought to be able to retard or reverse achievements in other goals. Environmental sustainability has important interlink ages with poverty as poor people usually depend more on natural resources than others and they are more likely to be affected by natural disasters and other environmental hazards. It is important for modern civilization to exploit natural resources through mining, logging etc. But to what extent these should be carried out, is an important consideration. The Millennium Development Programme has acknowledged the importance of environmental sustainability and has focused upon some key areas such as forest cover, CO2 emission, sustainable access to water etc. In this chapter, discussion on the status and issues for improving environmental sustainability in the state of Madhya Pradesh is undertaken in terms of the six indicators.

8.1. Trends and Status of MDG 7 Indicators

Forest Area as Percentage of Total Geographical Area

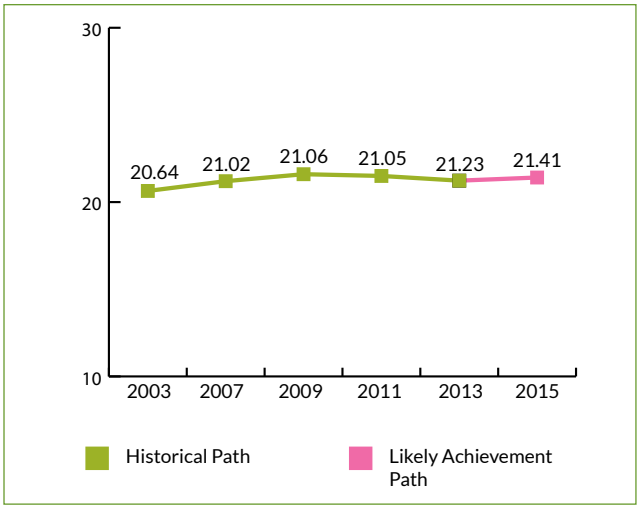
India is faced with the challenge of accelerating economic growth while ensuring minimum or no damage to environment. It is a well-established proposition that increasing forest cover is one of the most efficient ways of sustaining environmental integrity, ecological bio diversity and making up for environmental damages caused by general urbanization and industrialisation.

Despite considerable pressure of increasing land and forest use for industrialization and urbanization, India has managed to increase percentage of forest cover with respect to total geographical area by 0.18% from 2011 to 2013 as per the report of Forest Survey of India. According to FSI, forest cover is defined as "...all lands which have a tree canopy density of 10 percent and above and have a minimum area of one hectare". FSI collects images captured by a satellite camera called LISS-III to correctly account for the areas according to the above definition controlling for possible errors. India's total forest area was 697898 km^2 (21.23% of total geographical area) in 2013 whereas the same was 692027 km^2 (21.05% of total geographical area) in 2011.

As the biennial reports of Forest Survey of India (FSI) suggests, extent of forest cover as percentage to total geographical area has been stagnant over years. In 2003 it was 20.64% and in 2011, it reached only 21.05%. Between 2011 and 2013, West Bengal, Odisha, Bihar and Jharkhand have achieved considerable increase in forest cover. In the same interval, Andhra Pradesh, Madhya Pradesh and almost the whole north-east region have seen major decline in forest cover.

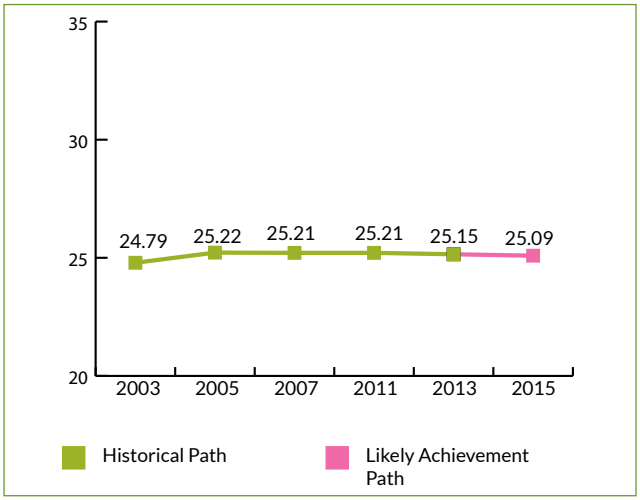
In 2011, Madhya Pradesh had 7,77,000 km2 of forest cover, which was 25.21% of its total geographical area. As per the 2013 assessment of FSI, Madhya Pradesh saw a net decline of 178 km^2 of forest cover and as a result, share of geographical also came down to 21.15%.

Chart 8.1: Area Covered under Forests as Percentage of Geographical Area in India



Source: India State of Forest Report, Forest Survey of India, various years and authors' calculations
Note: As per the FSI, there are four types of tree cover, (1) Dense forest, (2) moderately dense forest, (3) open forest and (4) scrubs. Charts for forest cover presented here exclude scrubs.

Chart 8.2: Area Covered under Forests as Percentage of Geographical Area in Madhya Pradesh



Source: India State of Forest Report, Forest Survey of India, various years and authors' calculations

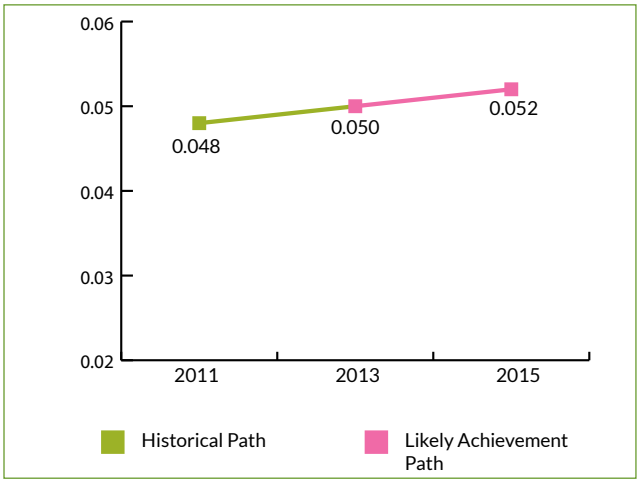
The MDG target regarding the current indicator is to increase forest cover relative to the geographical area. In an era of rapid industrialization and urbanization, when increasing forest cover is crucial for sustaining development, it can be concluded that although India as a country is showing slightly positive trend, MP's forest cover is decreasing and this trend should be reversed in order to achieve the goal of sustainable development.

Ratio of area protected to maintain biological diversity to surface area

The ecosystem of environment around us is a massive network of dependence among diverse flora and fauna. Damage to even a part of it adversely affects the whole ecology. A diverse ecosystem helps in sustained supply of food and shelter and it regulates pollution and climate. Maintaining, if not increasing, protected area to protect bio-diversity is thus an important requirement towards sustainable development.

In 2013, India had 689 protected areas in total, covering 166352 km2, which is around 5.06% of total geographical area (GA). Out of these, there are 102 national parks, 526 wildlife sanctuaries, 57 conservation reserves and four community reserves. According to the Ministry of Environment, Forest and Climate Change, in 2011, India had only 668 protected areas spreading over 161221 km^2, which is around 4.8% of the total geographical area. Hence, there has been some improvement in the national scenario regarding protected areas since 2011. If the rate of this positive change is sustained, by 2015, India is expected to add about 500km2 more to the protected areas reaching around 5.2% of total GA.

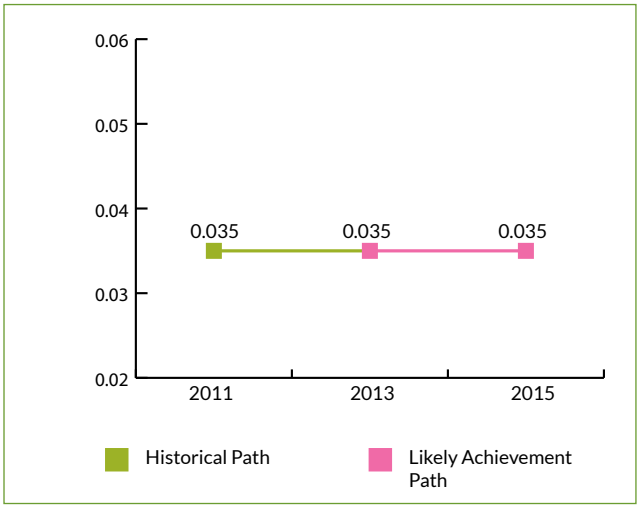
Chart 8.3: Ratio of Area Protected to Maintain Biological Diversity to Surface Area in India



Source: India State of Forest Report, Compendium of Environmental Statistics and authors' calculations

Madhya Pradesh, on the other hand, has seen neither improvement nor decline in areas protected for conservation purposes. Compared to 2011, there has been an increase of 446.92 km^2 in protected area in the state. In July 2013, Madhya Pradesh had 9 national parks and 25 wildlife sanctuaries extended over 10814.76 km^2 of area.

Chart 8.4: Ratio of Area Protected to Maintain Biological Diversity to Surface Area in Madhya Pradesh



Source: India State of Forest Report, Compendium of Environmental Statistics and authors' calculations

The MDG target is to increase reserved areas for conservation purpose. At all India level, such areas are increasing, but in MP, the percentage of such areas appears to be stagnant.

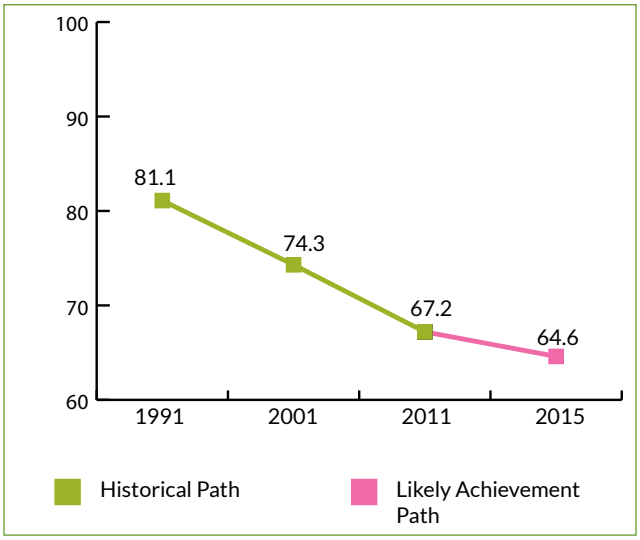
Proportion of Households using Solid Fuels

Use of solid fuels for cooking results in serious health problems through indoor air pollution (Smith et al, 2004). Typical resultant health issues are pneumonia among children and chronic obstructive pulmonary disease (COPD) and lung cancer among adults, as well as other types of cancers, tuberculosis, cardiovascular disease, adverse pregnancy outcomes, asthma, and cataracts. (Rehfuess EA et al, 2011).

In 1991, around 81.1% of Indian households were using solid fuels, which fell to 74.3% in 2001. The usage of solid fuels decreased further to 67.2% in 2011. From this it can be projected that in 2015, around 64.6% of Indian households will be using solid fuels.

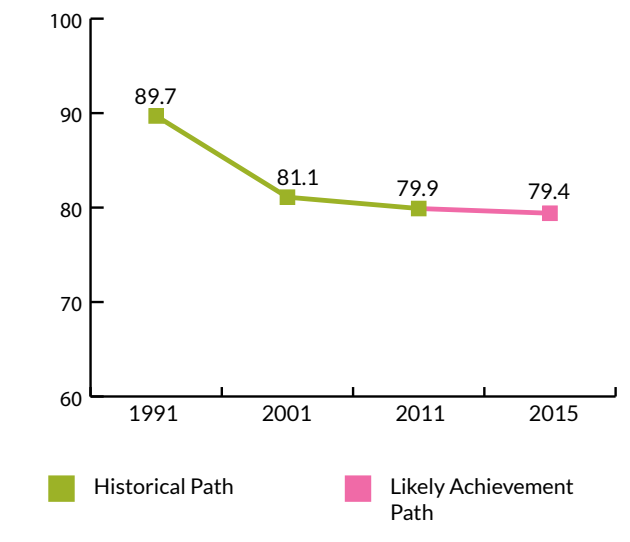
In Madhya Pradesh, 89.7% of the households were using solid fuels in 1991 which fell to 81.1% in 2001. It again slightly declined to 79.9% in 2011. Following this, it can be said that around 79.4% of the household in the state will be using solid fuels in 2015. Though percentage use of solid fuel is declining, both India and MP are still heavily solid fuel dependent with MP having much higher magnitude compared to all India.

Chart 8.5: Proportion of the Households using Solid Fuels in India (%)



Source: Census of India, RGI and authors' calculations

Chart 8.6: Proportion of the Households using Solid Fuels in Madhya Pradesh (%)



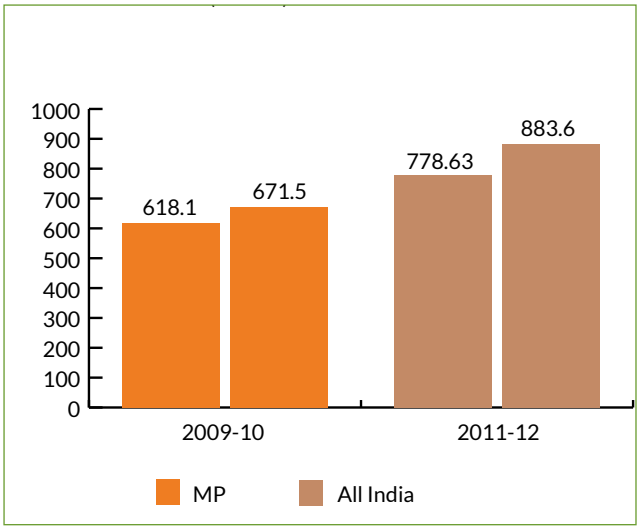
Source: Census of India, RGI and authors' calculations

Per Capita Energy Consumption

In the absence of renewable energy sources coming into mainstream, higher energy consumption leads to higher carbon footprint. Higher carbon footprint is directly related to higher emission levels of greenhouse gases. Carbon dioxide (CO_2) is the single major constituent of greenhouse gases. Thus, higher energy consumption directly leads to higher greenhouse emission. Hence it is essential to shift to cleaner energy consumption techniques. It is a challenge for the governments, in the age of rapid urbanization and development through higher production activities, to check the emission levels for sustainable development. The Millennium Development Goal target is to reverse the increasing trend of per capita energy consumption and emission.

Per-capita Energy Consumption (PEC) is one of the most common parameters for measuring levels of energy use. Per capita Energy Consumption is defined by the total energy consumption in a year divided by mid-year population of the year in question.

Chart 8.7: Per Capita Energy Consumption in India and MP (in kWh)



Source: Ministry of Power, Government of India, Rajya Sabha Questions.

As per the Ministry of Power, the per capita energy consumption for India in the year 2009-10 and 2011-12 were 778.63 kWh and 883.6 kWh respectively. While the trend is a rising one, it is noteworthy that per capita energy consumption is much lower in India than many of the developed countries and even the world average.[33]

In Madhya Pradesh, the per capita energy consumption in 2009-10 was 618.1 kWh which increased to 671.5 kWh in 2011-12. Per capita energy consumption in MP has been lower than the all India level.

The MDG target for the current indicator is to reverse the trend of increasing energy consumption and emission. The discussion above shows that both at all India and MP levels there is no sign of reversing the trend and arrest increasing energy consumption and emission levels.

Households with Drinking Water within Premises and Households with Access to Tap Water

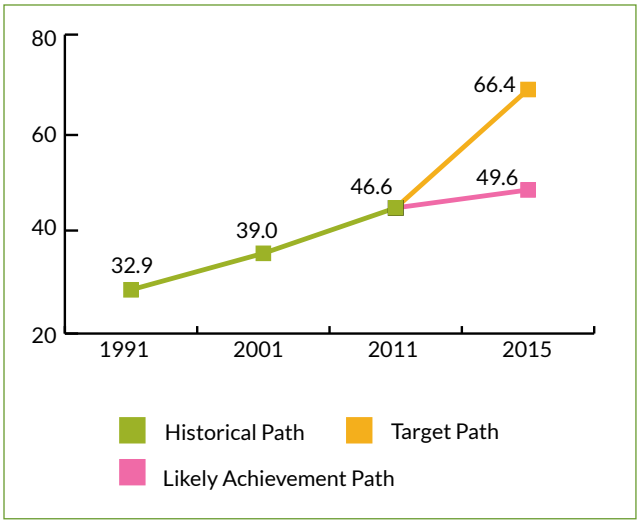
Access to clean and safe drinking water is very basic human need. Yet, around 786 million people around the world did not have access to improved source for drinking water and 185 million had to depend on surface water for drinking as in 2011.[34] Pollution in recent times has made access to safe drinking water even more difficult. Also there is a problem of arsenic in ground water sources. There are several drinking water related health ailments and developing world is still plagued with these health issues. On the flipside, improvement in access to safe drinking water is widely expected to generate considerable health benefits in general.

According to NSS 69th round (2012 data), improved sources of drinking water consists of piped water into dwelling or plot, public tap or standpipe, tube-well or borehole, protected well, protected spring, rainwater collection and bottled water.[35] According to this data, 83.2% of rural households of MP have access to improved source of drinking water. The same for urban Madhya Pradesh is 97.1%. At all-India level, 86.9% of rural households and 90.1% of urban households have access to improved sources.

CENSUS data provides information on various types of sources as well as data classified by distance of the water sources. From CENSUS we also get comparable data points, viz. 2001 and 2011.

In India, around 32.9% of the households had provision of drinking water within their premises in the year 1991. This has gradually increased to 39% in 2001 and 46.6% in 2011. Given this trend, in 2015, 49.6% of the households will be having drinking water facility within their premises.

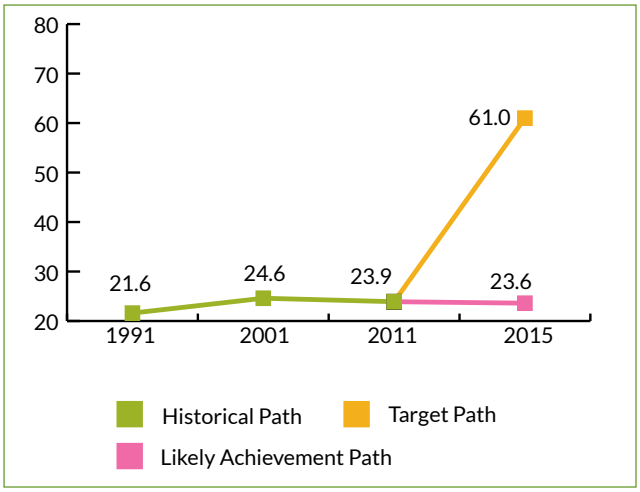
Chart 8.8: Households with drinking water within premises (%) in India



Source: Census of India, RGI and authors' calculations

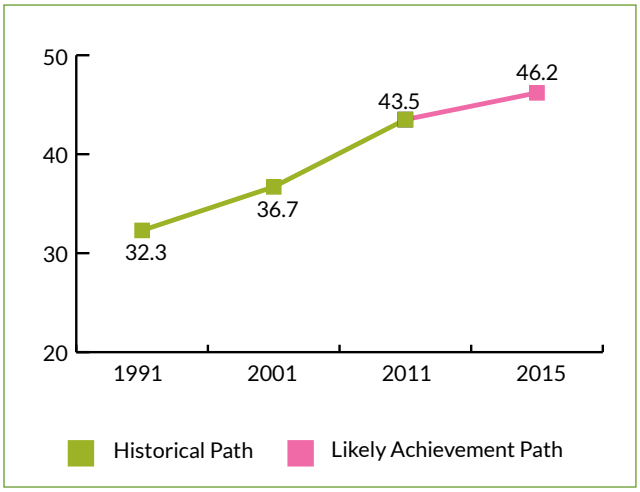
[33] *For international comparison see http://pib.nic.in/newsite/erelease.aspx?relid=74497*
[34] *See http://www.who.int/water_sanitation_health/monitoring/jmp_fast_facts/en/*
[35] *MDG guidelines do not consider 'bottled water' as improved source.*

Chart 8.9: Households with Drinking water within premises in Madhya Pradesh (%)



Source: Census of India, RGI and authors' calculations.

Chart 8.10: Households with access to tap water in India (%)



Source: Census of India, RGI and authors' calculations.

For Madhya Pradesh, the provision of the drinking water within the premises has not shown much improvement over two decades. In 1991, 21.6% of the household had drinking water facility within premises which increased to 24.6% in 2001. The same figure showed a marginal decline to 23.9% between 2001 and 2011. Based on the latest trend, in 2015 it is expected that only 23.6% of the households will be having this facility.

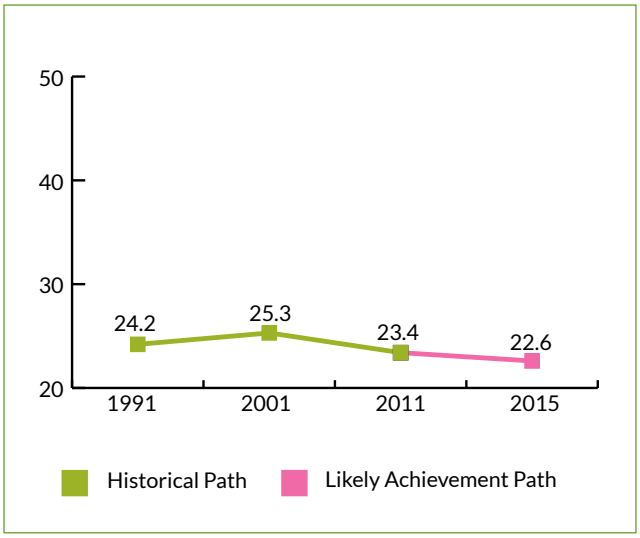
The MDG target for access to safe drinking water is to halve the proportion of population who has no access to safe drinking water in reference year 1991. Now for all India, 32.9% of households had drinking water source within premises. This implies that in order to reach the MDG target, at least 66.45% of households at all India level have to have access to drinking water within premises. In this regard we can see that India is progressing towards the right direction. But, as our projection suggests, it is not likely that India is going to meet the target within stipulated time. The similar MDG target for Madhya Pradesh is to provide at least 60.8% households safe drinking water within premises. But, the state's progress in this regard has been rather slow and in fact in the decade following 2001, there has been a decline in the percentage of households with drinking water source within premises. Given the recent trend, it appears that MP would be off-track in this target.

Tap waters are in most of the cases come from treated sources. Hence, access to tap water may be treated as reflection of how developed infrastructure is in order to provide the habitats with safe drinking water.

In 1991, 32.3% of the households in India had access to tap water which eventually increased to 36.7 in 2001 and further to 43.5% in 2011. Given this, for India, as a whole, it can be predicted that in 2015, around 46.2% of the households will have access to tap water.

But for Madhya Pradesh, the proportion of households having access to tap water has declined over the years from 24.2% in 1991 to 23.4% in 2011, except in 2001 when it slightly increased to 25.3%. Following this trend, it has been projected that in 2015, only 22.6% of the households of the state will have access to tap water.

Chart 8.11: Households with access to tap water in Madhya Pradesh (%)



Source: Census of India, RGI and authors' calculations

Table 8.1: Distribution of sources of drinking water

Source of Water	Madhya Pradesh						India					
	Rural		Urban		Total		Rural		Urban		Total	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Tap Water (Piped Water)	10.7	9.9	67.9	62.2	25.3	23.4	24.3	30.8	68.7	70.6	36.7	43.5
Well	35.6	25	9.9	5.5	29	20	22.2	13.3	7.7	6.2	18.2	11
Hand pump/ Tube well/ Bore well	50.9	63.2	20.6	29.9	43.1	54.7	48.9	51.9	21.4	20.8	41.2	42
Other sources	2.9	1.9	1.5	2.4	2.5	2	4.5	4	2.3	2.5	3.9	3.5

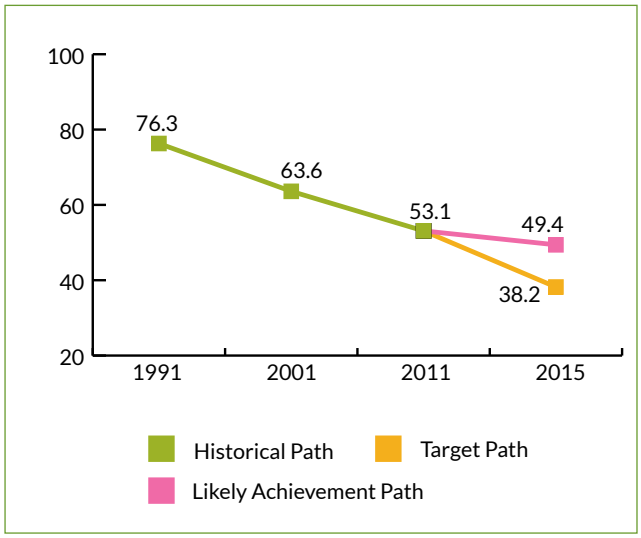
Source: Census 2011, 2001, RGI

From the table above, it can be observed that, for both Madhya Pradesh and all India, urban areas drinking water source are dominated by taps (supplies) whereas in rural areas, hand pumps, tube wells and bore wells are major sources.

Households without access to sanitation

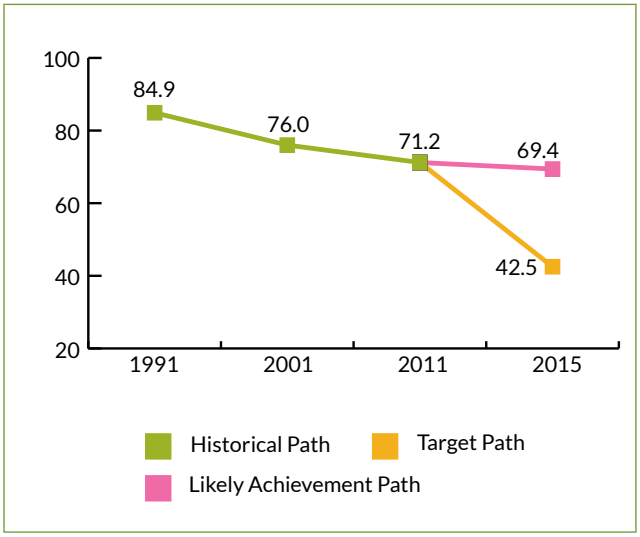
The proportion of the households without access to sanitation in India decreased from 76.3% in 1991 to 53.1% in 2011 over the span of 20 years. On the basis of this, it has been projected that by 2015, as many as 49.4% of the households are not going to have access to sanitation.

Chart 8.12: Households without Access to Latrine within Premises in India (%)



Source: Census 2011, 2001, RGI and authors' calculations

Chart 8.13: Households without Access to Latrine within Premises in Madhya Pradesh



Source: Census 2011, 2001, RGI website and authors' calculations

In Madhya Pradesh, around 84.9% of the households did not have access to sanitation in 1991. In 2011, the proportion of the households without access to sanitation decreased to 71.2%. Given this, it has been projected that around 69.4% of the households will not have sanitation facility by 2015.

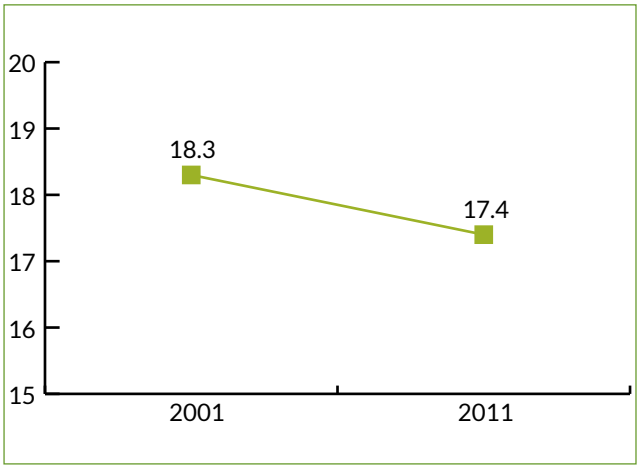
At all India level, the MDG target is to have at most 38.15% of households with no access to proper sanitation facility. Although India is showing positive trend at reducing the number of households without sanitation facility, our projections suggest that it is unlikely to reach the target in this respect. The same applies for MP as its target is to reach 42.45% while it is likely to reach only 69.4%.

Slum Population as Percentage of Urban Population

Along with rapid urbanization, slums in Indian towns and cities are growing continuously due to large scale migration from rural areas. Slums are generally characterized by poor drinking water and sanitation facilities, overall unhealthy and small living space, lack of electricity and other basic facilities and general absence of law enforcement. The MDG has set a target to improve lives of slum dwellers. As slum specific data on facilities indicators are not available, it is desirable target to at least check the increase in slum population.

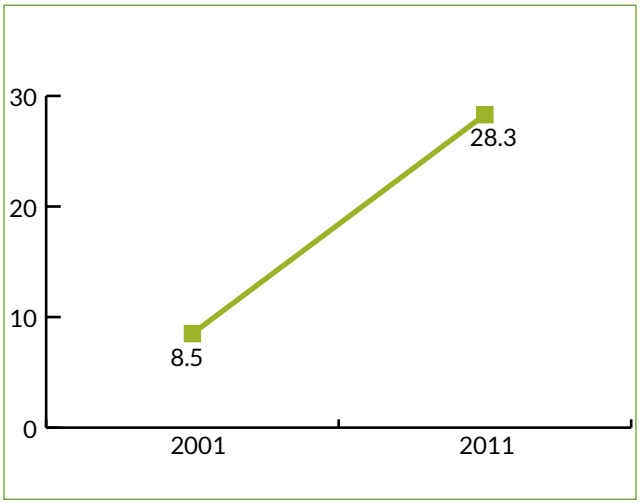
The proportion of slum population among the total urban population in India has marginally declined over 10 years from 2001 (18.3%) to 2011 (17.4%).

Chart 8.14: Slum Population as Percentage of Urban Population in India



Source: censusmp.nic.in

Chart 8.15: Slum Population as Percentage of Urban Population in Madhya Pradesh



Source: censusmp.nic.in

On the contrary, the slum population as a percentage of urban population in Madhya Pradesh, increased alarmingly to 28.3% in 2011 from 8.5% in 2001.

8.2. EAG States Comparisons

Due to lack of appropriate statistics at state level for many of the environmental indicators, comparison of Madhya Pradesh with other EAG states is done only for four indicators in the current chapter; solid fuel consumption, households with drinking water source within premises, households with access to tap water and households without access to sanitation. With respect to solid fuel consumption, only Uttarakhand has managed to register a considerable (7.53%) decline. Other EAG states, including MP, also have managed to bring down use of solid fuels, but their performances have been unimpressive considering a decade of time interval. In fact in all the indicators here, Uttarakhand has achieved way better than other EAG states. Others in the group have done worse than the national average in most of the cases.

Table 8.2: EAG states comparisons vis-a-vis MDG 7

EAG States	Solid Fuel Consumption		Households with Drinking water within premises		Households with access to tap water		Households without Access to Sanitation (%)	
	2001	2011	2001	2011	2001	2011	2001	2011
Bihar	93.1	89.9	39.6	50.1	3.7	4.4	80.8	76.9
Chhattisgarh	89.6	87.7	19.0	19.0	15.5	20.7	85.8	75.4
Jharkhand	90.3	86.9	20.0	23.2	12.6	12.9	80.3	77.9
Madhya Pradesh	**81.1**	**79.9**	**24.6**	**23.9**	**25.3**	**23.4**	**76.0**	**71.2**
Odisha	88.7	86.1	19.0	22.4	8.7	13.8	85.1	77.9
Rajasthan	80.1	75.9	32.9	35.0	35.3	40.6	71.0	65.0
Uttar Pradesh	85.7	79.8	46.0	51.9	23.7	27.3	68.6	64.4
Uttarakhand	60.7	53.2	44.8	58.3	65.9	68.2	54.8	34.2
All EAG States (Avg)	**82.3**	**78.5**	**30.7**	**35.5**	**23.8**	**26.4**	**75.3**	**67.9**
All-India	**74.3**	**67.2**	**39.0**	**46.6**	**36.7**	**43.5**	**63.6**	**53.1**

Source: Census of India, RGI, 2011 & 2001.

8.3. MDG 7 and Public Policy

There are a number of laws and regulations in India for conserving environment and forests and bio-diversity. The Forests Conservation Act of 1980 with amendments of 1988 along with several other laws related to poaching, air, water and sound pollution are in place. The National Environment Policy, 2006 recognised that ecological balance is crucial for sustainable development. But it is clear from experience that these laws have not been able to check malpractices related to environment, forests and pollution.

In order to entitle the native forest dwelling tribal communities to use forest resources and maintain the same, the Forests Rights Act, 2006 have been enacted. This act recognizes the fact that the tribal communities, having forests and sustainably using them as their natural habitat for ages, are also the most qualified defender of the forest ecosystem. But recent developments show that the government is keen to dilute such laws in order to make way for more and more infrastructure projects in forest areas[36].

National Afforestation Programme (NAP) is a flagship scheme of National Afforestation and Eco-Development Board (NAEB) of Ministry of Environment and Forests. The scheme provides centralised support to the Forest Development Agencies (FDAs). FDAs, again, are constituted by a number of Joint Forest Management Committees (JNMCs) which operate at the forests level. This two-tier structure to address forest issues have replaced state government control over planning and implementation by that of local forest dwelling communities[37]. Madhya Pradesh has a share of 11.1% of total forest cover in India. Also around 14.65% of India's tribal population resides in Madhya Pradesh. Hence, the forest and tribal rights issues are even more crucial for the state. Considering the symbiotic relationship between tribes and forest, the government should care and protect the tribal rights.

Stressing on the need to address the concerns of people living in forest areas and ensure a desirable level of services for them, the thirteenth finance commission introduced a forward-looking incentive based grant rewarding the States with forest cover and linking it to the quality of forests in a State. Therefore, tax devolution formula, included the area under forest cover as one of the criteria. Fourteenth Finance Commission has assigned 7.5% weight to the forest cover. "We believe that a large forest cover provides huge ecological benefits. But, apart from the maintenance costs, there is also an opportunity cost in terms of the forest area not being available for revenue-yielding economic activity. Keeping in view the ecological benefits and the need to support states in shouldering the responsibility of managing the environment, we have decided to consider area covered by forests as one of the important criteria for horizontal devolution" (Fourteenth Finance Commission Report).

36 http://www.business-standard.com/article/economy-policy/govt-may-do-away-with-tribal-consent-for-cutting-forests-114090900008_1.html
37 http://in.reuters.com/article/2014/09/05/india-tribes-jualoram-idINKBN0H00Q120140905

National Action Plan on Climate Change (NAPCC), launched in 2008, is a combination of eight national plans by the central government on water conservation, energy efficiency and other environment related issues. The eight missions that constitutes this action plan are: National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for a Green India, National Mission for Sustainable Agriculture, and National Mission on Strategic Knowledge for Climate Change.

The issue of per capita energy consumption has its direct effect on ozone layer depletion and climate change. India has been part of the Vienna Convention and Montreal Protocol. India also has also tried to integrate plans to bring down Ozone Depleting Substance (ODS) production with broader industrial policy. But experience shows that consideration related to environment has, in majority cases, been assigned lowest priority.

Drinking Water and Sanitation

The National Rural Drinking Water Programme (NRDWP) as part of Rajiv Gandhi Drinking Water Mission has aimed to provide each rural person with adequate and safe water for drinking and other household purposes in a sustainable manner[38]. Other schemes like Central Rural Sanitation Programme (CRSP), National Urban Sanitation Policy (NUSP), National Water Policy 2012 (Draft), Indira Awas Yojana (IAY), Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Nirmal Gram Puraskar(NGP), Nirmal Bharat Abhiyan (NBA) / Total Sanitation Campaign(TSC) are, directly and indirectly, in action geared to provide better water and sanitation facilities throughout the country. Currently all central government schemes for water and sanitation comes under the umbrella scheme Nirmal Bharat Abhiyan.

According to the Constitution of India, water supply and sanitation are state government responsibilities. Funds are provided by the state governments to Panchayats and Municipalities. But decision-making about plans, design and implementation happen at central bodies like state government departments or boards. This results in delay and insufficiency in provision of these facilities. Later there have been attempts to decentralise some responsibilities to the local governing bodies. However, there are too many agencies involved in discharging funds for water and sanitation related programmes including local bodies, state governments and central government. This makes it impossible to get accurate account statement describing actual expenditure in this area.

To conclude the discussion on Goal 7, the following observations may be mentioned. Firstly, the trend of declining forest cover in MP has to be reversed. Secondly, though use of solid fuel has been coming down, it still is higher than all India average. Thirdly, percentage of households with access to drinking water within premises and tap water has declined between 2001 and 2011. This is a matter of grave concern. Also, close to 70% of households in MP are going to lack access to proper sanitation even in 2015. Finally, the share of slum population in total urban population has been rising in the state. Several public policies that have been in place to tackle these problems, have failed to reverse the adverse trends of these indicators.

8.4. MDG 8: Develop a Global Partnership for Development

Information plays a crucial role in the current phase of economic development so much so that it is being called information revolution. Several information connectivity technologies are making their way into lives of the masses. The eighth MDG aims to "develop a global partnership for development" in era of globalization. In India's context, this goal has been interpreted into a target of making available the benefits of new technologies, especially information and communication in co-operation with the private sector. Making available the benefits of information technology to the common masses is dependent upon the spread of access to telecommunication and internet in the country.

Currently, the telecommunications network in India is the world's second largest network after China. Highlights of telecom subscription scenario as on 30/09/2014 are given below.

[38] *Upadated guideline for NRDWP, 2013 (http://www.indiasanitationportal.org/sites/default/files/NRDWP_Guidelines_2013.pdf)*

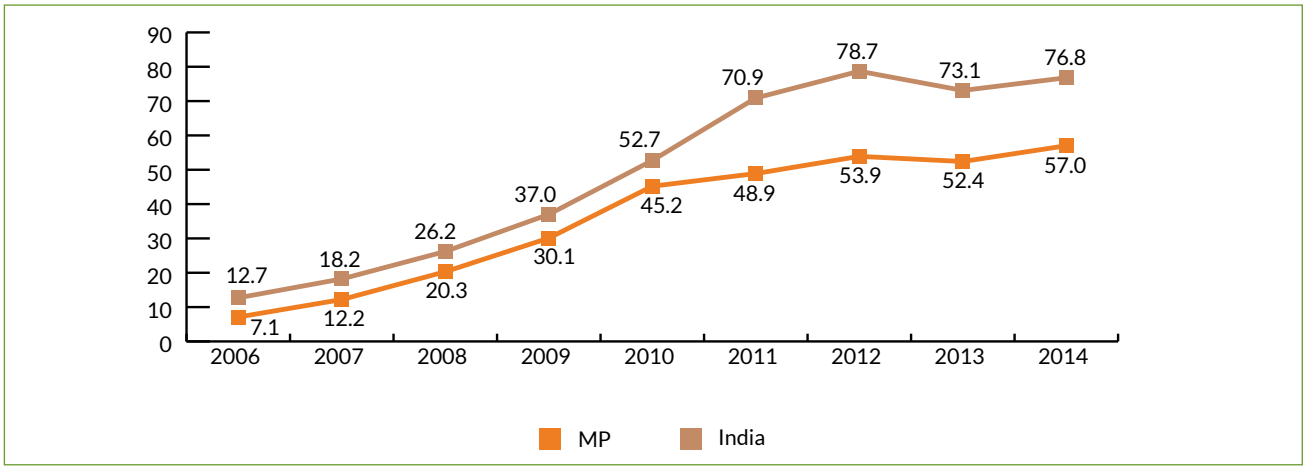
It is clear that over time, people are switching from wireline connections to wireless connections. Number of telecom subscribers per 100 population (or tele-density) is an important measure of the reach of communication technology. Tele-density of Madhya Pradesh has always been lower than the all India average. But in last decade, there has been manifold increase in tele-density in every part of India, including MP.

Table 8.3: Distribution of telecom connections (All India)

Indicators	Wireless	Wireline	Total
Total Telephone Subscribers (million)	930.2	27.41	957.61
Net Addition in September, 2014 (million)	5.88	-0.12	5.77
Monthly Growth Rate	0.64%	-0.43%	0.61%
Urban Telephone Subscribers (million)	547.7	21.85	569.56
Net Addition in September, 2014 (million)	3.02	-0.06	2.96
Monthly Growth Rate	0.55%	-0.26%	0.52%
Rural Telephone Subscribers (million)	382.5	5.55	388.05
Net Addition in September, 2014 (million)	2.87	-0.06	2.81
Monthly Growth Rate	0.76%	-1.09%	0.73%
Overall Tele-density	74.55	2.2	76.75
Urban Tele-density	142.39	5.68	148.07
Rural Tele-density	44.32	0.64	44.96
Share of Urban Subscribers	58.88%	79.74%	59.48%
Share of Rural Subscribers	41.12%	20.26%	40.52%
Broadband Subscribers (million)	60.61	15.13	75.73

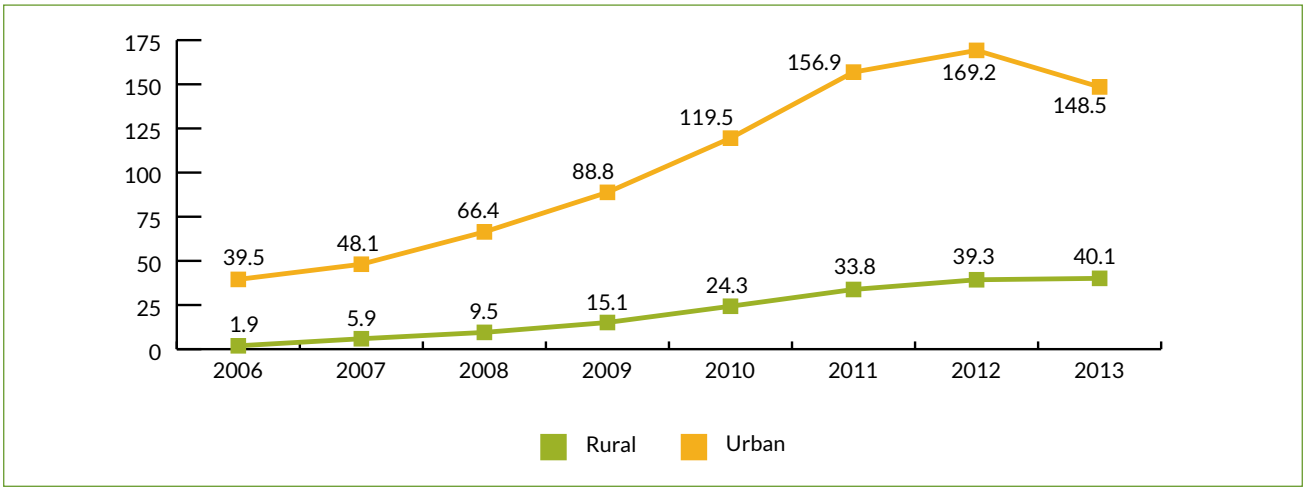
Source: TRAI(http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/PR-TSD-Sep-14.pdf)

Chart 8.16: Overall tele-density in India and MP (Per 100 population)



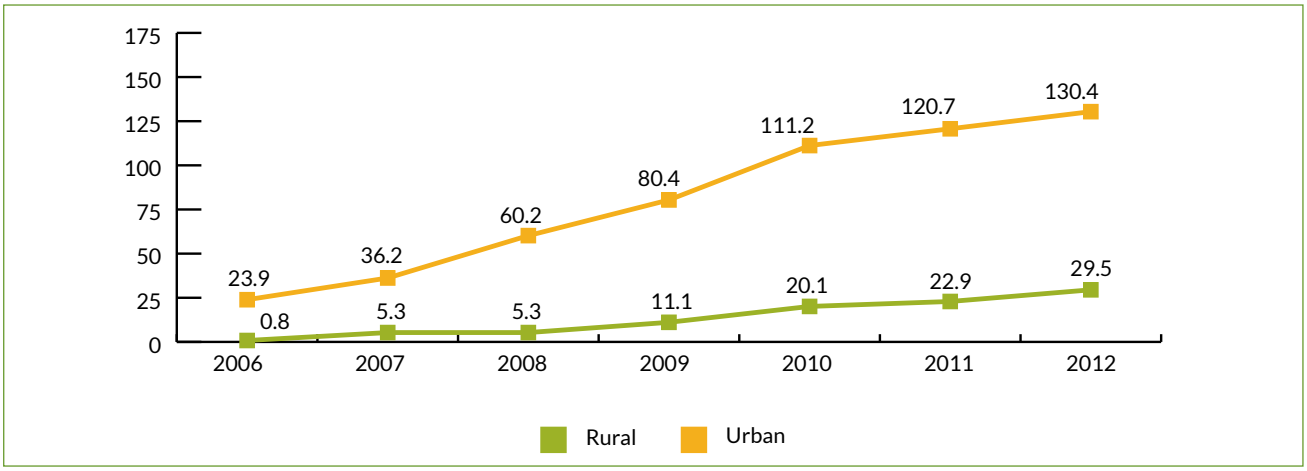
Source: TRAI and Department of Telecommunication, GoI

Chart 8.17: Rural - Urban tele-density in India (Per 100 population)



Source: TRAI and Department of Telecommunication, GoI

Chart 8.18: Rural-urban tele-density in Madhya Pradesh (Per 100 population)



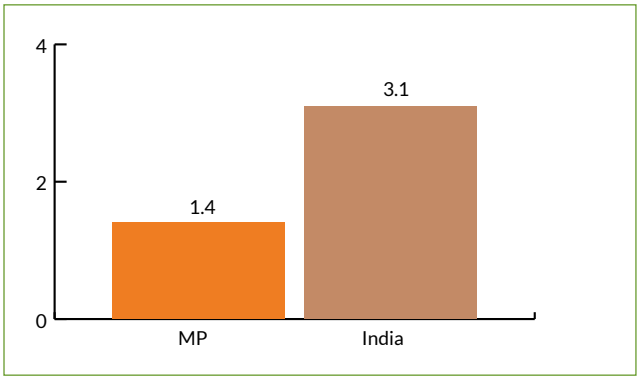
Source: TRAI and Department of Telecommunication, GoI

From above two charts, it can be observed that though there has been massive spread of telecommunication across the country, the rural areas of both MP and all India are still backward relative to urban areas in this respect. In 2012, rural tele-density in India and Madhya Pradesh were only 39.3% and 29.5% respectively, i.e. the benefits of communication revolution still cannot reach even half the rural population.

Internet

According to the annual report of TRAI, 2012-13, in the same year the number of Internet subscribers (Narrow and Broadband) was 21.61 million. The number of Broadband connections had increased from 13.81 million to 15.05 million in last one year and there were 143.20 million subscribers who accessed internet through wireless phones in 2012-13. The census data of 2011 reveals that around 3.1% and 1.4% of the population were using internet in India and Madhya Pradesh respectively.

Chart 8.19: Internet subscribers per 100 population, 2011



Source: Census of India,RGI,2011

Status of MDG 7: Ensure Environmental Sustainability

Achievement of Indicators having targets

MP and India	Indicators	Early Achiever - already achieved the 2015 target	On Track- Expected to meet the target by 2015	Off Track: Slow - Expected to meet the target after 2015	Off Track: no progress/ regressing - Stagnating or slipping backwards
Madhya Pradesh	Households with drinking water within premises				√
	Households without access to sanitation			√	
India	Households with drinking water within premises			√	
	Households without access to sanitation			√	

Achievement of indicators without targets

MP and India	Indicators	Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Madhya Pradesh	Area covered under forests as percentage of geographical area			√
	Ratio of area protected to maintain biological diversity to surface area		√	
	Proportion of the Households using Solid Fuels	√		
	Households with access to tap water			√
India	Area covered under forests as percentage of geographical area	√		
	Ratio of area protected to maintain biological diversity to surface area	√		
	Proportion of the households using solid fuels	√		
	Households with access to tap water	√		

Status of MDG 8: : Develop a Global Partnership for Development

Achievement of Indicators without targets

MP and India	Indicators	Trending in the right direction	No change over the period	Regressing- trending in the wrong direction
Madhya Pradesh	Telephone lines and cellular subscribers per 100 population	√		
India	Telephone lines and cellular subscribers per 100 population	√		

9.1 Introduction

Indian growth experience has been characterized by extreme unevenness in growth pattern such that regional differences in growth are not only common across Indian states but also across different regions within the states. Disaggregated analysis thus becomes extremely important especially from policy perspective. In one of the early attempts to look at the district level performance, Debroy and Bhandari (2003) listed the districts that fall in the bottom 25% under various categories such as poverty head count ratio, food sufficiency, infant mortality rate and literacy rate. More recently, Bakshi, et.al (2015) have constructed an index of backwardness based on indicators in Census 2011 for nearly 6000 sub-districts (corresponding to 640 districts) of India. The exercise is done for the Planning Commission of India in order to identify the regions eligible for backward region grant fund. For the country as a whole, Bakshi, et.al (2015) report that the share of ST population in the bottom 100 sub-districts of the country stands at 72%. Given the pre-eminence of tribal people in the state of Madhya Pradesh, many of the regions actually fall in Madhya Pradesh. Another striking fact that emerged is that many of the so called developed districts have sub-districts

Inter District Analysis of select MDG indicators

CHAPTER 9

that are most backward, indicating a high level of polarisation at the district level. Gwalior in Madhya Pradesh is one such district with extremes of polarization within the same district.

In this chapter, we look at the status of the MDG indicators at the district level for Madhya Pradesh. The objective is to:

- report the status of every district in each of the seven dimensions - poverty, nutrition, primary education, gender parity, child health, maternal health and infrastructural facilities;[39]
- construct district-wise MDG indices corresponding to MDG 1-5 & 7 and also an overall MDG index;
- identify the bottom districts in respect to the individual dimensions and overall status;
- quantify the MDG gap. Quantification of MDG gap might be used in the calculation of the financial requirements to meet the MDG targets.

9.2 MDG indicators: Comparison across 50 districts of Madhya Pradesh

Seven dimensions of development corresponding to MDG 1-5 and 7 were identified. These are listed in Chart 9.1 below. The 16 indicators for which district level data are available describe the status of the MDGs 1-5 and 7 at the district-level (column 3). Due to unavailability of data for exact indicators, proxy indicators have been used for certain MDGs and at times some additional indicators have been included in this analysis. For example, access to improved water source has been replaced by drinking water source within premises. The indicator child-sex ratio has been included additionally given its importance.

[39] *Certain indicators and goals which did not have explicit targets were not considered for this essentially quantitative exercise. Also for many of the indicators, data availability at district level was a constraint.*

Chart 9.1: Select MDG indicators for District Analysis

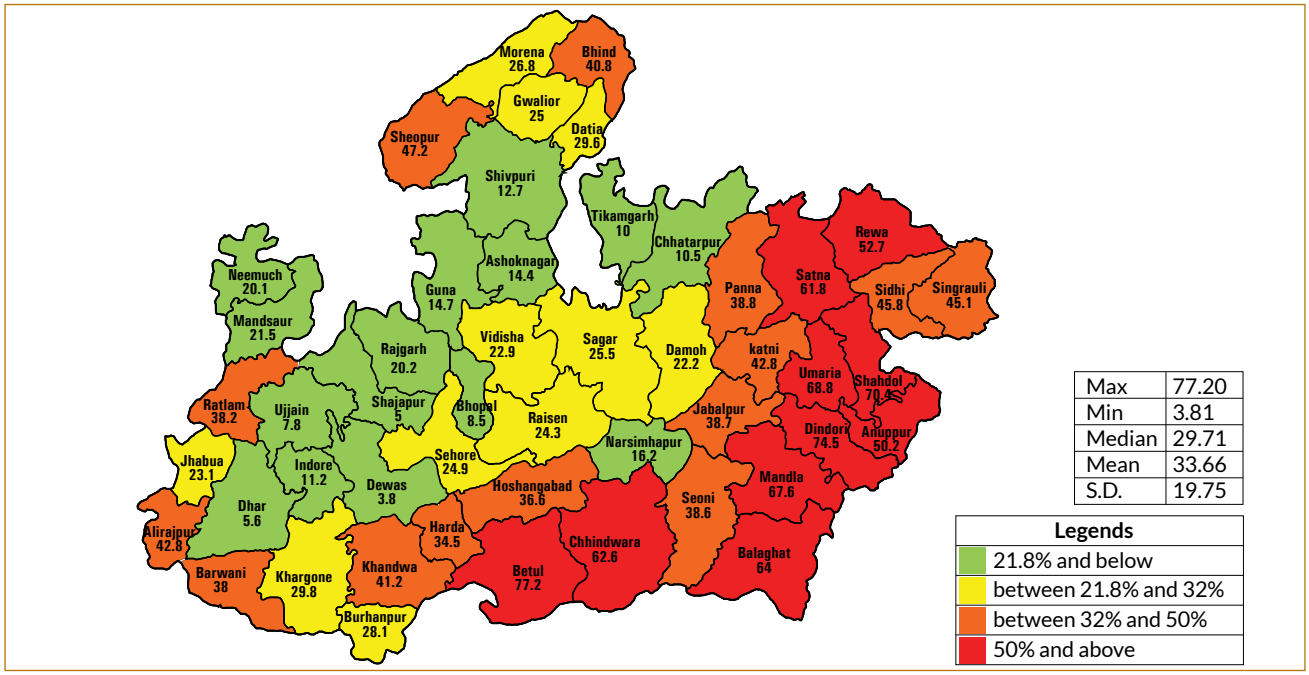
MDGs	Dimensions	Indicators
MDG 1	Poverty	1. % of population living below poverty line
	Nutrition	2. Underweight children under 5 years
MDG 2	Education	3. Retention Rate 4. Overall Literacy Rate
MDG 3	Gender Equity	5. Ratio of Girls and boys in primary 6. Ratio of literate women to literate men 7. Share of women in main workers 8. Child sex ratio
MDG 4	Child Health	9. Under-5 mortality rate 10. Infant Mortality Rate 11. Proportion of one year old children immunised against measles
MDG 5	Maternal Health	12. Maternal Mortality Ratio 13. Proportion of births attended by skilled health personnel
MDG 7	Facilities	14. Proportion of Households using solid fuels 15. Proportion of Households without proper sanitation facility 16. Proportion of households having drinking water source within premises

In what follows, the relative positions of the districts are represented through maps with districts marked out. The colours in the maps are assigned as per a simple rule. The districts which have reached or crossed the respective MDG target have been coloured green. Non- green colours represent districts which are yet to attain the MDG goal in the year for which the data has been reported. This means if a map does not have any green spot on it, none of the districts have reached the MDG target by that year. The other three colours are yellow, orange and red in increasing order of distance from the MDG target. Green, yellow, orange and red represent districts best to worst.

As per MDG framework, formal targets are laid down for all the above MDGs 1-5 and 7.

Poverty and Underweight Prevalence: MDG 1

Map 9.1: Poverty HCR, 2011-12



Source: NSS 68th Round, MOSPI

In Chapter 2, we observed that percentage of population below poverty line in MP has come down significantly from 48.59% in 2004-05 to 31.98% in 2011-12. The same trend is observable both in rural (from 53.59% to 35.74%) and urban (from 35.06% to 21%) areas of the state. There is however considerable variation in the level of poverty among the districts. Map 9.1 shows poverty HCR in 2011-12 in the MP districts, rural and urban combined.[40] While Betul had the highest percentage of population below poverty line (77.2%) districts like Dewas have only 3.81% of them. The range of distribution here is very high (73.39). The high variation is also visible in the standard deviation of 19.8. As many as 10 out of 50 districts have more than 50% of their population below poverty line. Districts having very high level of poverty are concentrated around the eastern part of the state.

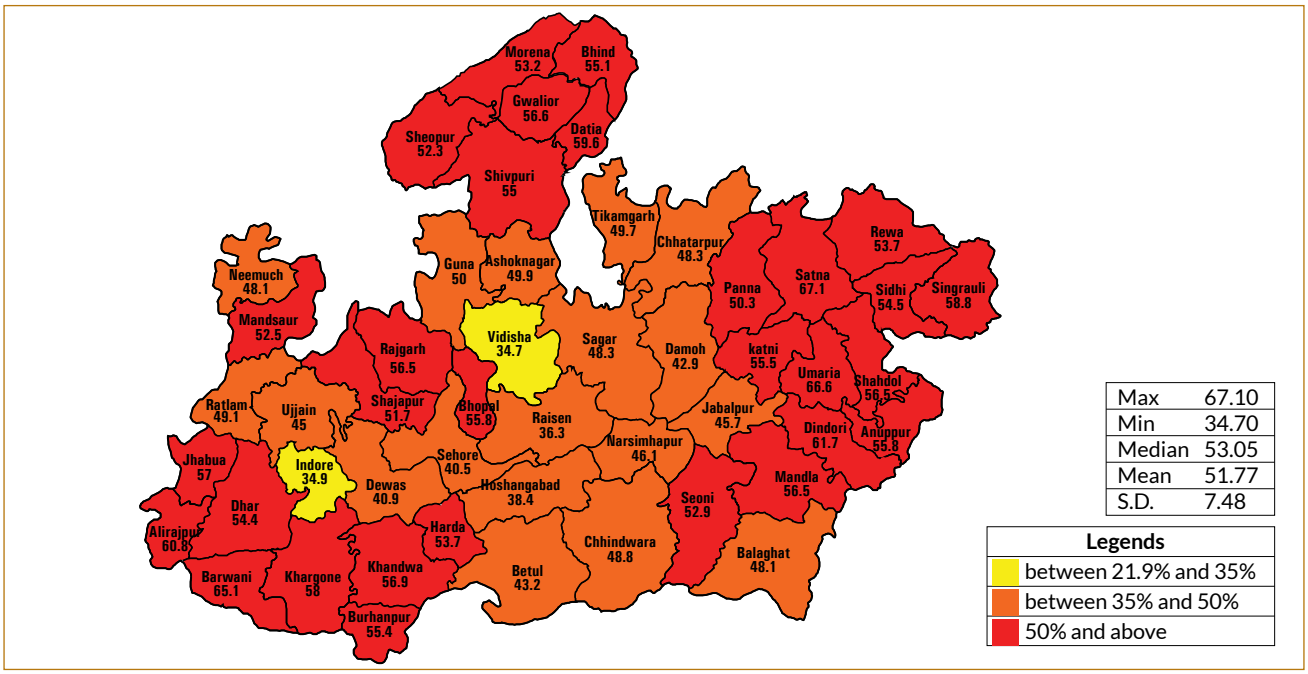
According to the Department of Tribal Development of Madhya Pradesh, the tribal districts are Alirajpur, Anuppur, Balaghat, Barwani, Betul, Chhindwara, Dhar, Dindori, Hoshangabad, Jabalpur, Jhabua, Khandwa, Khargone, Mandla, Ratlam, Seoni, Shahdol, Sheopur, Sidhi, Singrauli and Umaria.[41] Except Dhar, Jhabua and Khargone, all the tribal districts have high poverty levels. In fact, out of the ten above 50% districts, eight have high tribal population. This, in some ways, signifies that the poverty alleviation programmes are having much lower impact and reach in the tribal districts.

With respect to malnourishment among children, almost the whole state of MP can be considered backward. Not even the most advanced district has attained the MDG target of 21.9% for proportion of underweight children. As many as 31 districts have more than 50% of their children under-five years being underweight. Even the best performing districts in this respect, which are Indore and Vidisha, have underweight prevalence rate as high as 34.9% and 34.7% respectively. Most of the tribal districts have very high levels of malnutrition among children. One can see the large contiguous belts in the Eastern, Western and Northern peripheries of the state which are more backward than the core.

Retention Rate in Primary Schooling and Literacy Rate: MDG 2

Most of the districts in Madhya Pradesh have retention rate in primary education in the range of 60% - 80%. While three urban districts, namely Bhopal, Indore and Gwalior, have managed to achieve 100% retention in primary education, there are also four tribal districts (Alirajpur, Jhabua, Siddhi, Singrauli) at the eastern and western extremities of the state which have retained lower than 40% of their primary level students up to grade 5.

Map 9.2: Percentage of underweight children below 5 years of age (rural), 2010 -11

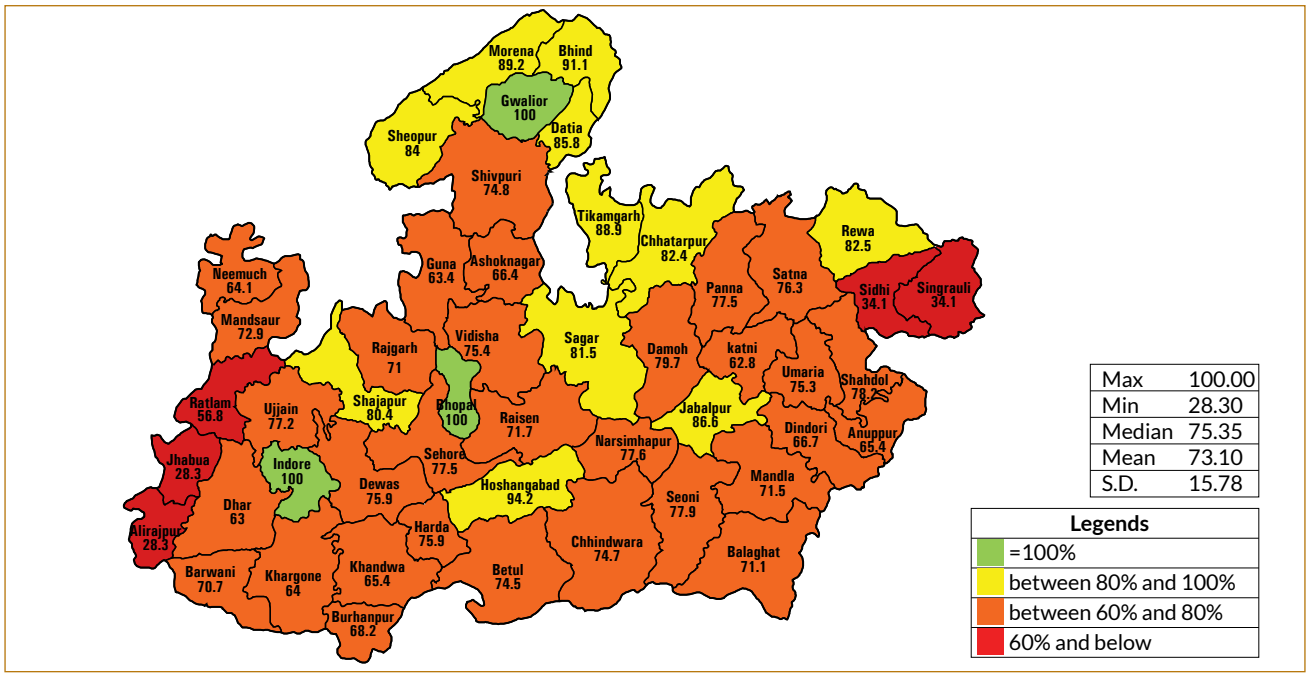


Source: National Institute of Nutrition (NIN) Nutrition Survey, 2010

[40] *The estimates of poverty are based on central sample of NSSO and therefore have their share of problems (see Batra et al 2010). However, in the absence of any other source of data for this crucial variable for the recent period at the district level, we have been forced to rely on these estimates. Refer to Appendix 3 for a discussion on poverty estimates.*

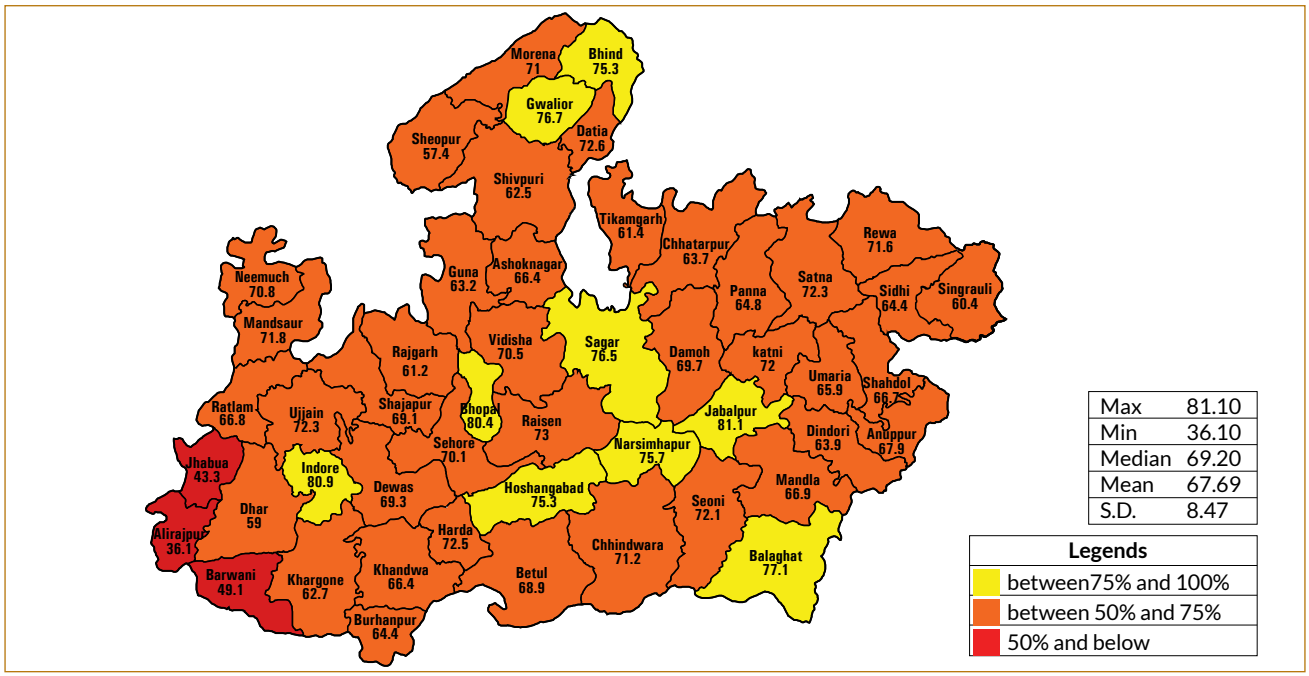
[41] *Source : http://www.tribalportal.mp.nic.in/*

Map 9.3: Retention Rate, 2011-12



Source: DISE District level data, 2011-12

Map 9.4: Overall Literacy Rate, 2011



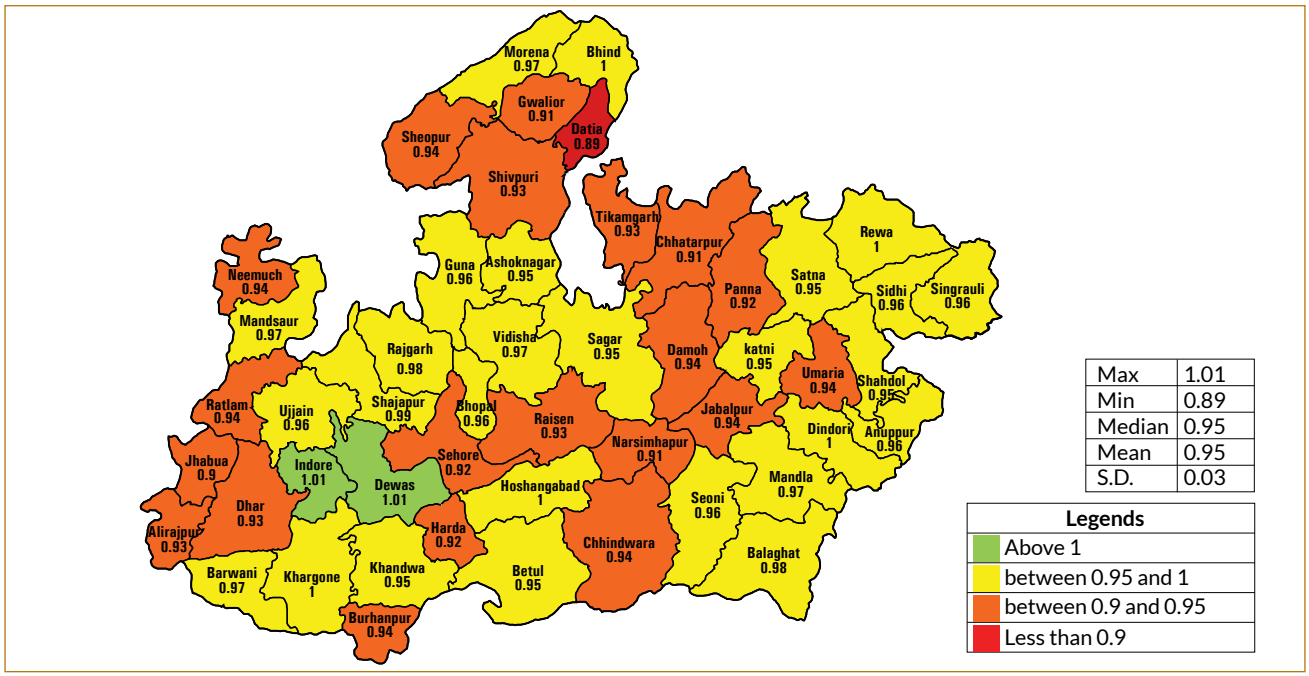
Source: Census 2011, RGI

According to census 2011, most of the districts of MP have overall literacy rate lower than 75%. The tribal districts Jhabua, Alirajpur and Barwani have literacy rate even lower than 50%. The overall education scenario of these extreme east belt of MP needs serious and exclusive attention.

Gender Parity: MDG 3

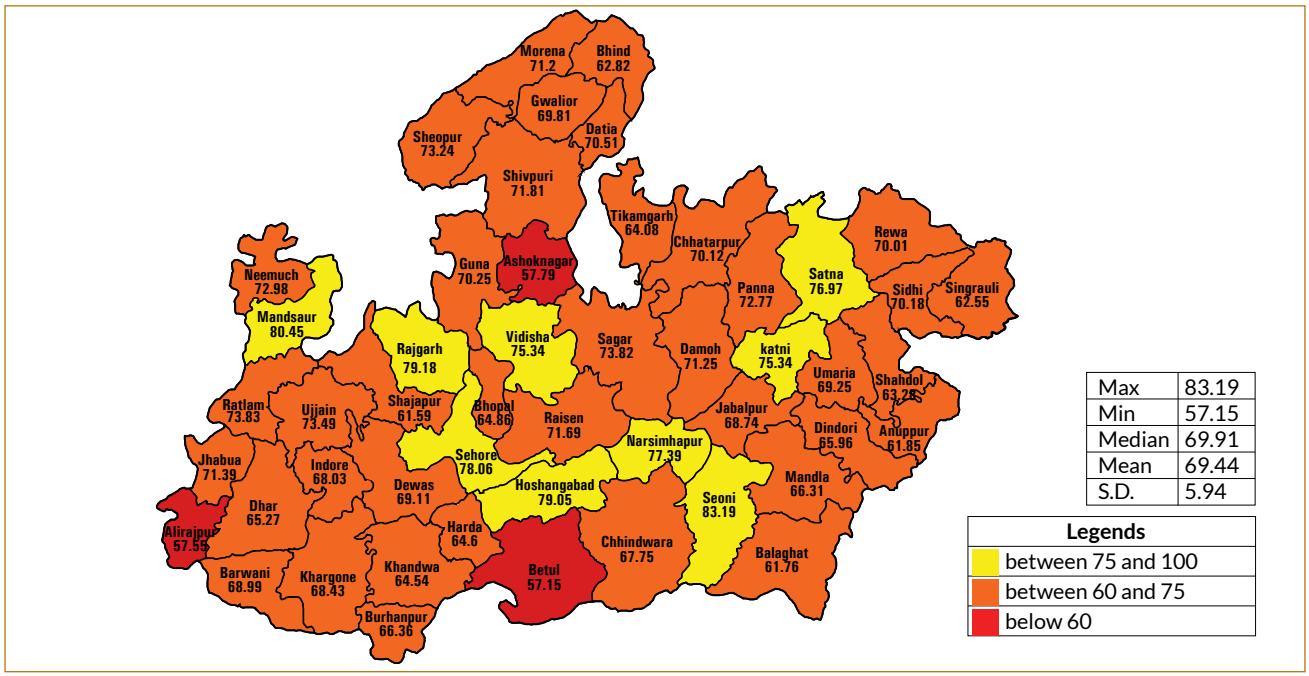
All the districts in MP, except Datia, have higher than 90 girls per 100 boys in primary classes. Datia has 89 girls per 100 boys. Seven districts, viz. Indore, Dewas, Khargone, Dindori, Rewa Hoshangabad and Bhind, have reached complete parity in this respect. Out of these seven districts, three have high tribal density (Dindori, Khargone and Rewa).

Map 9.5: Ratio of girls to boys enrolled in primary classes, 2011-12



Source: DISE

Map 9.6: Ratio of literate women to literate men, 2011



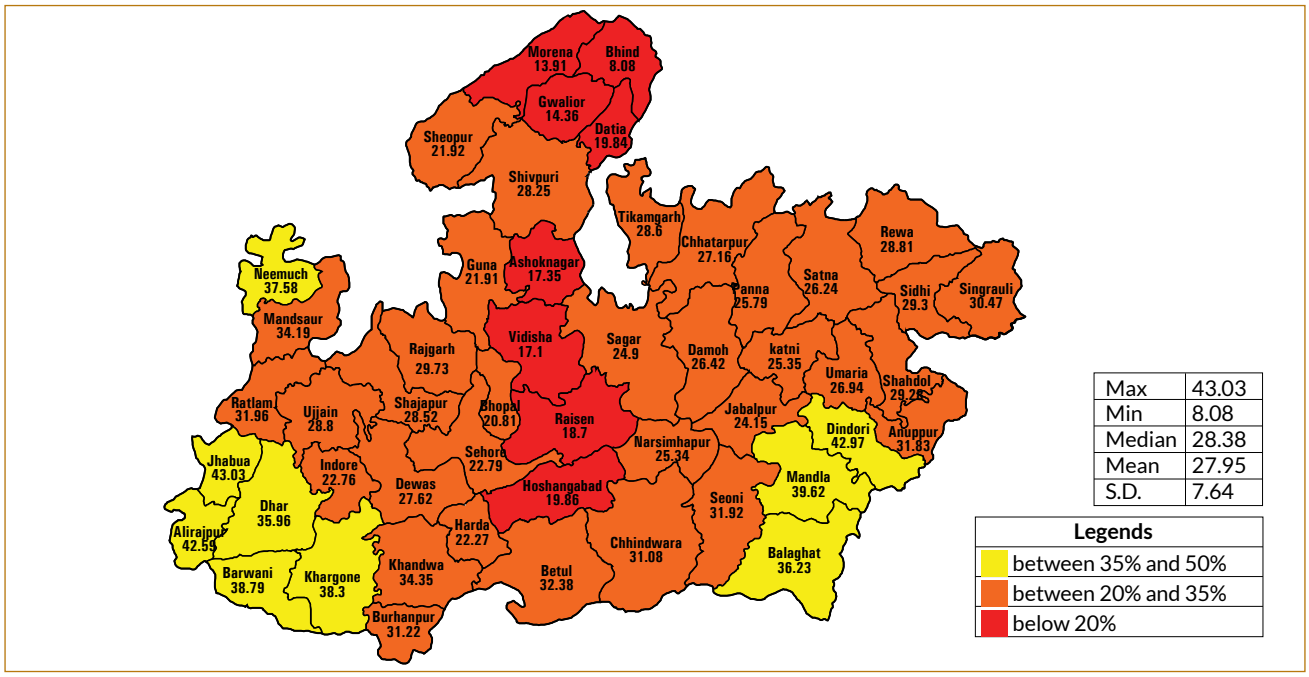
Source: Census 2011, RGI

Besides lagging behind the all-India average in literacy level, MP has managed to achieve only a moderate level of literacy among women. Alirajpur, Betul and Ashoknagar are three districts with low female literacy compared to males. Even urban districts like Indore and Bhopal have only 68.03 and 64.86 literate females per 100 literate males. Almost all the tribal districts have values below 70 in this indicator. But Seoni seems to be an outlier with the highest literate female to male ratio (83.19).

Given the strong link between paid work and status of women in society, MDG 3 has proposed the share of women among non-agricultural workers as suggestive of gender parity. Share of women among non-agricultural workers in MP stood at a low of 18.3% in 2011-12. In the absence of available data for districts, an alternate indicator of share of women among main workers is used. Participation of women as main workers in the work force would be an avenue of women's empowerment.

It may come as a surprise that districts with relatively high per capita income, like Gwalior, Ashoknagar etc. have very low women participation among main workers. Indore and Bhopal also have only 22.26% and 20.81% women in main workers. But at the same time most of the tribal districts have more than 35% women among main workers. In the tribal district of Jhabua, women constitute more than 48% of the main workers, the highest in the state of MP.

Map 9.7: Share of women in main workers, 2011

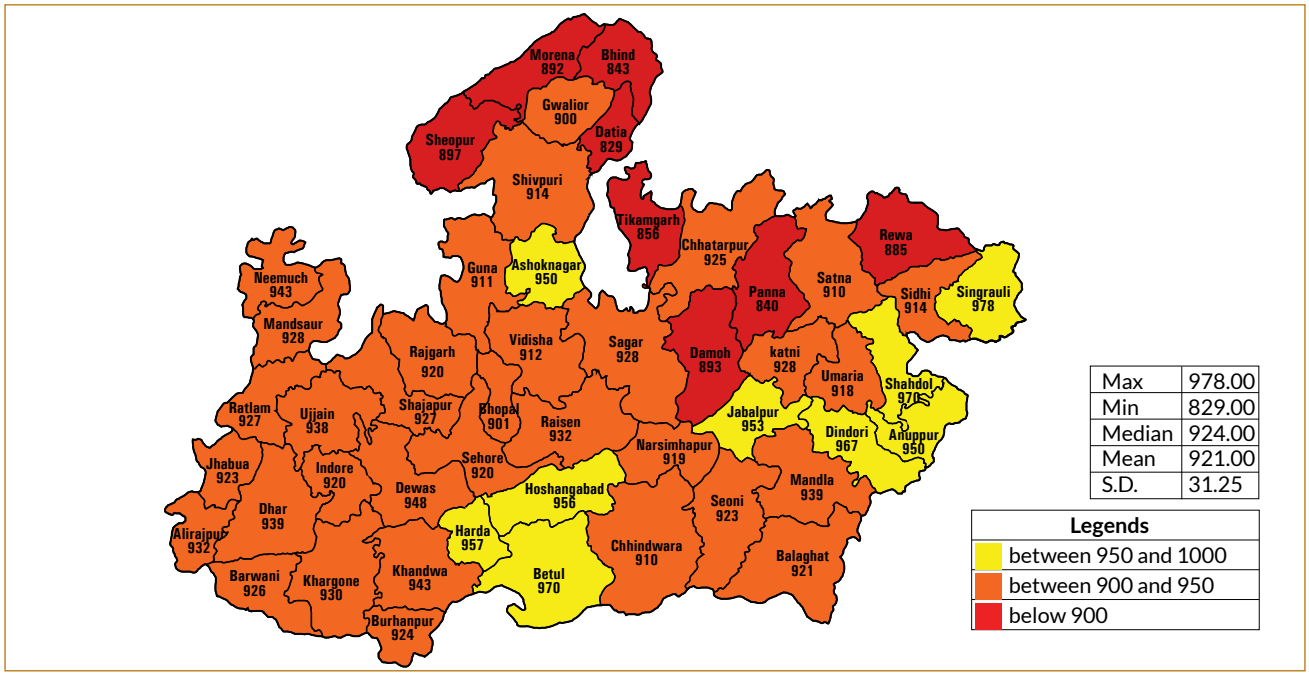


Max	43.03
Min	8.08
Median	28.38
Mean	27.95
S.D.	7.64

Legends
between 35% and 50%
between 20% and 35%
below 20%

Source: Census 2011, RGI

Map 9.8: Child Sex Ratio, 2011



Max	978.00
Min	829.00
Median	924.00
Mean	921.00
S.D.	31.25

Legends
between 950 and 1000
between 900 and 950
below 900

Source: Census 2011, RGI

Child sex ratio refers to sex ratio amongst children below 6 years of age. As discussed in Chapter 4 (Table 4.1), the ratio has been declining in all the EAG states in India. This implies both in the present and future generations, gender balance is likely to be distorted and would reflect negatively in other gender parity indicators.

Eight districts in MP (Sheopur, Morena, Bhind, Datia, Tikamgarh, Damoh, Panna and Rewa) have child sex ratio lower than 900. These form a near contiguous belt between Sheopur in the north to Rewa in the east barring Chhatarpur and Satna. Only nine districts (Ashoknagar, Harda, Hoshangabad, Betul, Jabalpur, Dindori, Anuppur, Shahdol and Singrauli) have child sex ratio higher than or equal to 950 in the entire state. Out of these nine districts, all (except Ashoknagar) are tribal districts.

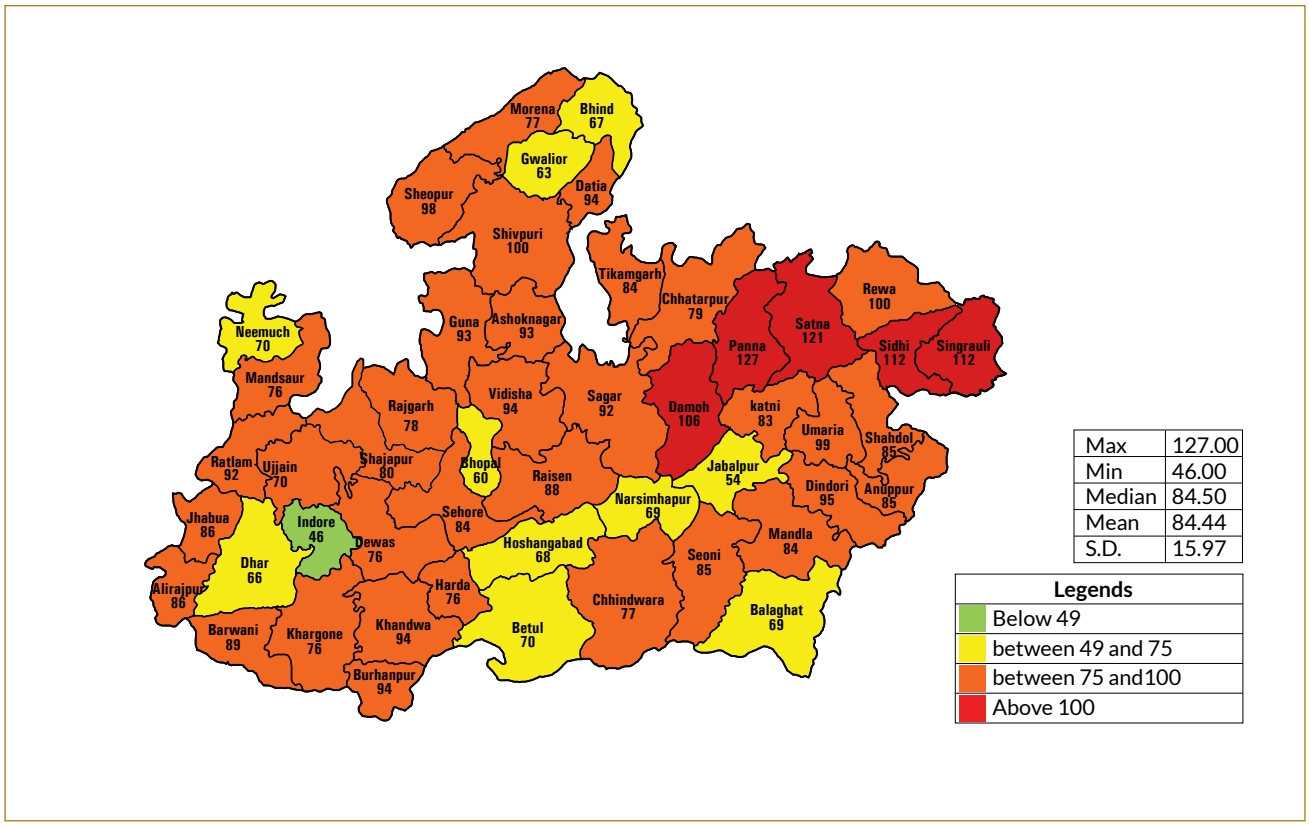
From the district wise data on the gender parity related indicators it is clear that despite higher per capita income and lower levels of poverty and higher urbanization districts such as Indore, Bhopal, Gwalior, Jabalpur have poor track record on gender parity. On the other hand, the tribal districts have done relatively well.

Five districts in MP (Damoh, Panna, Satna, Sidhi and Singrauli) have very high under five mortality rate. Indore has the lowest U5MR in MP. Other urban districts (Bhopal, Gwalior and Jabalpur) also have relatively lower U5MR. Among other things, the urban districts, probably due to better access to healthcare, have relatively lower IMR.

Leaving aside eight districts (shaded in yellow and green), the rest of MP has IMR higher than 55 per thousand births. Nine districts (Sheopur, Guna, Datia, Ashoknagar, Damoh, Panna, Satna, Shahdol and Anuppur) have IMR higher than 70. Panna has the highest IMR of 85 in MP, which is one of the highest in the country. Among the MP districts, Pann a has the highest IMR of 85 in MP, which is one of the highest in the country. Among the MP districts, Panna and Damoh are the worst performers in both IMR and U5MR.

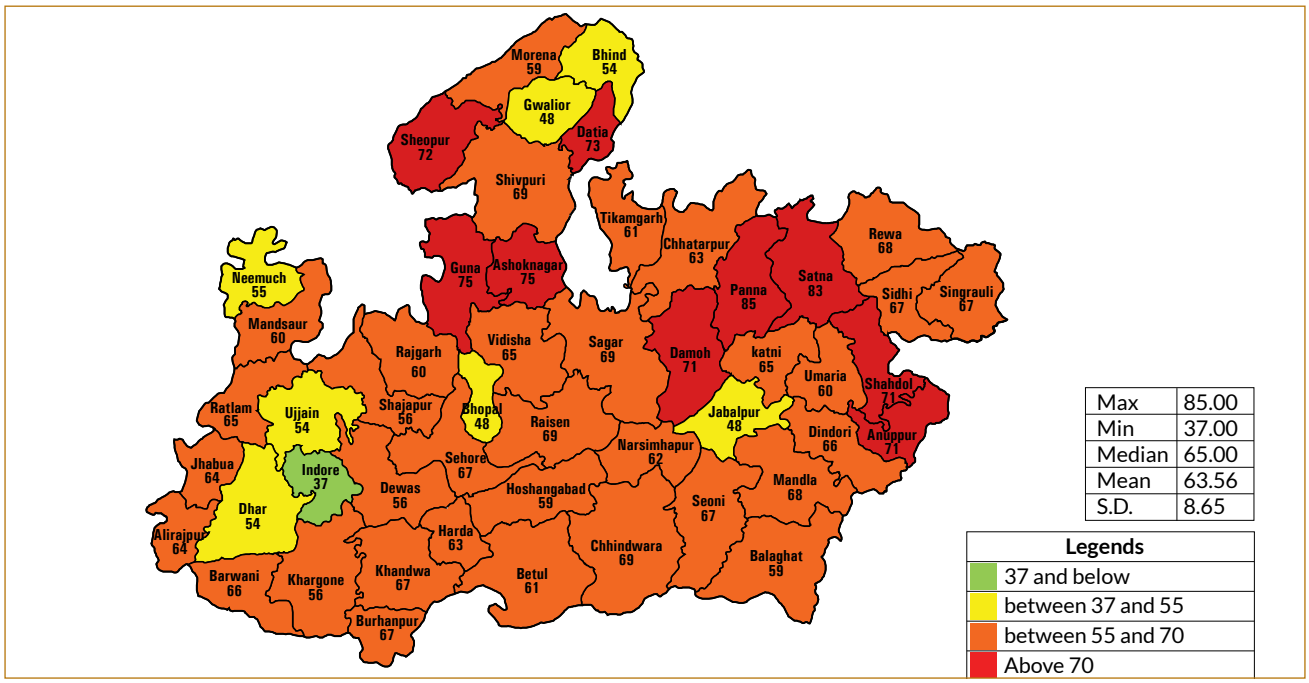
Child Health: MDG 4

Map 9.9: Under Five Mortality Rate, 2012-13



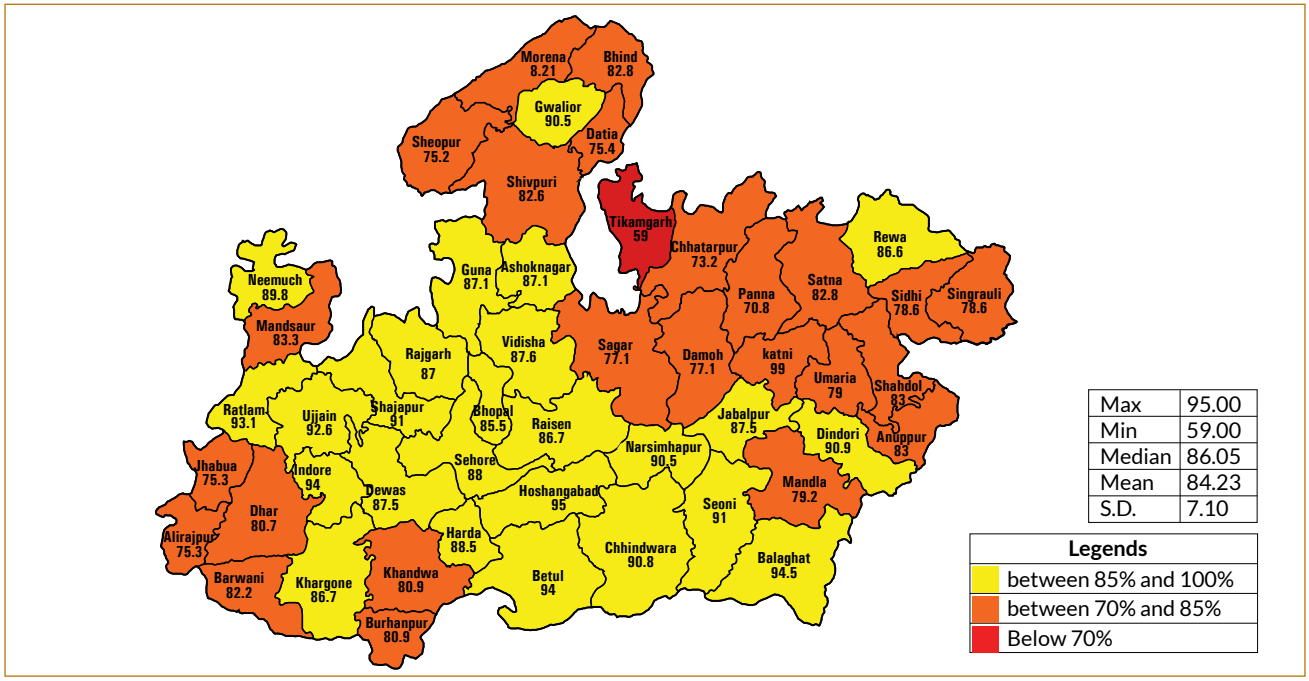
Source: AHS 2011, RGI

Map 9.10: Infant Mortality Rate, 2012-13



Source: AHS 2011, RGI

Map 9.11: Proportion of one year old children immunised against measles, 2012-13



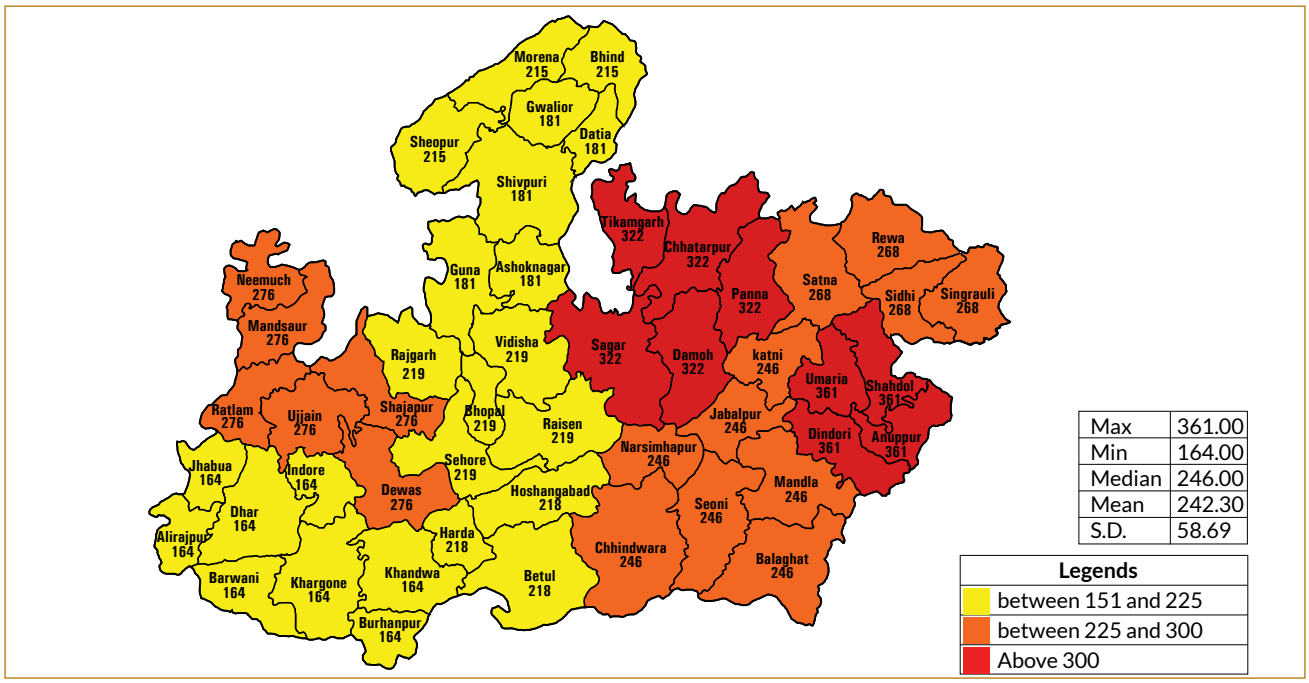
Source: AHS 2011, RGI

Most of the districts in Madhya Pradesh have achieved more than 80% immunization of children against measles. But none of the districts have touched the 100% mark. Tikamgarh district of MP with a common border with UP has scored quite poorly in this respect with only 59% children getting immunization.

Maternal Health: MDG 5

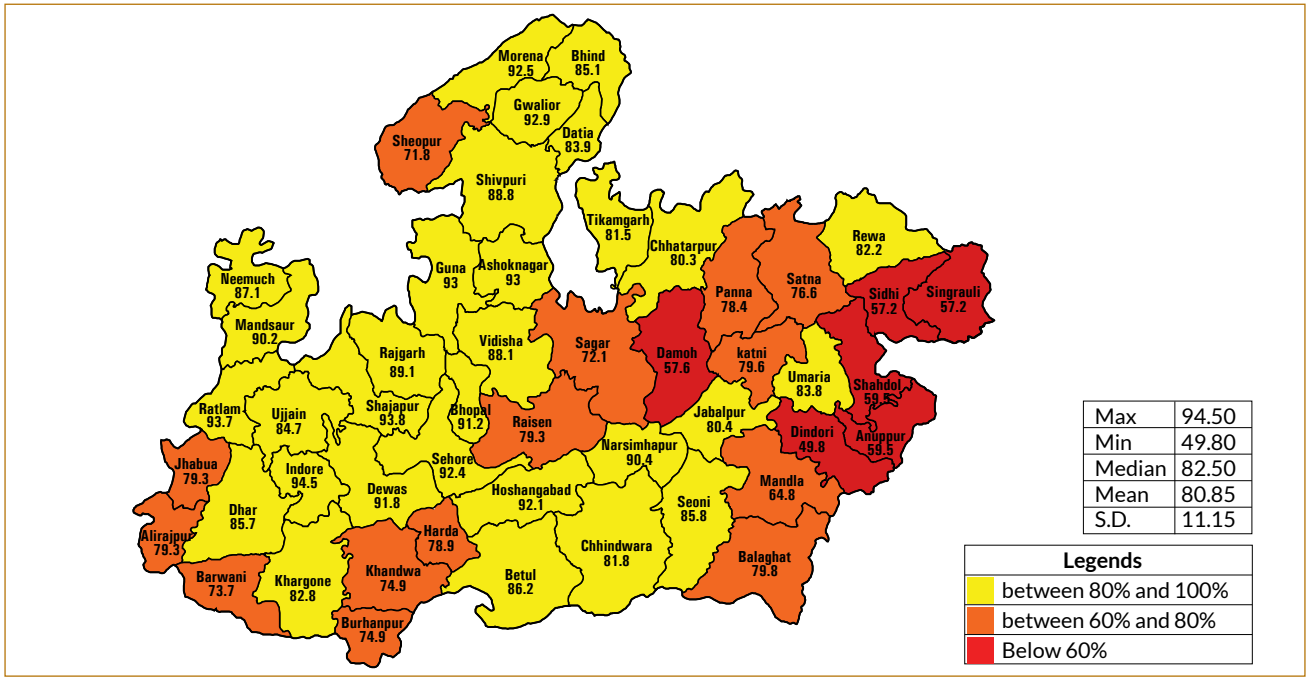
Maternal mortality ratio is reported division-wise rather than district-wise. Looking at the data, one finds that the eastern districts of MP are not doing well in arresting MMR. Sagar division and

Map 9.12: Maternal Mortality Ratio, 2012-13



Source: AHS 2011, RGI

Map 9.13: Proportion of births attended by skilled health personnel, 2012-13



Source: AHS 2011, RGI

Shahdol division which include nine districts have MMR higher than 300. On the other hand, Chambal division, Gwalior Division, Ujjain division, Indore division, Bhopal Division and Narmadapuram division have been able to bring down MMR below 225. But even these better performing districts are not anywhere close to the MDG target (151).

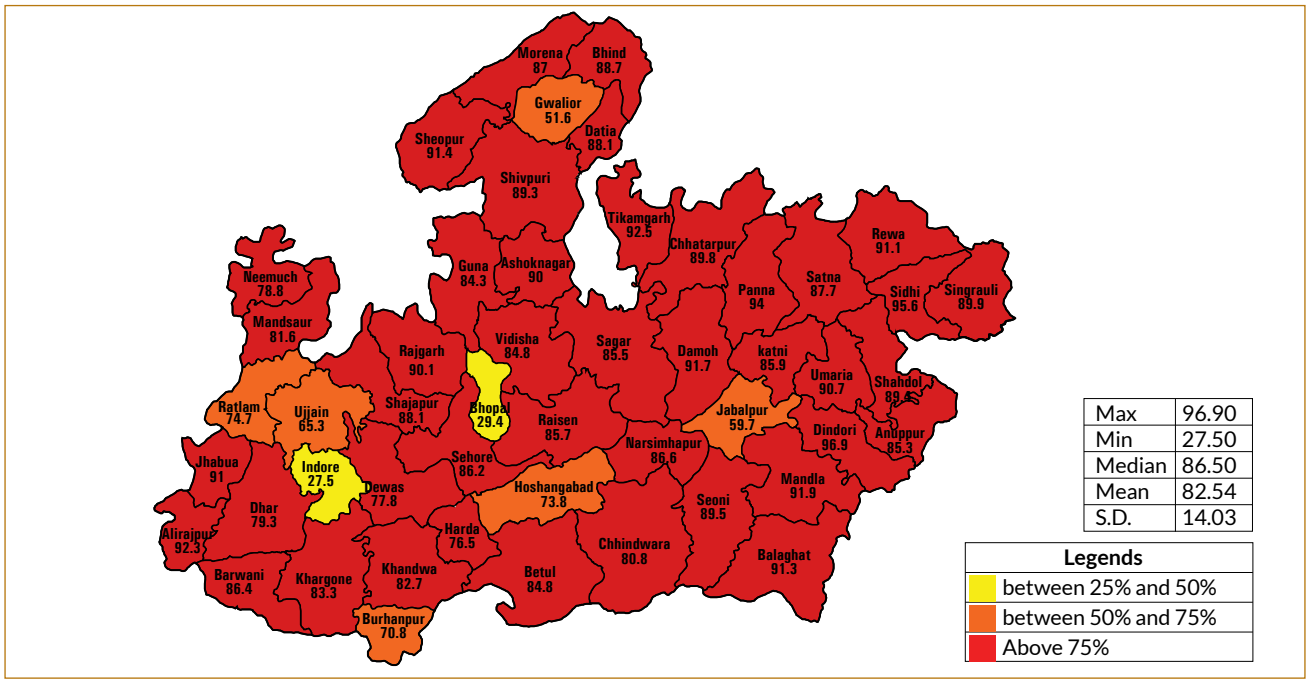
In Madhya Pradesh, proportion of births attended by skilled health personnel is very low in many of the tribal districts on the eastern side of the state. This is reflected in high MMR in the region. Similar pattern is observable for the regions with higher proportion of births attended by skilled health personnel. Indore has the highest (94.5) proportion while Dindori has the lowest (49.8).

Here it is important to note that despite having higher professionally aided births, Ujjain division has relatively high MMR. The same applies for part of Jabalpur and Sagar division. Among the periphery districts of the state, all the health indicators (mother and child) shows better performance towards the western corners of the state compared to the border regions of eastern Madhya Pradesh.

Facilities of drinking water, sanitation and fuel: MDG 7

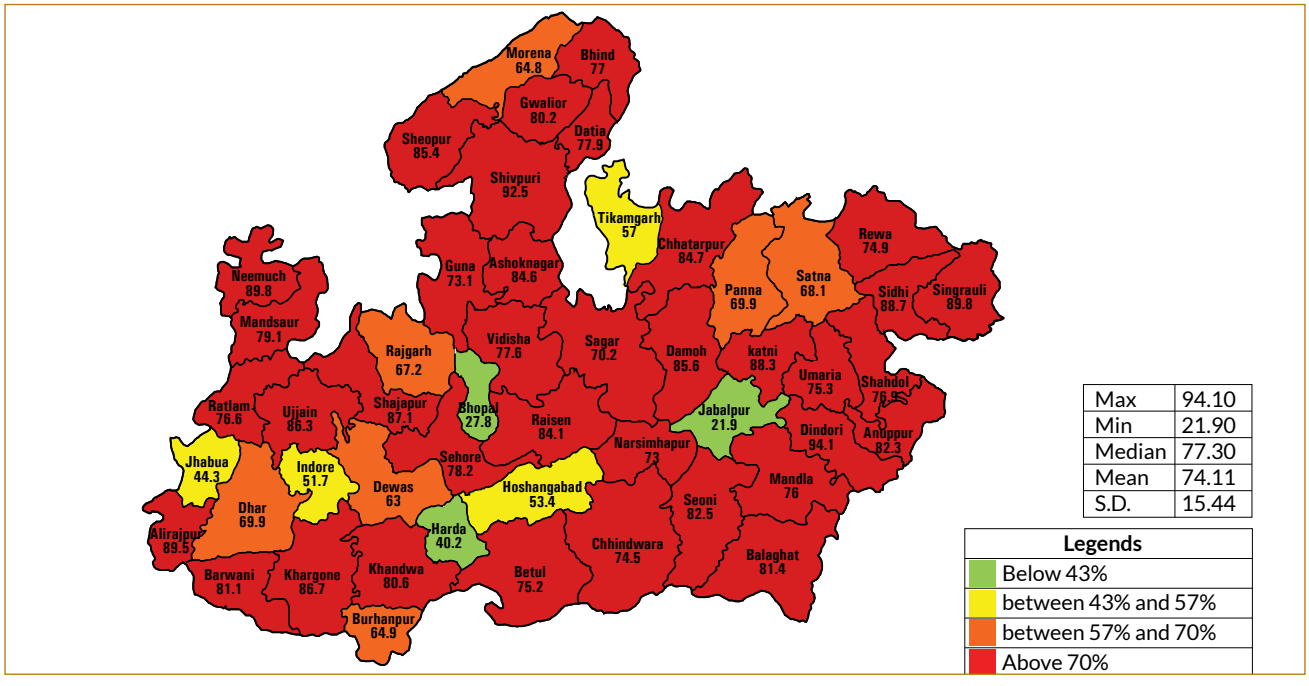
As discussed in chapter 8, reducing use of solid fuels is crucial from both health and sustainability perspective. Fuel use pattern also shows the level of infrastructure development in some ways.

Map 9.14: Proportion of households using solid fuels, 2011



Source: Census 2011, RGI

Map 9.15: Proportion of Households without sanitation facility, 2011



Source: Census 2011, RGI

Except Indore and Bhopal, use of solid fuels is rampant in the whole state. 42 out of 50 districts have more than 75% of households using solid fuels. There are not much variations among the districts in this respect.

Bhopal, Harda and Jabalpur the districts have already crossed the MDG target of providing sanitation facility within premises. But the rest of the state is not doing well in this regard. Even urban districts like Indore and Gwalior have 51.7% and 80.2% of their households without sanitation facility.

Provision of clean drinking water is in very poor state throughout MP. The urban districts are slightly better off in this respect, but it seems drinking water is a matter of grave concern in every corner of the state.

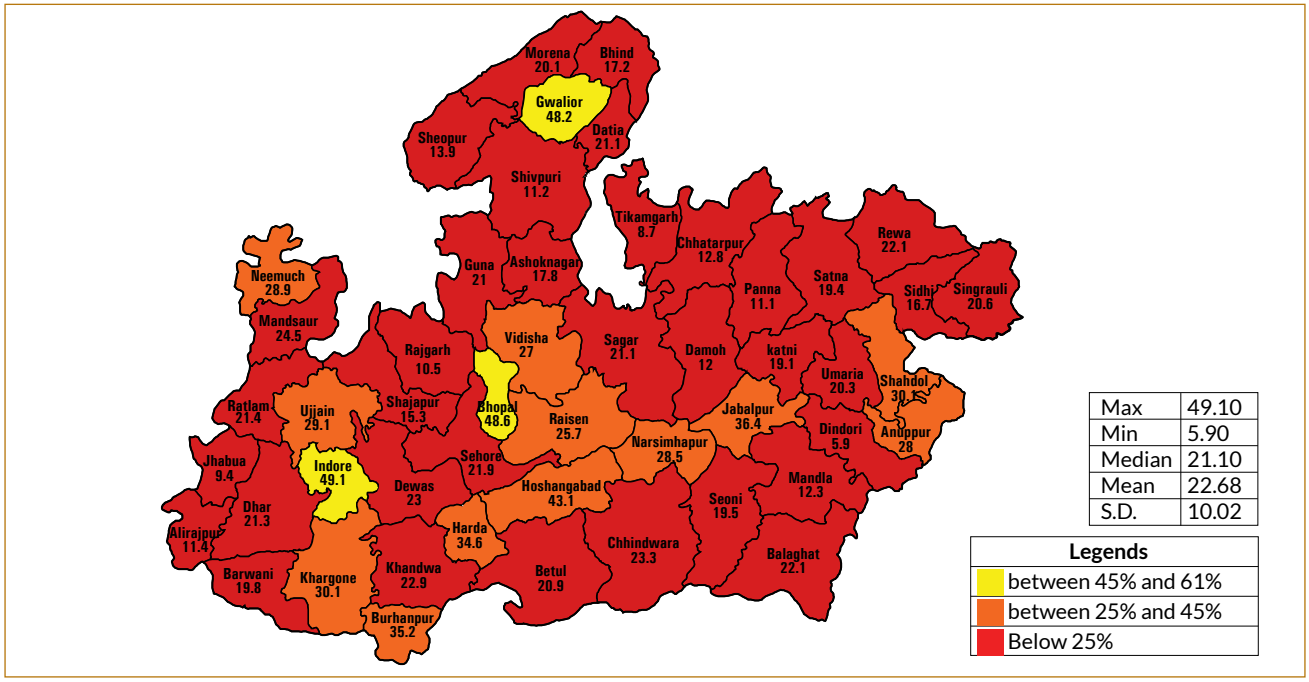
In sum, in case of most of the indicators, the districts with lower attainments in MDGs are region specific and contiguous in nature. Most of the eastern districts of MP are backward with respect to poverty and nutrition. Likewise, districts on the extreme west are not doing well in literacy and retention of students in primary classes. Tribal districts show better gender parity compared to the urban districts, with the latter being more patriarchal in nature. In terms of both child health and maternal health, the eastern districts, more specifically the north-western districts are poor performers. With respect to facilities, the whole state, except some urban pockets, is in extremely poor condition.

9.3 Correlates of MDG indicators

Table 9.1 provides correlation between the various indicators pertaining to the six MDGs for 50 districts of Madhya Pradesh. Correlation between two series of numbers indicates association between them. A high positive correlation means that the two series are associated positively and vice-versa. Correlation between two series might not indicate cause- effect relationship. However, when juxtaposed with theory and intuition, the correlations can throw up important insights. A few important observations are drawn below based on Table 9.1:

Under-5 mortality rate and it correlates: Across districts, there is a strong negative correlation between households with drinking water facilities within premises and under 5 mortality rate (-0.57). Similarly, there is a strong negative correlation between households with drinking water facilities within premises and infant mortality rate (-0.55). It is apparent that absence of proper drinking water facilities is one of the important contributors to deaths of infant and very young children. Other

Map 9.16: Proportion of households having drinking water source within premises, 2011



Source: Census 2011, RGI

than drinking water facilities, U5MR (and IMR) is correlated to proportion of births attended by skilled health personnel (-0.48), immunization (-0.48) and malnutrition under 5 years age-group (0.35).

Maternal mortality ratio and its correlates: Higher the percentage of births attended by skilled health personnel, lower is the MMR. The correlation coefficient is -0.45. In addition, higher the poverty higher the MMR (correlation coefficient: 0.3). While raising the rate of medically supervised deliveries and ante-natal care might be able to prevent complications at child-birth, proper food and nutrition for the mother is extremely important and is intimately related to decline in the incidence of extreme poverty, MDG1.

Gender parity and its correlates: One of the striking patterns that emerges from Table 9.1 is that share of women workers in main workers is negatively correlated with overall literacy rate (-0.56). Higher the literacy rate in a district smaller has been the proportion of women who are employed as main workers among the total pool of main workers. The correlation, even though still negative, is much smaller between share of women in main workers and women to men literates (-0.15). Women's education might be able to break the dominance of men in workforce.

Share of women in main workers is higher in poorer districts of the state (correlation coefficient: 0.28), which means (among other things) participation of women in workforce is distress driven.

There exists a (weak) negative correlation between child sex ratio and literacy level (-0.08) and child sex ratio and the proportion of women to men literates (-0.19), which is a worrisome trend. The poorer districts of the state and districts with higher women participation in workforce have better child sex ratio compared to the better off districts.

Retention rate and it correlates: Retention rate in primary education is negatively correlated with malnutrition indicator among the children (-0.31). Higher the proportion of underweight children in a district smaller is the retention rate. This brings into relief the importance of interventions like ICDS and mid-day meals in schools. Malnourishment in children, even moderate, inhibits their cognitive growth.

Availability of drinking water and sanitation: Districts with lower source of drinking water within premises show lower progress in access to sanitation (correlation coefficient -0.46). This points out the fact that free provision of latrine facility by the government tend to fail in raising standard of sanitation if a water source is not available within premises.

Table 9.1: Correlation Matrix of District-wise MDG indicators

	Poverty	Under-weight children	Retention rate (primary)	Literacy rate	Girls to boys in primary classes	Literate women to men	Share of women in main workers	Child sex ratio	U5MR	IMR	One year old children immunised against measles	MMR (2012-13)	Births attended by skilled health personnel	Households using solid fuels	Households without latrine facilities within premises	Households with drinking water within premises
Poverty	1.00															
Under-weight	0.38	1.00														
Retention Rate	-0.17	-0.31	1.00													
Literacy Rate	-0.04	-0.43	0.70	1.00												
g:b in primary	0.11	-0.11	0.15	0.21	1.00											
literate w: m	-0.21	-0.19	0.18	0.22	-0.07	1.00										
% of women in main workers	0.28	0.35	-0.60	-0.56	0.04	-0.15	1.00									
child sex ratio	0.19	-0.07	-0.35	-0.08	0.20	-0.19	0.41	1.00								
U5MR	0.28	0.35	-0.40	-0.37	-0.19	0.10	0.10	-0.21	1.00							
IMR	0.34	0.25	-0.31	-0.30	-0.31	0.11	0.07	-0.15	0.85	1.00						
Immunisation (measles)	0.08	-0.33	0.17	0.49	0.41	0.13	-0.08	0.45	-0.48	-0.37	1.00					
MMR	0.30	0.02	0.09	0.20	0.06	0.06	0.09	0.07	0.27	0.22	-0.17	1.00				
% of births by skilled health personnel	-0.54	-0.35	0.37	0.25	0.00	0.24	-0.38	-0.22	-0.48	-0.41	0.36	-0.45	1.00			
% HH using solid fuels	0.35	0.28	-0.45	-0.47	-0.12	0.01	0.27	-0.07	0.63	0.68	-0.38	0.29	-0.40	1.00		
% HH without latrine within premises	0.18	0.16	-0.33	-0.27	0.04	-0.01	0.22	0.04	0.41	0.36	0.01	0.15	-0.27	0.56	1.00	
% HH with Drinking water within premises	-0.17	-0.29	0.44	0.58	0.12	0.03	-0.35	0.19	-0.57	-0.55	0.49	-0.24	0.32	-0.84	-0.46	1.00

9.4 MDG indices at the district level

Presented below are six indices corresponding to the six MDGs being discussed. These six indices bring together the information contained in 16 indicators pertaining to the 6 MDGs. Where there are multiple indicators for single goal, indices facilitate aggregation. Once the individual goal-specific indices are prepared, by applying suitable weighting scheme overall indices (district-wise) are created which show the overall status of districts.

The basic technique of construction of indices is to transform each indicator in a manner such that it can be meaningfully represented on a scale of 0-100. Note that many of the indicators, which are expressed as percentages are already on a scale of 0-100. For others, like maternal mortality ratio, infant mortality rate, child sex ratio and gender related indicators, etc. transformations are necessary (see Appendix 2, Methodology for construction of Indices). These transformed series are then averaged for creation of goal-wise indices (refer to Chart 9.1).

All indices are expressed here in terms of positive outcomes with higher values denoting higher welfare levels. Thus higher value for poverty alleviation and nutrition index (MDG 1) is more desirable than lower values. Likewise, higher values for indices for education, gender, child health, maternal health and infrastructure facilities (sanitation, drinking water and fuel) are more desirable than lower values. A value of 100 for any index denotes that the MDG target has been reached. In certain case, the district might have reached the MDG target and done even better. The index value then might exceed 100.

For construction of overall index, equal weights have been assigned to each of the six MDGs. This means that each of the six goals (MDG 1-5 and 7) have equal importance for overall development. This is consistent with the view that all the goals have been envisaged to be equally important in the Millennium Development Project.

Results

MDG indices for each specific dimension and overall MDG status are reported for 50 districts of Madhya Pradesh in Annexure 9.1, District-wise Tables for MDGs. The same is presented differently as a summary table 9.2, while bar charts (9.2 – 9.8) present the goal-wise positions of the districts and the gaps in respect to the MDGs.

In terms of ranking based on overall MDG index, the urban districts have ranked at the top as expected (chart 9.2). Better access to education, health and other facilities, among other things, has improved their overall scores. The worst performing districts in overall ranking are Dindori, Sidhi, Singrauli, Panna, Umaria, Satna, Alirajpur, Shahdol, Anuppur and Damoh are the bottom 10 districts. For the bottom ten districts, the overall MDG index ranges between 50 and 56, which means the deficit or the gap in achievement of overall MDGs is as much as 44-50% for the ten districts. Of these ten, seven districts are tribal districts. Along with the tribal characteristics, it is the regional concentration (or clustering) of the districts which are striking. Starting with Damoh and extending to Singrauli and Dindori, nine of the ten districts form a contiguous belt on the eastern extremes of Madhya Pradesh. Alirajpur among the bottom ten is located along the western border of the state.

Chart 9.2: Relative positions of districts in overall MDG Index

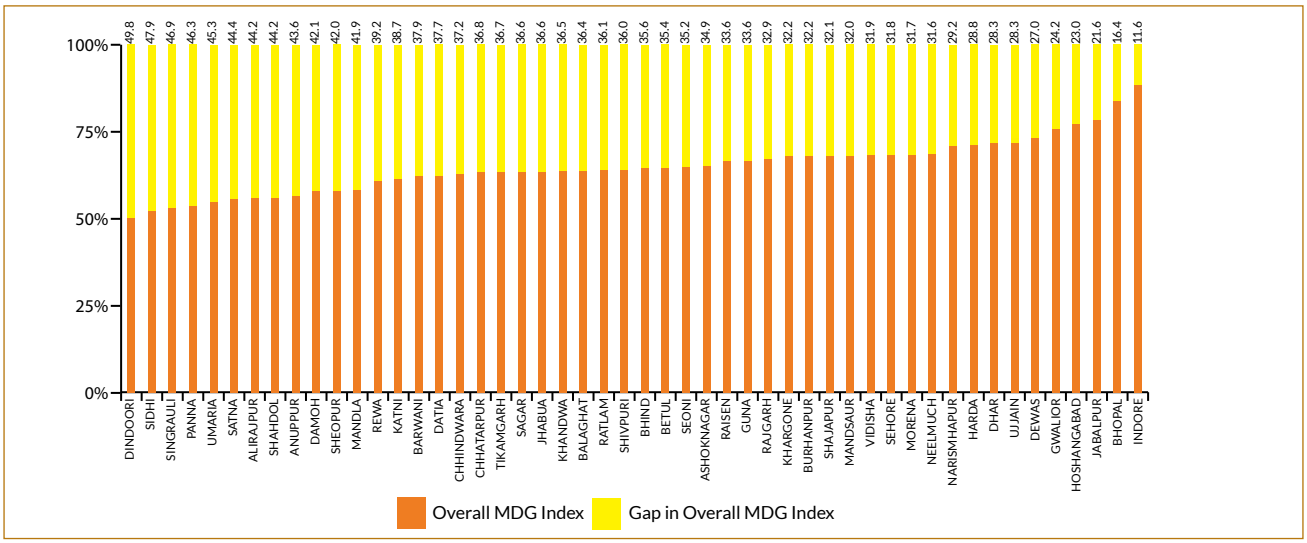


Table 9.2: Frequency Distribution of MDG Indices for 50 districts of Madhya Pradesh

	MDG 1	MDG 2	MDG 3	MDG 4	MDG 5	MDG 7	
Scores	Poverty Alleviation & Nutrition	Education	Gender Equality	Child Health	Maternal Health	Facilities (water, sanitation, fuel)	Overall MDG Index
0-10	0	0	0	0	0	1	0
10-20	0	0	0	0	0	7	0
20-30	0	0	0	0	0	18	0
30-40	0	2	0	1	1	15	0
40-50	5	2	0	1	2	3	0
50-60	4	1	4	10	5	2	12
60-70	10	14	19	19	5	1	28
70-80	11	24	26	14	16	2	8
80-90	14	5	1	4	16	0	2
90-100	6	2	0	1	5	1	0
Mean	**73.29**	**70.39**	**70.30**	**66.86**	**75.21**	**33.22**	**64.88**
S.D.	**15.10**	**11.26**	**6.51**	**11.58**	**13.26**	**16.33**	**7.69**
Bottom 10 Districts	Dindori (40.83)	Alirajpur (32.2)	Bhind (50.02)	Panna (34.71)	Dindori (39.9)	Dindori (7.68)	Dindori (50.23)
	Umaria (41.34)	Jhabua (35.8)	Datia (53.31)	Satna (42.04)	Anuppur (44.75)	Shivpuri (14.03)	Sidhi (52.09)
	Satna (45.5)	Singrauli (47.25)	Panna (58.99)	Damoh (52.37)	Shahdol (44.75)	Alirajpur (14.88)	Singrauli (53.06)
	Shahdol (46.8)	Sidhi (49.25)	Gwalior (59.82)	Sidhi (52.87)	Damoh (50.3)	Sidhi (17.14)	Panna (53.67)
	Mandla (48.58)	Barwani (59.9)	Morena (60.44)	Singrauli (52.87)	Umaria (56.9)	Damoh (17.67)	Umaria (54.67)
	Betul (50.94)	Dhar (61)	Tikamgarh (60.48)	Sheopur (54.14)	Sagar (57.55)	Sheopur (18.93)	Satna (55.61)
	Balaghat (56.22)	Ratlam (61.8)	Bhopal (63.18)	Datia (55.13)	Sidhi (59.1)	Chhatarpur (19.26)	Alirajpur (55.78)
	Chhindwara (56.7)	Guna (63.3)	Sheopur (64.83)	Shivpuri (57.53)	Singrauli (59.1)	Shajapur (19.81)	Shahdol (55.82)
	Rewa (59.88)	Khargone (63.35)	Vidisha (65.58)	Ashoknagar (58.29)	Panna (60.7)	Singrauli (20.54)	Anuppur (56.37)
	Anuppur (60.13)	Dindori (65.3)	Ashoknagar (65.59)	Guna (58.29)	Chhatarpur (61.65)	Katni (21.92)	Damoh (57.9)

MDG 1 relates to indicators measuring poverty level and malnutrition among children. Table 10.2 and chart 9.3 show that five districts have MDG 1 index values between 40 to 50. These are Dindori, Umaria, Satna, Shahdol and Mandla, all situated near the eastern corner of the state forming a contiguous belt of high poverty and malnutrition. At the upper end, six districts index value above 90 in MDG 1 index. These are Dewas, Indore, Ujjain, Shajapur, Vidisha and Chhatarpur. All the remaining districts have MDG 1 index between 50 to 90. No district has achieved the MDG 1 target, though a set of districts around Indore have been successful in reducing the poverty levels below the MDG target for MP as seen in map 9.1. Prevalence of malnutrition among children, however, is quite high even in these districts.

With respect to the MDG 2 on primary education and literacy, Alirajpur (32.2), Jhabua (35.8), Singrauli (47.25) and Sidhi (49.25) are the four worst performing districts with more than 50% gap in achievement vis-a-vis MDG 2 (see Chart 9.4). Only, two districts of Indore and Bhopal have scored above 90 for this goal, which relates to very basic and minimal outcomes on education.

The gender equity index completely turns around the relative position of districts observed so far. All the tribal districts are ahead in gender index. Dindori, Neemuch and Mandla are the top three districts. Gwalior and Bhopal figure amongst the lowest 10 districts on gender equity, along with Bhind, Datia, Panna, Tikamgarh again emphasizing the spatial concentration of backwardness.

Child health index (MDG 4) has lower mean than that of MDG 1-3 indicating presence of greater gap and the need for overall attention. Panna and Satna are amongst the worst performing with more than 50% gap, while 10 districts have 40-50% gap. Panna deserves special attention; according to the Annual Health Survey, Panna is one of the worst in India in child health. Looking at the geographical spread, there appears to be two regional concentrations – Shivpuri, Sheopur, Datia and Ashoknagar belt and the other comprising the poorest districts of the state on the Eastern periphery of the state (Damoh, Panna, Satna, Siddhi and Singrauli). Public policy has to play a far more effective role to prevent child mortality and raise the general standards of children's health, as it affects the life chances of people throughout the lifetime in a large number of ways.

Maternal health index (MDG 5) comprises of two indicators: maternal mortality ratio (MMR) and proportion of births attended by skilled health personnel. MMR is reported per lakh live births at the division level and not at the district level. Further, the proportion of births attended by skilled health personnel is an input indicator rather than an outcome indicator. The latter has been rising at a phenomenal rate given the cash incentives associated with it, without necessarily proper monitoring of quality (refer to Chapter 6). Maternal health index is thus subject to certain caveats. Dindori, Anuppur and Shahdol have gaps exceeding 50% vis-a-vis the MDG target (Chart 9.7 and Table 9.2). Once again the most backward districts in terms of MDG 5 are located in the eastern end of the state.

Finally, in terms of access to drinking water and sanitation and use of solid fuels, the condition is pitiable throughout MP barring a few notable exceptions (Bhopal, Indore, and Jabalpur). As we saw in Chapter 8, between Census 2001 and 2011 MP had a downward trend in provision of drinking water within premises; the improvement in sanitation facilities and reduction in the number of household using solid fuels was positive but small. No wonder at the district level, the facilities index shows a mean value of 33%, indicating the average gap to be 2/3rd of the MDG 7 targets. Dindori, the bottom-most district as per the facilities index has a gap of 92%. It may not be a coincidence that Dindori also figures as the bottom district for poverty, malnutrition (MDG 1) and maternal health (MDG 7). It is very clear that there are strong and significant interdependences amongst the MDG outcomes.

Chart 9.3: Relative positions of districts in poverty alleviation and nutrition Index

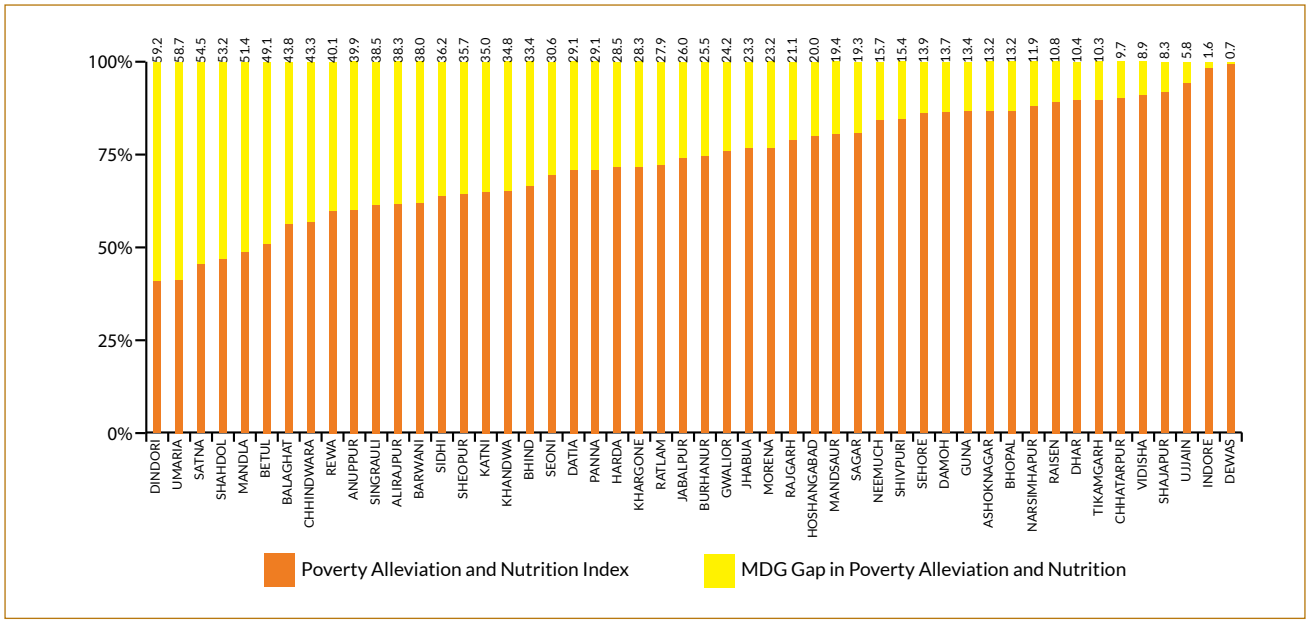


Chart 9.4: Relative positions of districts in primary education Index

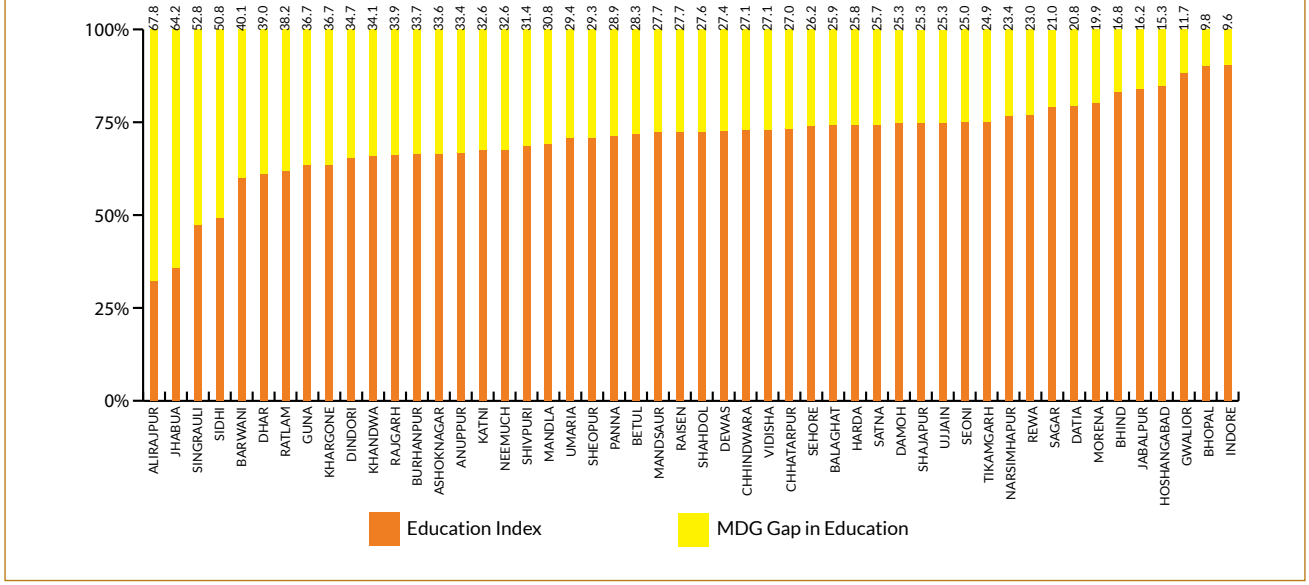


Chart 9.5: Relative positions of districts in gender Index

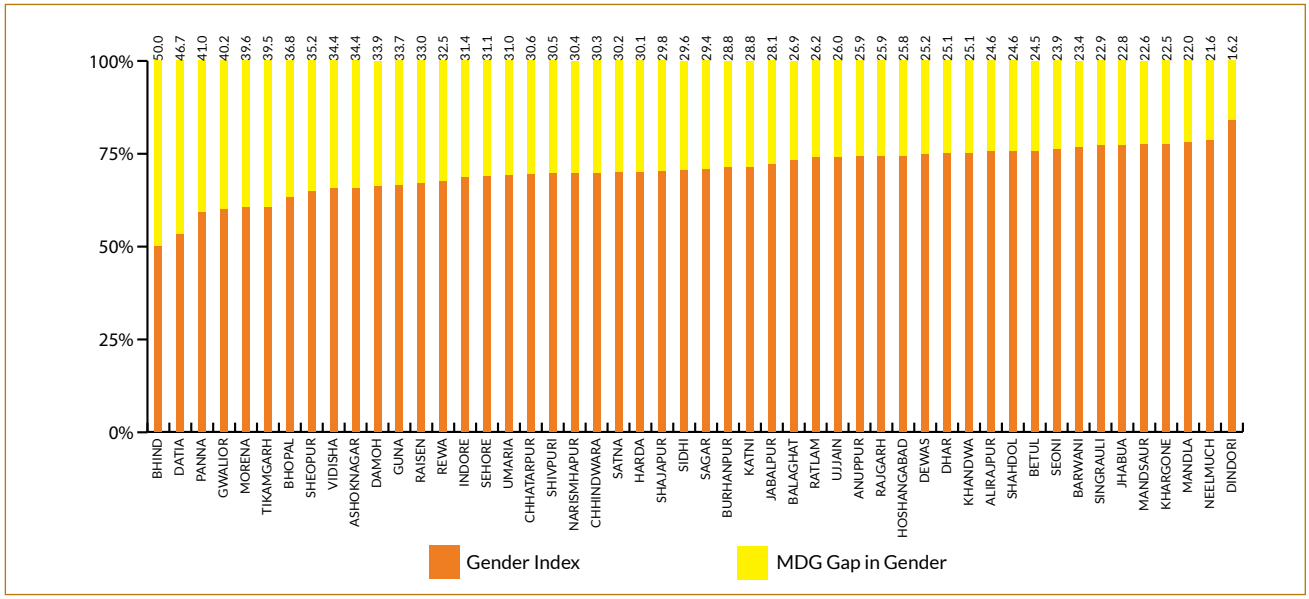


Chart 9.6: Relative positions of districts in child health Index

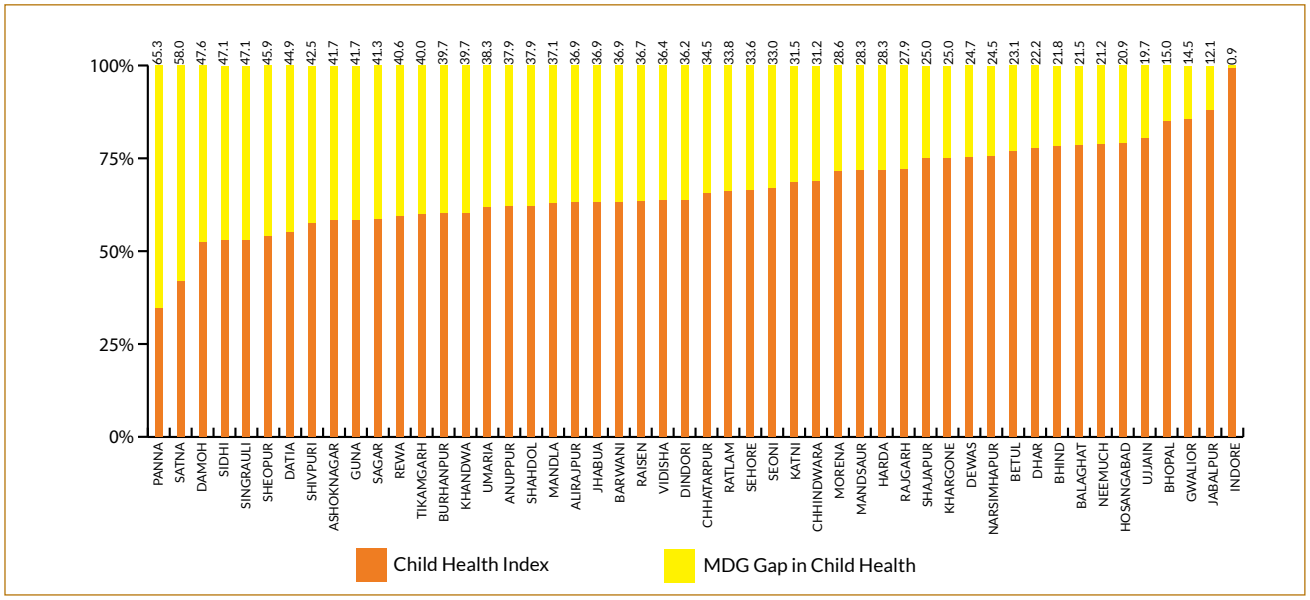


Chart 9.7: Relative positions of districts in maternal health Index

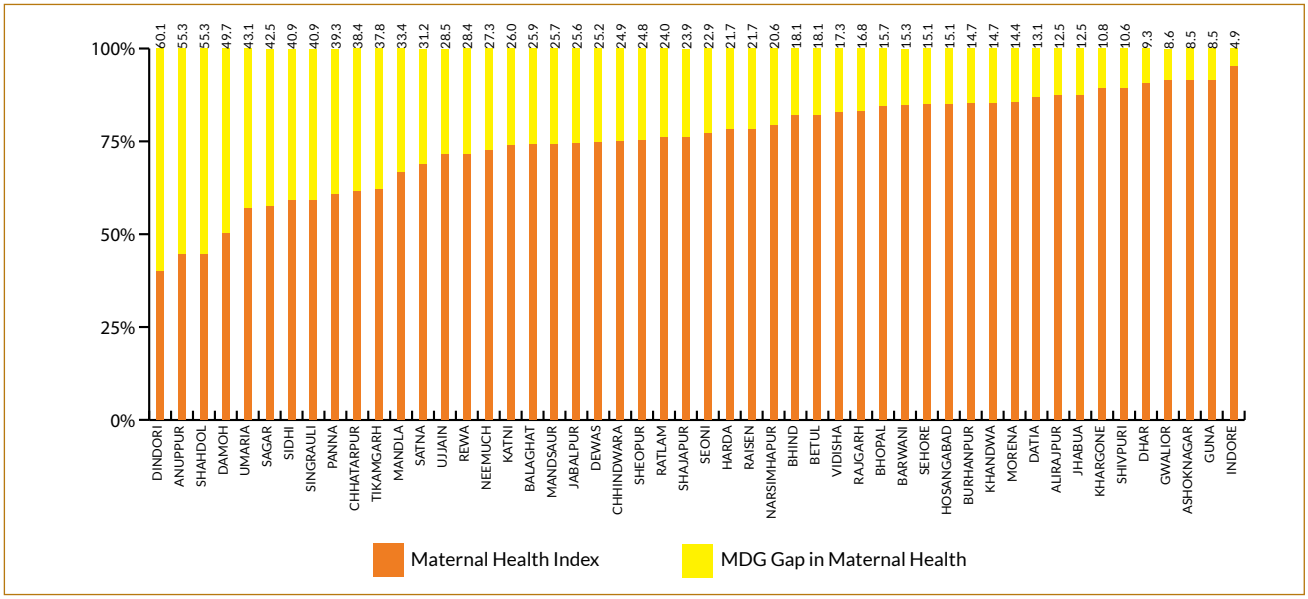
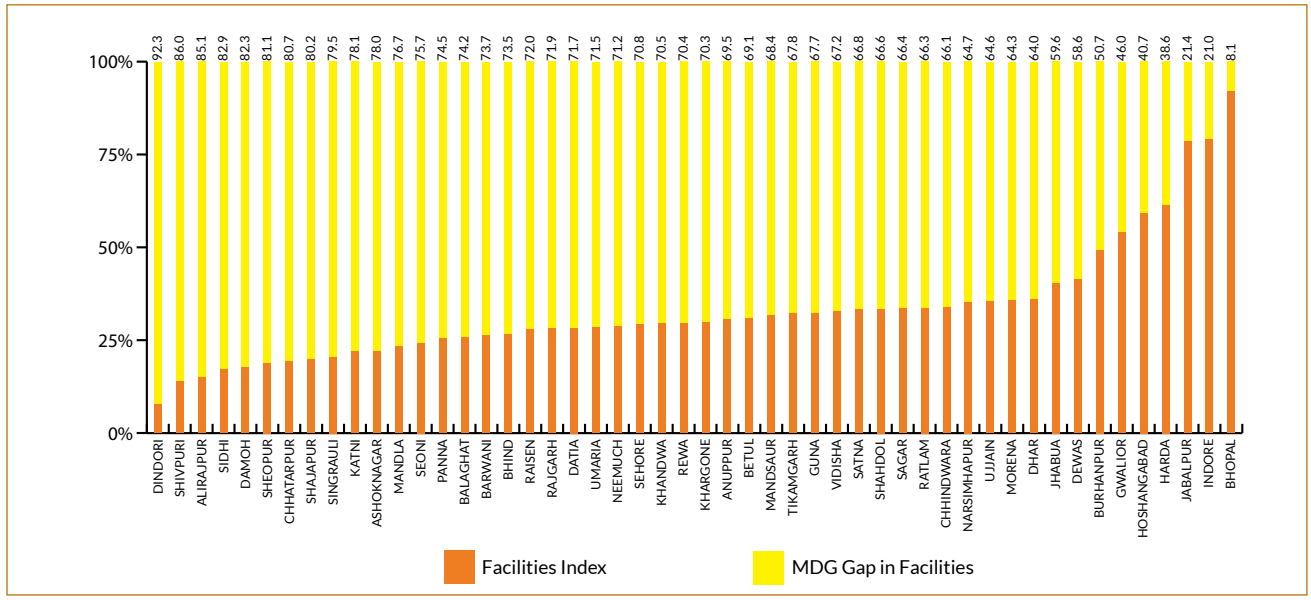


Chart 9.8: Relative positions of districts in facilities Index



9.5 To sum up

- The inter-district analysis of MDGs for Madhya Pradesh shows substantial heterogeneity in achievements of MDGs across districts within an overall picture of shortfall from state-level targets. There are clear patterns of clustering with a large number of districts located in the eastern corner of the state performing poorly in majority of the indicators. In education, a number of districts on the western end of the state have huge MDG gaps. A group of districts in the northern part of the state have very low scores on gender equity. Along with the tribal characteristic, the spatial characterization of backwardness emerges strongly.
- There is strong correlation among a number of MDG indicators which shows the inter-connectedness of the MDG targets. Significantly, facilities such as drinking water and sanitation, where the gaps are very substantial across the state can impact not only MDG 7 outcomes but crucially outcomes of children's health and maternal health, children's nutrition and education. Public policy has to take cognizance of the synergies among the various targets.
- A regressive trend is the low gender equity in districts with higher literacy levels and in non-tribal districts. It must be seen that even as the gaps are closed in other MDG targets, gender equity doesn't get short-shifted.

Annexure Table 9.1: District-wise Indices for MDGs

	Poverty alleviation		Nutrition		Poverty alleviation & nutrition (MDG 1)		Education (MDG 2)	
	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks
Alirajpur	73.1	36	50.2	46	61.7	39	32.2	50
Anuppur	63.7	41	56.6	36	60.1	41	66.7	36
Ashoknagar	109.5	10	64.2	19	86.8	12	66.4	37
Balaghat	46.0	45	66.5	13	56.2	44	74.1	19
Barwani	79.3	29	44.7	48	62.0	38	59.9	46
Betul	29.2	50	72.7	8	50.9	45	71.7	28
Bhind	75.7	34	57.5	32	66.6	33	83.2	6
Bhopal	117.0	5	56.6	36	86.8	11	90.2	2
Burhanpur	91.9	24	57.1	33	74.5	25	66.3	38
Chhatarpur	114.4	7	66.2	15	90.3	6	73.1	21
Chhindwara	47.8	44	65.6	16	56.7	43	73.0	23
Damoh	99.4	16	73.1	7	86.3	14	74.7	16
Datia	90.1	25	51.7	45	70.9	31	79.2	8
Dewas	123.0	1	75.7	6	99.3	1	72.6	24
Dhar	120.8	3	58.4	29	89.6	8	61.0	45
Dindori	32.6	49	49.0	47	40.8	50	65.3	41
Guna	109.1	11	64.0	20	86.6	13	63.3	43
Gwalior	96.0	21	55.6	40	75.8	24	88.4	3
Harda	83.7	27	59.3	28	71.5	29	74.2	18
Hoshangabad	81.1	28	78.9	4	80.0	20	84.8	4
Indore	113.5	8	83.4	2	98.4	2	90.5	1
Jabalpur	78.4	32	69.5	10	74.0	26	83.9	5
Jhabua	98.3	18	55.1	42	76.7	23	35.8	49
Katni	73.1	37	57.0	34	65.1	35	67.4	35

	Gender (MDG 3)		Child Health (MDG 4)		Maternal Health (MDG 5)		Facilities (MDG 7)		Overall MDG Index	
	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks
	75.4	12	63.1	31	87.5	9	14.9	48	55.8	44
	74.1	18	62.1	34	44.8	49	30.5	24	56.4	42
	65.6	41	58.3	42	91.5	3	22.0	40	65.1	22
	73.1	21	78.5	8	74.1	33	25.8	36	63.6	28
	76.6	8	63.1	29	84.7	16	26.3	35	62.1	36
	75.5	10	76.9	11	81.9	20	30.9	23	64.6	24
	50.0	50	78.2	9	81.9	21	26.5	34	64.4	25
	63.2	44	85.0	4	84.3	17	92.0	1	83.6	2
	71.2	24	60.3	37	85.3	13	49.3	7	67.8	17
	69.4	33	65.5	25	61.7	41	19.3	44	63.2	33
	69.7	30	68.8	20	75.1	29	33.9	14	62.9	34
	66.1	40	52.4	48	50.3	47	17.7	46	57.9	41
	53.3	49	55.1	44	87.0	10	28.3	31	62.3	35
	74.8	15	75.3	13	74.8	30	41.4	8	73.0	6
	74.9	14	77.8	10	90.7	5	36.0	10	71.7	8
	83.8	1	63.8	26	39.9	50	7.7	50	50.2	50
	66.3	39	58.3	42	91.5	3	32.3	20	66.4	20
	59.8	47	85.5	3	91.5	4	54.0	6	75.8	5
	69.9	28	71.7	17	78.3	24	61.4	4	71.2	9
	74.2	16	79.1	6	84.9	14	59.3	5	77.0	4
	68.6	36	99.1	1	95.1	1	79.0	2	88.4	1
	71.9	22	87.9	2	74.4	31	78.6	3	78.4	3
	77.2	6	63.1	31	87.5	9	40.4	9	63.4	30
	71.2	23	68.5	21	74.0	34	21.9	41	61.3	37

	Poverty alleviation		Nutrition		Poverty alleviation & nutrition (MDG 1)		Education (MDG 2)	
	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks
Khandwa	75.2	35	55.2	41	65.2	34	65.9	40
Khargone	89.7	26	53.8	43	71.8	28	63.4	42
Mandla	41.5	46	55.7	38	48.6	46	69.2	32
Mandsaur	100.4	15	60.8	24	80.6	19	72.4	27
Morena	93.7	23	59.9	26	76.8	22	80.1	7
Narsimhapur	107.1	12	69.0	11	88.1	10	76.7	11
Neemuch	102.2	13	66.5	13	84.3	17	67.5	34
Panna	78.2	33	63.6	21	70.9	30	71.2	29
Raisen	96.8	19	81.6	3	89.2	9	72.4	27
Rajgarh	102.0	14	55.7	38	78.9	21	66.1	39
Ratlam	79.1	30	65.2	17	72.1	27	61.8	44
Rewa	60.5	42	59.3	28	59.9	42	77.1	10
Sagar	95.2	22	66.2	15	80.7	18	79.0	9
Satna	48.9	43	42.1	50	45.5	48	74.3	17
Sehore	96.0	20	76.2	5	86.1	15	73.8	20
Seoni	78.5	31	60.3	25	69.4	32	75.0	13
Shahdol	37.9	48	55.7	38	46.8	47	72.5	25
Shajapur	121.5	2	61.8	22	91.7	4	74.8	15
Sheopur	67.6	40	61.1	23	64.3	36	70.7	30
Shivpuri	111.6	9	57.6	31	84.6	16	68.7	33
Sidhi	69.4	39	58.3	30	63.8	37	49.3	47
Singrauli	70.2	38	52.8	44	61.5	40	47.3	48
Tikamgarh	115.1	6	64.4	18	89.7	7	75.2	12
Ujjain	117.9	4	70.4	9	94.2	3	74.8	15
Umaria	39.9	47	42.8	49	41.3	49	70.6	31
Vidisha	98.6	17	83.6	1	91.1	5	73.0	23

	Gender (MDG 3)		Child Health (MDG 4)		Maternal Health (MDG 5)		Facilities (MDG 7)		Overall MDG Index	
	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks	Index	Ranks
	74.9	13	60.3	37	85.3	13	29.5	27	63.5	29
	77.5	4	75.0	14	89.2	7	29.7	25	67.8	18
	78.0	3	62.9	32	66.6	39	23.3	39	58.1	39
	77.4	5	71.7	18	74.3	32	31.6	22	68.0	15
	60.4	46	71.4	19	85.6	11	35.7	11	68.4	12
	69.6	31	75.5	12	79.4	22	35.3	13	70.8	10
	78.4	2	78.8	7	72.7	35	28.8	29	68.4	11
	59.0	48	34.7	50	60.7	42	25.5	37	53.7	47
	67.0	38	63.3	28	78.3	23	28.0	33	66.4	21
	74.1	17	72.2	16	83.2	18	28.1	32	67.1	19
	73.8	20	66.2	24	76.0	27	33.7	15	63.9	27
	67.5	37	59.4	39	71.6	36	29.6	26	60.8	38
	70.6	25	58.7	40	57.6	45	33.6	16	63.4	31
	69.8	29	42.0	49	68.8	38	33.2	18	55.6	45
	68.9	35	66.4	23	84.9	15	29.2	28	68.2	13
	76.1	9	67.0	22	77.1	25	24.3	38	64.8	23
	75.4	11	62.1	34	44.8	49	33.4	17	55.8	43
	70.2	27	75.0	15	76.1	26	19.8	43	67.9	16
	64.8	43	54.1	45	75.2	28	18.9	45	58.0	40
	69.5	32	57.5	43	89.4	6	14.0	49	64.0	26
	70.4	26	52.9	47	59.1	44	17.1	47	52.1	49
	77.1	7	52.9	47	59.1	44	20.5	42	53.1	48
	60.5	45	60.0	38	62.3	40	32.2	21	63.3	32
	74.0	19	80.3	5	71.5	37	35.4	12	71.7	7
	69.0	34	61.7	35	56.9	46	28.5	30	54.7	46
	65.6	42	63.6	27	82.7	19	32.8	19	68.1	14

Social indicators relating to sectors such as education and health improve with increases in public spending. With the low level of human development in Madhya Pradesh, it is imperative that a greater share of public expenditure should be channeled toward primary education and preventive health care in order to improve overall human development in the state. Public spending on education and health, because of its positive effects on the human capital, could also boost economic growth while at the same time promoting equity and reducing poverty. As discussed in the earlier chapters, the uneven human development across the regions (between states or between districts) could be due to uneven public expenditures and its efficiency in those regions. Productive and beneficial spending on education and health depends on how funds are allocated or utilised within these social sectors as well as other social and economic sectors. In other words, complementarity is expected between education and health outcomes with public expenditure on other economic sectors. For instance, increase in expenditure on certain human resource intensive sectors such as health and education should be made along with investments in other infrastructure intensive sectors like roads, transport, energy, water and so on. In this section an attempt has been made to analyse the relationship between government expenditure on human development

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CHAPTER 10

sectors and the human development outcomes with special reference to Madhya Pradesh across states and across districts in Madhya Pradesh.

This chapter is divided into two broad sections. The first section, looks at the level of public expenditure versus certain human development indicators in Madhya Pradesh in comparison with other states. The second section l focuses on inter district variations within the state in terms of the relationship between outcome indicators and the public spending.

Health, education and poverty are important indicators of Millennium Development Goals. As discussed in earlier chapters, Madhya Pradesh is not only lagging behind many of the states in these indicators but also has huge disparities even within the state. There are some districts that are lagging far behind while a few districts are above the state average in terms of outcomes.

From the experiences in some better performing states, one of the factors that could improve the outcomes in these three sectors (Health, Education and Poverty) is the better service delivery mechanism in those states. As Madhya Pradesh is also characterized by higher poverty apart from poor human development indicators, onus of provision of these services is higher on the state government. Public service provision in health and education are majorly by the state government with additions from the central government through centrally sponsored flagship programmes. Public expenditure in these two sectors also human resource intensive in addition to recurring expenditure on infrastructure maintenance. The state government spends through treasury system, and the withdrawals in the respective districts from treasury are spent in the respective districts. The central government expenditure in these two sectors is mainly through implementing societies such as Panchayat Raj Institutions, State Health Societies and Sarva Shiksha Abhiyan.

By considering the extent of expenditure at district level in education and health sectors, the extent

of service provision in these areas is derived. Treasury withdrawals under the budget heads of rural health (2210.03, 2210.0442)[42] and family welfare (2211) for infant mortality and maternal mortality, public health (2210.05) for immunisation and prevention, nutrition (2235, 2236) for malnourishment, elementary education (2202.01) for enrolments and dropout rates in elementary education, water supply (2216) for water supply and sanitation are considered. By relating the per capita expenditures at district level with outcome indicators in these sectors should give us directions for the level of service delivery at the district level and could, to some extent, explain differences in outcomes at the district level. As there are multiple outcome indicators in these sectors, an attempt has been made to derive a composite index for each of these sectors and relate the indices with total expenditures in these sectors at district level. In the next section, correlation between public expenditure and human development outcomes at the district would be analysed and understand the reasons behind variations in outcomes across the districts.

10.1 Public Expenditure on Human Development in Madhya Pradesh

The status of human development of a state is highly associated with the extent of priority the state gives to human development sectors. All the expenditure on social services and poverty alleviation is defined as human development expenditure. Social services include expenditure on education, health, water supply and sanitation, housing, urban development, social security and welfare, welfare of SC, ST, OBCs and labour welfare. These expenditures have a direct impact on Human development. The share of human development expenditure in the total expenditure is Social Expenditure ratio (SER). Social expenditure ratio shows the relative importance given by government for human development with respect to other sectoral economic development.

Elementary education, public health (including nutrition), water supply, sanitation and poverty alleviation are the priority sectors within human development sectors. Priority given to these sectors within human development is measured by the social priority ratio (SPR). SPR is the share of priority sector expenditure in the total human developmental expenditure. This section looks at total volume of expenditures incurred by the government and priorities given by the state to human development in their spending pattern.

The public expenditure in Madhya Pradesh includes the revenue expenditure, capital expenditure and net lending. In addition to the state spending, the central government also spends through implementing agencies under centrally sponsored schemes, particularly on social sectors and poverty alleviation. The size of budget or government expenditure has been increasing over the period. It has gone up from Rs. 26,235 crore in 2004-05 to Rs. 79,881 crore in 2012-13. However, such increases are not witnessed when it is presented with respect to Gross State Domestic Product (GSDP) from 23.2% to 21.5% during the same period (see table 10.1). While such decline can be due to stringent medium term fiscal targets imposed on the states, it is important to understand that within the public expenditures, the expenditures on human development have not declined. Human development expenditure has increased from 6.34% to 8.41% of GSDP during the reference period. Even the sharp decline in total expenditures that was witnessed in 2005-06 and 2006-07 has not affected the human developmental expenditure. The level of human developmental expenditure continued to grow from 6.3% of GSDP in 2004-05 to 8 per cent in 2012-13. Nearly half of this is spent on priority sectors within human developmental sectors such as elementary education, health and nutrition, water supply, sanitation and poverty alleviation. Social priority (expenditure on health, elementary education, water supply and poverty alleviation as per cent of social expenditure) has gone up from 3.7 per cent of GSDP in 2004-05 to 4.8 per cent in 2012-13. Bulk of priority expenditure is on education at around 3 per cent of GSDP in 2012-13. The priority given to elementary education is higher than that of health and water supply. Even if one includes the additional direct expenditures by the central government under the centrally sponsored schemes such as Sarva Shiksha Abhiyan, National Health Mission and MGNREGS, there is not much change in the priorities. The per capita expenditure and shares are given in the Annexure table 10.1 and 10.2.

[42] Numbers in the parenthesis are the reference budget codes for these expenditures in the Budget documents.

Table 10.1: Profile of expenditure in Madhya Pradesh (Per Cent of GSDP)

Expenditure Type	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total Expenditure	23.23	20.25	19.68	20.74	19.28	20.92	21.83	21.94	21.46
Human Developmental Expenditure	6.34	7.13	7.12	7.57	7.14	7.49	8.59	8.31	8.41
Priority Expenditure	3.74	4.24	4.40	4.63	4.19	4.35	5.06	4.82	4.80
Education, Arts, Sports and Culture	2.28	2.38	2.59	2.43	2.61	2.86	3.25	3.20	2.97
Elementary education	1.52	1.63	1.71	1.49	1.62	1.79	2.08	2.00	1.81
Health, Family Welfare and Nutrition	0.92	0.91	0.94	0.97	0.84	0.97	1.19	1.16	1.21
Water Supply and Sanitation	0.41	0.54	0.41	0.58	0.52	0.41	0.44	0.41	0.39
Poverty Alleviation	0.89	1.21	1.35	1.61	1.24	1.19	1.35	1.25	1.40
Housing	0.09	0.06	0.08	0.09	0.10	0.09	0.11	0.11	0.12
Other Welfare Schemes	1.74	2.03	1.75	1.89	1.84	1.96	2.25	2.19	2.34

Source: (Basic Data), CAG, Finance Accounts of Individual States and CSO for GSDP.

10.2 Developmental expenditures in Madhya Pradesh versus other states.

Expenditure level in Madhya Pradesh is higher than many of major states as can be seen in the table 10.2. Total expenditure in Madhya Pradesh is around 22% of GSDP compared to selected states average of 16% in 2011-12. Same is the case with Human developmental expenditure, which is around 8.3% of GSDP in Madhya Pradesh compared to selected states average of 6.7% in 2011-12. Among the EAG states Bihar, Chhattisgarh and Uttar Pradesh and among other states Assam and Himachal Pradesh are spending higher than Madhya Pradesh on human development. EAG states like Bihar, Chhattisgarh and Uttar Pradesh are spending more than that of MP on elementary education. Uttar Pradesh spends nearly 2.5% of GSDP on elementary education compared to 2% in Madhya Pradesh in 2011-12. Madhya Pradesh spends higher than almost all the states (Table 10.2) on health, except Bihar, among EAG states and Andhra Pradesh, Assam and Himachal Pradesh among other states. States such as Jharkhand and Rajasthan among EAG states, Haryana, Himachal Pradesh and Karnataka among other states are spending higher than Madhya Pradesh on water supply. When we look at the priority expenditure within human development sectors such as elementary education, health and nutrition, water supply and poverty, EAG states like Bihar, Jharkhand and Uttar Pradesh gives higher priority compared to Madhya Pradesh. Among non-EAG states, only Assam and Himachal Pradesh spends higher than Madhya Pradesh.

Table 10.2: Human Development Expenditure in Selected States (as Per Cent of GSDP)

States	2004-05						2011-12					
	Human Development Expenditure						Human Development Expenditure					
	Ele. Edu.	Health	Water Supply	Priority Exp.	Total	Total Ex.	Ele. Edu.	Health	Water Supply	Priority Exp.	Total	Total Ex.
As % of GSDP												
Andhra Pr.	0.94	0.96	0.32	3.01	6.14	16.44	1.00	1.23	0.12	2.88	6.85	16.44
Assam	2.70	0.90	0.58	5.63	9.56	22.46	3.07	1.58	0.42	6.19	10.37	23.13
Bihar	2.52	0.85	0.27	5.14	7.86	21.80	2.46	1.18	0.27	5.55	9.68	23.53
Chattisgarh	1.57	0.86	0.35	3.76	6.64	17.72	2.27	0.98	0.28	4.77	9.21	18.47
Goa	0.47	0.96	1.25	2.98	6.29	18.65	0.44	0.96	0.88	2.51	5.30	15.40
Gujarat	1.10	0.65	0.44	2.62	4.97	14.24	1.21	0.85	0.20	2.68	5.10	12.45
Haryana	0.86	0.46	0.59	2.08	3.83	12.90	1.11	0.46	0.72	2.66	5.06	12.62
Himachal Pr.	2.34	1.60	1.79	6.14	9.63	26.77	2.66	1.36	1.09	5.66	9.06	24.90
Jharkhand	1.66	0.81	0.41	4.25	6.08	14.86	2.24	0.98	0.43	5.52	7.89	17.95
Karnataka	1.47	0.70	0.39	2.93	5.51	17.85	1.33	0.87	0.55	3.14	7.02	18.06
Kerala	1.12	0.77	0.23	3.20	6.12	15.05	1.24	0.94	0.23	2.50	5.78	16.51
Madhya Pr.	1.52	0.92	0.41	3.74	6.34	23.23	2.00	1.16	0.41	4.82	8.31	21.94
Maharashtra	1.11	0.57	0.29	2.53	4.86	14.35	1.18	0.66	0.12	2.26	5.14	12.06
Orissa	1.45	0.95	0.35	3.36	5.82	17.00	1.77	0.93	0.30	3.93	8.00	18.48
Punjab	0.53	0.63	0.28	1.63	3.93	18.51	0.49	0.67	0.22	1.51	3.89	13.54
Rajasthan	1.74	1.03	1.16	4.86	7.74	18.72	1.69	1.11	0.64	4.43	6.94	15.03
Tamilnadu	0.88	0.93	0.62	2.97	5.89	15.53	0.95	0.99	0.32	2.55	6.15	15.36
Uttar Pr.	1.61	0.86	0.18	3.62	6.21	19.40	2.54	0.98	0.20	4.96	9.02	21.35
West Bengal	0.88	0.72	0.15	2.34	4.81	14.65	1.19	0.89	0.13	3.00	6.94	14.47
Selected States	**1.26**	**0.79**	**0.40**	**3.15**	**5.76**	**16.79**	**1.46**	**0.93**	**0.29**	**3.33**	**6.70**	**16.18**

Source: (Basic Data), CAG, Finance Accounts of Individual States and CSO for GSDP.

Madhya Pradesh being low income state with poor human development and having large population, expenditure as per cent of GSDP does not explain the sufficiency of funds for service provision in human developmental sectors. Therefore, a comparison of expenditures across the states in per capita terms is made here (see table 10.3). Expenditure pattern differs when we look at per capita expenditure in real terms. While the per capita total public expenditure in Madhya Pradesh is higher than all EAG states, except Chhattisgarh, it is very low compared to many of the general category states. The trend reverses when we decompose the expenditure into Human development expenditure and other developmental expenditure. Per capita expenditure on human development in Madhya Pradesh is much lower than all EAG states except Bihar, Uttar Pradesh and other non-EAG states, except Punjab. Even within human developmental sectors, Madhya Pradesh spends less than Rajasthan, Jharkhand, Orissa and Chhattisgarh among EAG states. Among the non-EAG states only Punjab and West Bengal spend less than Madhya Pradesh. In Madhya Pradesh health and education have received less priority compared to other EAG states such as Rajasthan, Orissa, Jharkhand and Chhattisgarh. To conclude, though total public expenditure in per capita terms in Madhya Pradesh is higher than all EAG states (barring Chhattisgarh), when it comes to human developmental expenditure or its components, Madhya Pradesh spends less than most of other EAG states. Lower expenditures on water supply and sanitation is due to devolution to local bodies and much of the expenditure on water supply is accounted in local bodies' budget and is not reflected in this analysis. With huge population, Madhya Pradesh needs to increase its expenditure on human development sectors particularly in health for better outcomes in overall health sector of the State.

Table 10.3: Per Capita Expenditure in 2004-05 Prices (in Rupees)

	2004-05						2011-12					
	Human Development Expenditure						Human Development Expenditure					
States	**Ele. Edu.**	**Health**	**Water Supply**	**Priority Exp.**	**Total**	**Total Ex.**	**Ele. Edu.**	**Health**	**Water Supply**	**Priority Exp.**	**Total**	**Total Ex.**
Andhra Pr.	264	271	91	850	1736	4647	484	595	57	1388	3305	7937
Assam	512	171	109	1070	1816	4266	786	405	108	1585	2655	5923
Bihar	221	75	24	451	689	1912	358	171	39	809	1410	3429
Chattisgarh	340	186	76	8	1438	3835	783	339	98	1645	3181	6377
Goa	421	851	1116	2648	5595	16593	658	1436	1322	3768	7974	23151
Gujarat	418	247	167	989	1878	5383	808	569	131	1780	3391	8280
Haryana	362	195	250	879	1617	5441	762	320	495	1829	3483	8695
Himachal Pr.	886	607	678	2326	3648	10143	1633	834	666	3471	5556	15278
Jharkhand	346	170	86	886	1267	3097	660	287	126	1626	2327	5291
Karnataka	443	212	116	883	1660	5380	631	412	258	1483	3319	8542
Kerala	405	280	82	1161	2220	5461	735	556	135	1473	3416	9751
Madhya Pr.	266	160	72	653	1105	4054	537	310	109	1291	2229	5883
Maharashtra	449	232	119	1025	1970	5814	809	452	82	1551	3522	8257
Orissa	294	194	72	681	1181	3448	560	295	96	1246	2535	5858
Punjab	200	238	107	617	1489	7005	275	380	123	851	2196	7647
Rajasthan	367	218	243	1024	1629	3941	553	363	208	1449	2271	4921
Tamilnadu	301	317	212	1009	2001	5281	605	630	207	1632	3934	9829
Uttar Pr.	235	126	27	530	908	2837	523	202	41	1022	1860	4404
West Bengal	219	178	37	583	1197	3644	429	318	45	1078	2494	5201

Source: Basic data is taken from Finance Accounts, CAG.

Table 10.4: Co-relation Coefficients of Per capita Expenditure Verses Outcome Indicators 2011-12

	Expenditure under SSA	State's Elementary exp.	Total Elementary Exp.	Expenditure under NRHM	State's Health Exp.	Total Health Exp	Total Human Dev. Exp.	Total Exp.
Retention Rate	-0.24	0.34	0.30				0.49	0.59
IMR				0.29	-0.52	-0.42	-0.41	-0.60
Institutional deliveries				-0.40	0.48	0.42	0.40	0.39

Source: Authors' calculation.

10.2.1 Human Development Expenditure and Outcome Indicators across States.

The outcome indicators in health and education depend on the level of expenditure on these sectors at state level. The state government spends through state budgets and the Centre spends through implementing agencies directly under centrally sponsored schemes. The state government spends on infrastructure and human resources in both of these sectors, whereas the Centre spends as additionalities and tries to fill the gaps through centrally sponsored schemes such as NRHM, SSA and MGNREGS. Here it is hypothesised that the outcome indicators should depend on both the expenditures (both central and states) as state government expenditures alone may not result in higher human development outcomes.

In table 10.4, correlation coefficients between outcome indicators and expenditures of 19 States are presented. The sign and size of the correlation coefficients suggest that higher the retention rate lower is the expenditure under SSA. Since expenditure under SSA is to fill the temporary vacancies, quality improvement and improving the retention rates, its allocation and expenditure are based on deficiencies and gaps. Therefore, expenditure is high in states where the retention rate is lower. On the other hand the state government expenditure on elementary education is higher where the retention rates are higher. Since much of expenditure on elementary education is on salaries of the teachers and of recurring in nature, whichever state is spending sufficiently with less teacher vacancies result into higher retention rate. Many studies have suggested that absenteeism and teacher vacancies are one of the important factors for lower retention rate and lower enrolment rates[43]. Therefore, the state government needs to increase the expenditure by filling the vacancies and providing infrastructure. Even the total human developmental expenditure (which includes expenditure on other Human developmental sectors like health, poverty alleviation and social welfare) and the total expenditure that includes expenditure of the developmental sectors have a positive and significant relation with outcome indicators in education sector.

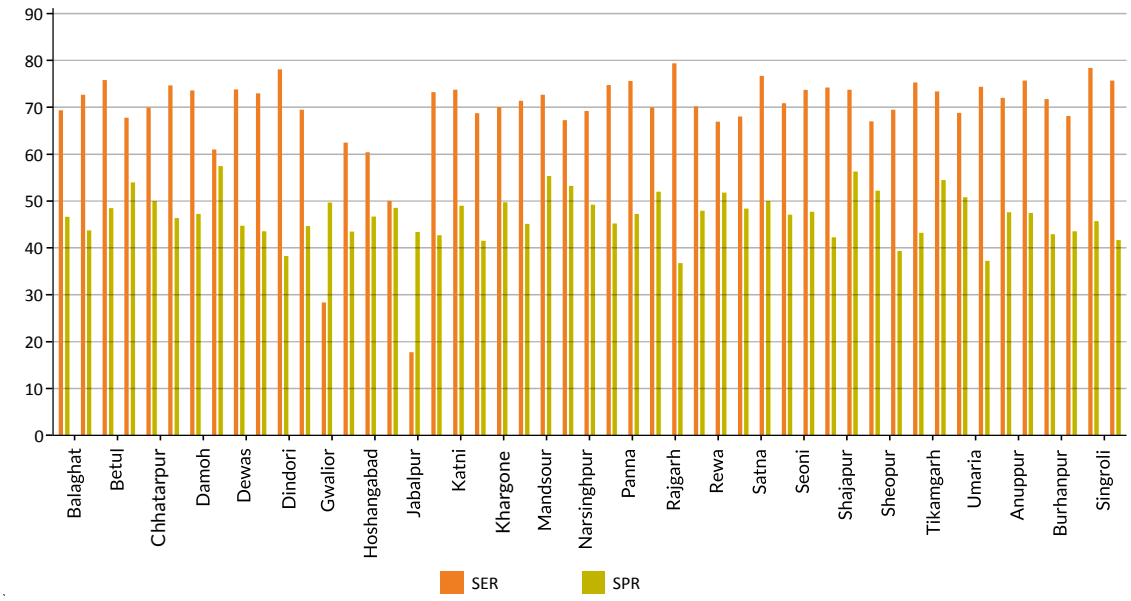
On the health sector, infant mortality rate (IMR) is one of the important outcome indicators and Madhya Pradesh of late is known for higher IMR and malnutrition among the children. Central Government spends directly through implementing agencies under NRHM for improvements of health facilities in rural areas through additional ties and the state government spends on human resources and infrastructure maintenance. Similar to SSA, the central allocation under NRHM is based on deficiencies and gaps. Therefore, expenditure under NRHM has a positive relation with IMR, higher the NRHM expenditure, higher the IMR. The second determinant of NRHM expenditure is to encourage institutional deliveries to improve IMR, MMR and nutritional levels. The states with lower number of institutional deliveries get higher allocations under Janani Surakha Yojana. This is visible in pattern of NRHM expenditure and number of institutional deliveries. Higher the state expenditure means higher the human resources and better infrastructure. Better service provision through higher spending results in better access and better outcomes. Therefore, it is expected that there would be a positive relation between institutional deliveries and state expenditure on one hand and negative relation between IMR and state expenditures. This means that the state governments have to spend more on provision of services so that the people have access and health outcomes improve. To make the health personnel spread across the regions, the state needs to increase expenditures on other developmental sectors. This is visible in higher and negative correlation between IMR and total state government expenditure.

10.3 Inter-district Analysis of Public Expenditure

Here, an attempt has been made to understand the relationship between outcome indicators and expenditures at the district level. Such analysis would help the state government in identifying the districts in which it needs to concentrate more in order to improve the state's overall development indicators. The information on state's expenditure at district level is obtained from the treasury and CSS expenditure is taken from the implementing agencies at district level. The treasury withdrawals are considered as expenditures at district level. For this analysis, Bhopal is excluded as the treasury withdrawals under Bhopal city also includes state's expenditure on other districts and could not be separated. The other three outliers identified are Indore, Jabalpur and Gwalior where non-human developmental expenditure is comparatively high. Human developmental expenditure, which mainly consists of expenditure on social services such education, health, water supply, sanitation, housing and other welfare schemes and poverty alleviation from economic services is high in almost all the districts with very few exceptions. Social Expenditure Ratio (SER), the share of human developmental expenditure in total expenditure, is around 70% in many of the districts, with the exceptions of Jabalpur, Gwalior and Bhopal. Developmental expenditures, which

[43] *Annual Survey of Education Research 2013, ASER centre, New Delhi*

Chart 10.1: Priorities of district expenditure in MP



Source: Treasuries and Accounts, Department of Finance, GOMP

are mainly on these sectors that are not aimed at human development directly, are concentrated in three districts and almost negligible in other districts. Elementary education, health, family welfare, nutrition, water supply, sanitation and poverty alleviation is priority sectors within human developmental sectors. The share of public expenditure in these sectors in overall human developmental expenditure (social priority ratio, SPR) indicates the priorities of the state government. Social Priority Ratio (SPR) is below 50% in all the districts. Dindori, Rajgarh and Umaria have the least SPR at around 30%. Lower SPR indicates that human developmental expenditure is dominated by welfare expenditure and other expenditures, which may have less impact on human development compared to priority sectors. SER and SPR do not matter much if the per capita expenditures are high. But it is evident from the earlier sections that Madhya Pradesh is one of the states having less per capita expenditures across the states and less per capita human developmental expenditure across many human developmental sectors even compared to some of the EAG states.

10.3.1 District level variations in per capita expenditure:

Variations in per capita expenditures at district level in education, health, and total expenditures is skewed towards certain districts (see Table 10.5) and such variations could also explain the variation in the outcome indicators. The average per capita expenditure on elementary education is around Rs. 731 and the coefficient of variation is 0.18 in 2012-13. Per capita expenditure on health and health related sectors like family welfare and nutrition is much lower than that of Elementary education. Average per capita expenditure on health is around Rs. 364, whereas the maximum per capita in any districts is Rs. 770. It is also being noted that the inter-district variations are higher in health expenditure than in elementary education. This could be due to variation in human resource across districts with vacancies higher in some districts where overall development of infrastructure is weak. Such variation is consistent with the large variation in district level total public expenditure, which includes expenditure on other sectors and infrastructure.

Table 10.5: Variations in Per Capita Expenditures at District Level

	District Level Per Capita Expenditure on Elementary Education			District Level Per Capita Expenditure on Health			District Level Per Capita Expenditure on Human Development.			District Level Per Capita Total Expenditure		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Average	543	633	731	288	315	364	1985	2244	2682	3157	3583	4235
Min	132	395	411	96	148	194	665	1221	1656	908	1680	2188
Max	766	893	1003	550	596	773	3248	3419	3842	12020	15108	20062
Co. Var	0.21	0.17	0.18	0.30	0.27	0.29	0.23	0.18	0.16	0.53	0.56	0.62

Source: Treasuries and Accounts, Department of Finance, GOMP

Table 10.6: Correlation between Expenditures and Indicators

Sector	Expenditure on Elementary Education	Expenditure on Health and Nutrition	Total Human Developmental Exp.	Total State Exp.
Education	-0.02		0.01	0.27
Health		0.38	-0.07	0.23
Gender	0.05	0.01	0.31	-0.01
Facilities			0.10	0.56
Poverty and Nutrition	-0.09	0.04	-0.30	
Overall Human Development Attainment	-0.22	0.48	-0.06	0.36

Source: Authors' Calculations

Similarly, outcomes are dependent on the public expenditures, not only in the respective sectors but also in other sectors. Correlation coefficients between the outcome indicators and expenditures are given in table 10.6. Human development expenditure is lower where poverty is higher and the total per capita expenditure is also lower. Here one needs to understand that much of the expenditure on poverty alleviation is through centrally sponsored schemes outside the state budget. Higher the per capita expenditure on health better is the IMR, whereas total human developmental expenditure has negative sign. Total expenditure and IMR has positive and significant relationship. Similarly the state spending in districts with lower education index is higher meaning that Government is making its best efforts to improve the retention rate and service provision in elementary education sector. Centrally sponsored schemes expenditure like SSA and NRHM is higher in the districts which are lagging behind in outcome indicators compared to states expenditure. This implies that the outcome indicators are directly associated with level of expenditure by the state government. Whichever district the per capita expenditures are lower, the state has not deployed enough human resources in service delivery and therefore lagging behind in achieving better outcomes particularly in health and poverty alleviation. The state government expenditure on infrastructure need to be scaled up in the districts which are lagging behind to get better impact of additional expenditure of centrally sponsored schemes.

It is also well known fact that public expenditure alone does not influence the human development. In addition to public expenditure, the levels of achievement in other areas, level of income, demographic characters, etc., also influence the human development. Therefore, we find some districts doing well in spite of the low levels of public expenditure. However increasing the public expenditure do influence not only overall development and increasing incomes, but also, improvements in human development to a larger extent. In this section we try to look at the districts with low per capita expenditure and having lower levels of achievements in human development.

10.3.2 Inter-District Variations in Education and Health Expenditure

Impact of public expenditures on outcomes in health and education (both are indices as estimated in chapter 9) at district level are measured through simple elasticity approach. The estimated elasticity numbers suggest that while both per capita incomes as well as social sector expenditures have almost similar (0.16) impacts, the elasticity of education outcomes with respect to total public expenditure found to be higher (0.32) than the social sector expenditure. This suggests that while sectoral expenditures are necessary, such expenditures alone are not sufficient enough to improve the educational outcomes. The expenditure on economic sectors complements the social sector expenditure in improving the overall developmental outcomes. Similar results were found in the case of health outcomes as well except that elasticity of health outcomes with respect to per capita incomes (0.22) is marginally higher than that of health expenditure (0.16).

At the district level, as discussed earlier, the MDG achievements are found to be uneven. One of the factors behind such uneven performance could be due to divergences as well as lack of prioritization of sectoral expenditure. In some cases it could be poor public expenditure efficiency. To understand this, two-way table has been prepared and presented in Charts 10.2 and 10.3. It may be noted that there are some districts where outcome indicators are poor in education and health also had higher expenditures and some had a lower expenditure by the state government. Therefore, efficiency of public expenditure which cannot be measured and other factors may be the reasons for underperformance in some districts despite having higher per capita expenditures. It may be noted in Chart 10.2 that Burhanpur, Singrouli and Sheopur are the districts, among many others, which are having lowest per capita expenditures in spite of being low performing districts. On other hand, Alirajpur district has low literacy levels, in spite of higher per capita expenditures compared to many other districts. The reasons for lower educational attainment levels despite having higher per capita expenditures by itself is a potential research issue, based on preliminary understanding it may be attributed to low district incomes and other demographic characteristics of the districts that is reducing the public expenditure efficiency. The districts in box 1 of Chart 10.2 need additional expenditures in improving educational services like filling up of vacancies and establishing schools. Similarly special attention is needed in the districts given in box 2, by better planning and administration and other interventions in addition to public expenditure. Districts in box 3 have better attainment level inspite of low per capita expenditures. The districts in this box are Indore, Jabalpur and Gwalior, which are urbanised and have higher income levels compared to other districts. Therefore, private institutions and private expenditures could be playing a major role in improving the education outcomes in these districts.

Chart 10.2: Disparities in Education Expenditure at District Level

	Education Index Below State Average	Education Index Above State Average
Per Capita Expenditure on Education below State Average (Rs. 731)	BOX 1 Burhanpur, Singroli, Khandwa, Shahdol, Ashoknagar, Ratlam , Rajgarh, Ujjain, Katni, Badwani Shivpuri, Sheopur, Umaria, Dewas	BOX 3 Indore, Jabalpur, Chhatarpur, Harda Sagar, Murena, Gwalior
Per Capita Expenditure on Education Above State Average	BOX 2 Alirajpur, Jhabua, Sidhi, Khargone, Anuppur, Guna, Balaghat, Dhar, Mandla, Neemach, Chhindwara, Dindori, Betul, Mandsour, Narsinghpur, Seoni	BOX 4 Panna, Vidisha, Shajapur, Raisen, Sehore, Satna, Damoh, Tikamgarh, Rewa, Datia, Bhind, Hoshangabad

Chart 10.3: Disparities in Health Expenditure at District Level.

	Health Index Below State Average	Health Index Above State Average
Per Capita State Expenditure on Health Below State Average	BOX 1 Panna, Damoh, Singroli, Sidhi Satna, Sheopur, Dindori, Anuppur Datia, Tikamgarh, Khandwa, Burhanpur, Balaghat, Alirajpur Jhabua, Shivpuri, Umaria, Chhatarpur, Ashoknagar, Guna Vidisha	BOX 3 Katni, Chhindwara, Seoni, Harda Sehore, Ratlam, Mandsour Khargone, Rajgarh, Murena Dhar, Bhind, Dewas, Betul Shajapur, Neemach
Per Capita State Expenditure on Health Above State Average	BOX 2 Shahdol, Sagar, Mandla Rewa, Raisen	BOX 4 Badwani, Narsinghpur, Ujjain Hoshangabad, Jabalpur, Gwalior Indore

Disparities in health expenditure and outcome in health sector (See Chart 10.3) are similar to that of education sector. There are 21 districts which are below the state average in health outcomes and having lower than state average per capita expenditures. Of these 21 districts Singroli, Alirajpur, Shivpuri, and Ashoknagar are some of the districts having very low per capita expenditures. The common conclusion from this classification is that the State government need to increase expenditure on health in general and with higher emphasis on these 21 districts in Box 1 of the Chart 10.3.

With a simple technique of achievement levels in MDG targets and existing level of public expenditure at district level, an attempt has been made to estimate the additional spending required to meet the MDGs in short run. While there is a methodology developed by United Nations to undertake MDG Needs Assessment, such methodology has its own limitations when it is used at sub-national (more so at district) level. The methodology that is adopted her, in the absence of relevant tools, is at best indicative.

It is clear from the earlier sections that level of expenditure in per capita terms is lower in Madhya Pradesh. Here, we divided the existing level of expenditure by the overall achievement of MDG goals in that district and multiplied by 100 to get the total fund required for achieving the MDG goals fully. The gap between the estimated expenditure for achieving the MDGs and actual expenditure in 2012-13 is termed as MDG Resource Gap. The total expenditure by the state government including human development sectors and the human developmental sectors has been estimated separately for each district and summed up for the state total.

From table 10.7, the estimates suggest that the state has a whole has a resource gap of around 30%. At the district level, which is presented below in the map (Map 10.1) there are some districts where one has to double the expenditure in human developmental sectors. Prominent among the districts which require doubling of the human developmental expenditure are 1) Dindori, 2) Sidhi, 3) Singrauli, 4) Panna, 5) Umaria, 6) Satna, 7) Shahdol, 8) Alirajpur, 9) Anuppur, 10) Damoh, 11) Sheopur, and 12) Mandla. It is clear from the map that all these districts are border districts mainly with Uttar Pradesh and Chhattisgarh with an exception Alirajpur bordering with Gujarat. However, majority of the districts have a resource gap between 25% to 40%. This, given that the terminal year of MDG is very close, suggest that there is a large under-spending on MDGs leading the state classified as off-track in most of the MDG indicators.

The main thrust of this chapter is to understand the pattern of public expenditures and its relationship with the human development outcomes at the district level. Given the data limitations at the district level, the analysis is limited to only education and health sectors. The overall analysis suggest that increase in human development expenditure is only a necessary but not sufficient enough to attain the human development goals. In other words, an increase in health expenditure alone

is not expected to help in achieving the targets. Together with health expenditures, there is a need for higher investments in other economic sectors such as infrastructure sectors like roads, water supply and energy. Such investments compliment the social sector expenditure and could lead to better developmental outcomes.

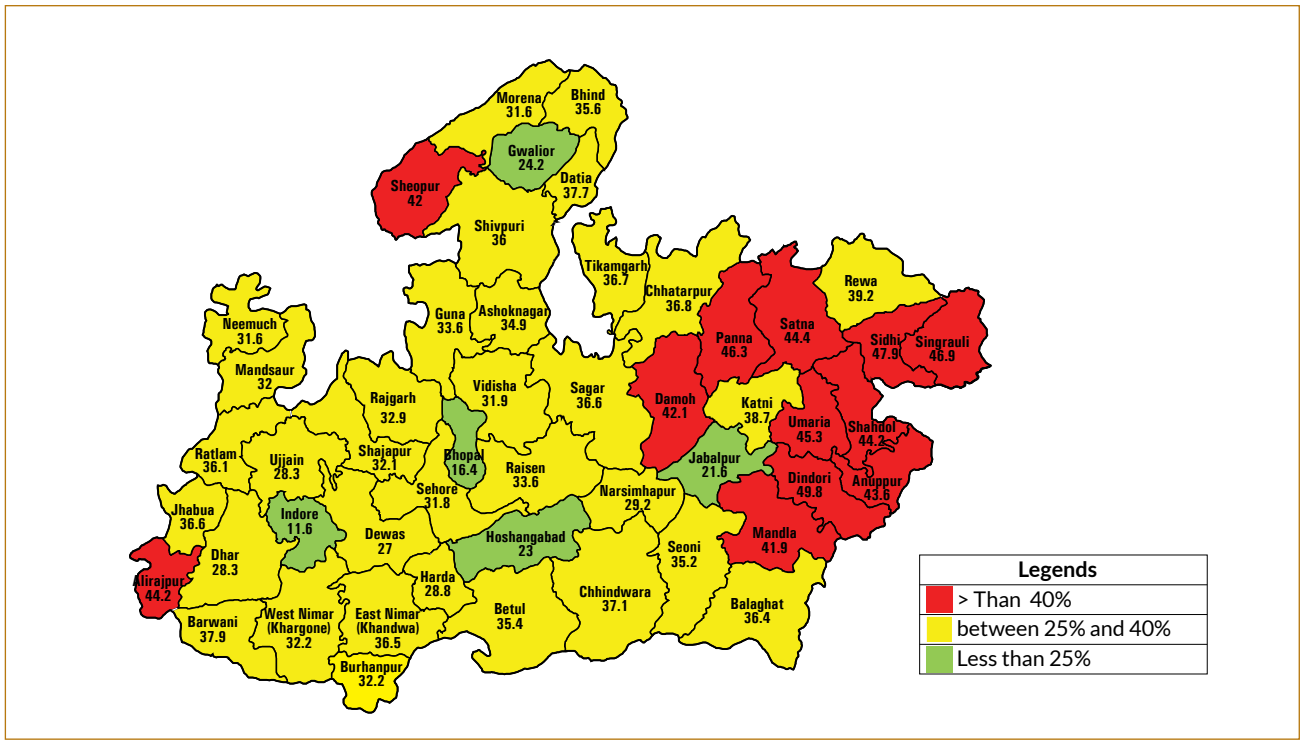
Inter district variations favouring the districts with better human developmental indicators is a worrying factor. It is time for the State government to divert its funds towards districts lagging behind in human development. The districts with lower per capita expenditures and lagging in human development achievements need a special attention in improving the services by increasing public expenditures along with other innovative interventions. To identify the districts in which the states need to spend more, MDG resource gap measures are estimated and identified atleast twelve districts where there is a need to double the social sector expenditures in order to achieve the MDG goals in those districts. But the majority of districts found to have a resource gap of between 25 to 40 percent, which is very huge, given the terminal year of MDGs are very close.

Table 10.7: Estimates of MDG Resource Gap for Madhya Pradesh

	Total Expenditure (Rs. Crore)	Human Developmental Exp (Rs. Crore)	State Expenditure (in per cent)	Human Developmental Exp (in per cent)
Actual Expenditure in 2012-13	52834	29870	72.85	70.89
Additional Expenditure Required	19691	12265	27.15	29.11
Total Expenditure needed for Achieving MDGs	72526	42135	100	100

Source: Authors' Calculations

Map 10.1: Additional Human Expenditure (% Increase) required for Achieving MDGs



Source: Authors' calculations

Annexure Table 10.1: Per Capita Expenditures on Human Development in Madhya Pradesh (%)

Per Capita Expenditure	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total Expenditure	3300	3132	3504	4081	4590	5692	6810	8028	9296
Human Developmental Expenditure	900	1102	1268	1490	1701	2036	2679	3042	3643
Priority Expenditure	532	656	783	911	997	1184	1577	1762	2081
Education, Arts, Sports and Culture	324	367	461	478	621	777	1014	1172	1286
Elementary education	217	251	304	293	385	486	648	733	785
Health, Family Welfare and Nutrition	130	140	168	191	200	265	370	423	523
Water Supply and Sanitation	59	84	72	115	123	113	137	148	169
Poverty Alleviation	127	187	240	318	294	323	422	457	604
Housing	12	10	14	18	24	26	34	39	50
Other Welfare Schemes	248	314	312	372	439	533	702	802	1011
Social Expenditure Ratio	27.27	35.20	36.18	36.52	37.06	35.77	39.34	37.89	39.19
Social Priority Ratio	59.11	59.53	61.76	61.14	58.62	58.14	58.87	57.92	57.12

Source: Same as Table 10.2

Annexure Table 10.2: Share of Human Development Expenditure in Total Expenditure (%)

Per Capita Expenditure	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total Expenditure	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Human Developmental Expenditure	27.27	35.20	36.18	36.52	37.06	35.77	39.34	37.89	39.19
Priority Expenditure	16.12	20.95	22.35	22.33	21.72	20.80	23.16	21.95	22.38
Education, Arts, Sports and Culture	9.83	11.73	13.15	11.70	13.53	13.65	14.89	14.60	13.83
Elementary education	6.56	8.03	8.67	7.18	8.38	8.54	9.51	9.13	8.44
Health, Family Welfare and Nutrition	3.94	4.48	4.79	4.67	4.37	4.65	5.44	5.27	5.62
Water Supply and Sanitation	1.78	2.67	2.07	2.82	2.67	1.98	2.01	1.85	1.82
Poverty Alleviation	3.84	5.98	6.85	7.79	6.41	5.67	6.20	5.70	6.50
Housing	0.37	0.32	0.41	0.44	0.52	0.45	0.50	0.49	0.54
Other Welfare Schemes	7.50	10.03	8.91	9.10	9.56	9.37	10.31	9.99	10.88

Source: Same as Table 10.2

Annexure Table 10.3: Per Capita Expenditures (Rupees) in 2011-12 and Outcome Indicators

	Elementary Education (Rs)			Health and Nutrition (Rs)			Total Human Dev. Exp. (Rs.)	Total Exp. (Rs.)	Outcome Indicators		
State	SSA	State	Total	NRHM	State	Total			Retention Rate (%) 2011-12	IMR (per 1000 live births) 2012	Institutional deliveries (%) 2009
Andhra Pradesh	297	780	1078	83	959	1043	6582	13171	86.27	41	95.6
Assam	226	1254	1480	336	647	983	5108	10013	63.09	55	65.5
Bihar	299	607	906	117	291	407	2979	6225	85.59	43	53.2
Chattisgarh	345	1339	1684	197	580	778	6366	11450	91.31	47	56.4
Goa	47	1052	1099	153	2297	2450	15096	37226			99.8
Gujarat	157	1214	1371	129	854	983	6106	12725	89.54	38	85.2
Haryana	197	1287	1484	113	540	652	6618	14994	96.77	42	69.3
Himachal Pradesh	257	2531	2788	219	1293	1512	10162	24157	99.81		53.7
Jharkhand	266	958	1224	203	417	620	4057	8142	76.51	38	47.3
Karnataka	125	1015	1140	128	663	791	6130	14003	97.43	32	88.4
Kerala	49	1104	1154	123	835	959	6017	14821		12	99.9
Madhya Pradesh	357	857	1214	92	494	586	4407	9833	96.36	56	82.9
Maharashtra	105	1223	1328	131	683	814	6111	12714	96.79	25	85.5
Orissa	296	925	1221	178	488	665	4972	10153	87.14	53	79.1
Punjab	176	449	625	137	620	757	4376	12778	87.61	28	66.7
Rajasthan	374	995	1369	154	653	806	5115	9387	73.63	49	75.8
Tamilnadu	113	932	1045	135	971	1106	7143	15386		21	98.6
Uttarpradesh	205	857	1061	99	331	430	3582	7517	82.85	53	64.2
West Bengal	239	700	939	100	520	620	4833	8836	74.69	32	72.6

Source: Same as Table 10.2 and Official websites of SSA and NRHM.

Annexure Table 10.4: Social Expenditure Ratio (in percentage)

State	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Andhra Pradesh	36.43	35.75	39.09	37.36	34.47	35.37	35.17	41.73	38.44	42.13	41.64	40.71
Assam	42.24	42.18	42.67	42.56	40.43	43.40	43.44	44.62	43.19	46.45	44.82	
Bihar	35.47	37.32	31.64	36.05	40.21	42.62	46.17	45.86	44.71	39.90	41.13	44.99
Chattisgarh	44.06	40.18	34.38	37.48	41.83	45.77	42.16	47.14	49.39	47.43	49.88	46.13
Goa	23.86	29.10	33.21	33.72	31.74	32.53	32.21	33.39	33.42	34.60	34.44	
Gujarat	39.91	34.05	32.55	34.89	35.05	35.69	36.65	36.93	40.52	42.19	40.95	41.57
Haryana	29.52	31.15	26.83	29.72	33.35	33.33	34.45	36.83	39.43	40.63	40.05	39.25
Himachal Pradesh	36.21	32.37	36.60	35.97	38.29	37.84	37.65	38.13	36.48	37.33	36.37	37.33
Jharkhand	44.74	39.77	39.93	40.91	33.48	44.50	45.51	50.48	43.72	46.31	43.98	42.64
Karnataka	35.38	34.58	32.13	30.86	32.58	33.07	36.98	38.12	40.56	40.86	38.86	40.02
Kerala	39.43	40.24	33.92	40.66	38.43	31.92	32.44	34.38	33.96	34.01	35.03	34.89
Madhya Pradesh	39.49	39.69	31.03	27.27	35.20	36.18	36.52	37.06	35.77	39.34	37.89	39.19
Maharashtra	36.54	34.18	35.38	33.88	36.11	37.74	38.17	37.45	40.67	42.43	42.66	44.17
Orissa	34.96	36.35	33.00	34.25	36.97	35.20	39.29	42.04	40.52	42.51	43.28	42.13
Punjab	23.51	21.49	20.18	21.25	20.64	22.10	20.93	25.01	25.10	24.01	28.72	
Rajasthan	42.92	41.67	40.38	41.35	42.12	42.72	43.19	48.29	47.43	45.67	46.15	44.89
Tamilnadu	38.30	34.17	38.17	37.89	37.88	35.15	37.23	39.56	41.37	41.15	40.03	40.35
Uttarpradesh	32.40	34.74	27.21	32.01	36.70	35.35	36.00	38.82	38.27	41.00	42.23	40.98
West Bengal	37.17	34.73	31.39	32.85	35.50	36.51	40.11	39.65	46.04	46.98	47.95	47.26

Source: Same as Table 10.2

Annexure Table 10.5: Social Priority Ratio across Indian States (in percentage)

State	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Andhra Pradesh	55.47	50.82	47.77	48.94	50.96	48.85	44.74	42.99	41.97	41.91	42.00	40.26
Assam	64.58	62.76	63.48	58.93	61.36	61.95	60.69	64.96	60.13	59.49	59.72	
Bihar	69.78	70.85	68.91	65.47	68.11	69.88	66.55	60.92	65.40	60.91	57.34	61.99
Chhattisgarh	52.23	51.98	54.28	56.57	55.34	49.56	56.30	50.69	46.79	53.06	51.73	52.91
Goa	53.10	50.39	49.31	47.32	48.17	45.94	44.68	48.71	46.90	44.23	47.26	
Gujarat	37.41	51.71	49.33	52.63	50.89	50.77	50.92	47.13	46.64	52.19	52.51	49.79
Haryana	51.99	54.35	54.77	54.33	52.12	52.60	51.50	54.54	51.18	50.81	52.52	54.35
Himachal Pradesh	65.66	64.62	68.10	63.75	60.60	66.64	65.38	63.70	64.92	63.86	62.47	61.80
Jharkhand	63.93	64.20	65.41	69.96	66.84	64.40	62.24	59.60	66.16	71.02	69.88	64.65
Karnataka	52.26	51.20	50.19	53.20	52.18	48.63	48.51	49.02	42.64	42.41	44.69	45.47
Kerala	54.21	52.93	53.40	52.29	53.02	46.67	40.74	40.75	44.64	43.33	43.13	40.89
Madhya Pradesh	56.93	52.54	56.38	59.11	59.53	61.76	61.14	58.62	58.14	58.87	57.92	57.12
Maharashtra	55.86	50.38	51.44	52.02	49.21	47.26	44.41	43.35	43.12	44.23	44.03	44.61
Orissa	56.90	58.21	55.23	57.68	53.73	52.69	56.09	57.56	55.36	51.34	49.17	51.42
Punjab	41.75	44.74	41.92	41.46	41.49	38.01	38.87	33.02	35.90	37.82	38.74	
Rajasthan	63.15	63.07	58.57	62.82	65.60	63.20	65.95	65.75	65.68	64.23	63.82	62.22
Tamilnadu	52.88	51.35	47.71	50.42	44.60	46.56	43.90	41.97	46.69	45.09	41.49	38.90
Uttarpradesh	66.80	59.01	63.44	58.33	62.59	60.12	56.98	53.81	54.63	54.72	54.97	54.19
West Bengal	48.20	47.26	47.38	48.70	50.45	48.66	48.86	45.19	43.90	43.67	43.22	43.80

Source: Same as Table 10.2

Annexure Table 10.6: Expenditure on Elementary Education (Per capita) in Rupees

	Current Prices				2004-5 Prices			
State	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Andhra Pradesh	489	781	1078	1329	352	512	669	761
Assam	1002	1227	1480	715	729	815	927	
Bihar	735	783	906	1997	510	501	534	1072
Chattisgarh	1230	1510	1684	2607	883	998	985	1419
Goa	967	1020	1099	191	639	683	687	
Gujarat	858	1248	1371	1903	665	880	912	1213
Haryana	1259	1335	1484	2164	858	839	879	1190
Himachal Pradesh	2083	2706	2788	3316	1551	1839	1799	2001
Jharkhand	1169	1423	1224	1769	897	1001	844	1172
Karnataka	897	1101	1140	1581	658	731	708	909
Kerala	734	861	1154	1272	562	620	768	808
Madhya Pradesh	851	1181	1214	1478	627	799	761	853
Maharashtra	1036	1235	1328	1561	807	874	879	974
Orissa	1038	1191	1221	1630	738	755	739	896
Punjab	426	472	625	379	299	308	383	
Rajasthan	1079	1201	1369	1662	756	756	761	848
Tamilnadu	803	835	1045	1271	597	576	678	765
Uttarpradesh	687	774	1061	1473	482	511	648	835
West Bengal	674	947	939	1553	493	634	575	875

Source: Same as Table 10.2

Annexure Table 10.7: Per capita Expenditure on Health and Nutrition in Rupees

	Current Prices				2004-5 Prices			
State	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Andhra Pradesh	495	706	864	890	355	463	536	510
Assam	1089	1482	1590	395	792	985	997	
Bihar	595	701	724	1061	413	448	427	570
Chattisgarh	1042	1276	1536	1690	748	843	898	920
Goa	999	1042	1205	163	660	697	753	
Gujarat	898	1255	1343	1465	696	885	894	934
Haryana	1216	1318	1400	1816	829	828	829	999
Himachal Pradesh	2209	2629	2750	3135	1646	1787	1774	1892
Jharkhand	843	1038	1161	1117	647	730	800	740
Karnataka	885	1026	1144	1371	649	681	710	788
Kerala	790	898	1228	1271	605	647	817	807
Madhya Pradesh	681	902	949	1067	501	610	595	615
Maharashtra	1033	1226	1354	1479	805	867	896	923
Orissa	920	994	1103	1138	654	630	667	625
Punjab	394	467	586	132	277	305	360	
Rajasthan	952	1052	1149	1246	667	663	638	636
Tamilnadu	789	958	1067	1097	587	660	693	660
Uttarpradesh	630	805	956	1064	442	531	584	603
West Bengal	573	718	801	853	419	481	490	480

Source: Same as Table 10.2

Annexure Table 10.8: Total Human Developmental Expenditure (Per capita) in Rupees

	Current Prices				2004-5 Prices			
State	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Andhra Pradesh	3794	4870	5706	6413	2726	3191	3541	3673
Assam	3863	4281	4798	1110	2809	2844	3007	
Bihar	2174	2373	2805	4172	1510	1518	1655	2240
Chattisgarh	4523	4876	5983	7343	3247	3222	3498	3997
Goa	10734	12072	12952	354	7093	8083	8098	
Gujarat	4165	5093	5380	6993	3227	3590	3581	4459
Haryana	5258	5523	6191	7226	3585	3470	3666	3975
Himachal Pradesh	7521	9329	9089	10843	5602	6342	5864	6543
Jharkhand	3020	3720	3843	4654	2318	2615	2650	3083
Karnataka	4408	5075	5596	6619	3233	3370	3476	3803
Kerala	3463	4010	5305	6206	2651	2886	3531	3941
Madhya Pradesh	2793	3710	4004	4951	2057	2509	2511	2857
Maharashtra	4355	4960	5558	6389	3394	3508	3678	3986
Orissa	3329	4077	4662	5330	2367	2583	2822	2928
Punjab	2820	3280	3894	511	1980	2141	2389	
Rajasthan	3698	3888	4616	5607	2591	2449	2564	2860
Tamilnadu	4408	5434	6307	7244	3277	3748	4096	4356
Uttarpradesh	2534	2880	3350	3881	1779	1902	2045	2199
West Bengal	3492	3937	4413	5468	2556	2638	2702	3080

Source: Same as Table 10.2

Annexure Table 10.9: Total Expenditure (Per capita) in Rupees

	Current Prices				2004-5 Prices			
State	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Andhra Pradesh	9585	11231	13171	14785	6886	7358	8173	8468
Assam	8388	8682	10013	1110	6100	5768	6275	
Bihar	4476	5372	6225	7817	3109	3435	3674	4196
Chattisgarh	8758	9739	11450	14352	6289	6434	6694	7813
Goa	31743	34530	37226	354	20978	23119	23276	
Gujarat	10015	11743	12725	15867	7759	8277	8470	10117
Haryana	12837	13236	14994	17456	8754	8317	8878	9603
Himachal Pradesh	19966	24044	24157	27731	14873	16344	15585	16734
Jharkhand	6326	7305	8142	9680	4856	5136	5614	6412
Karnataka	10509	11967	14003	15830	7708	7947	8699	9095
Kerala	9869	11428	14821	17228	7554	8225	9866	10941
Madhya Pradesh	7126	8572	9833	11514	5247	5798	6165	6644
Maharashtra	10428	11370	12714	13990	8127	8042	8413	8728
Orissa	7570	8882	10153	11484	5382	5627	6144	6310
Punjab	10609	12863	12778	511	7447	8397	7840	
Rajasthan	7320	7924	9387	11588	5129	4990	5214	5911
Tamilnadu	10343	13030	15386	17346	7689	8987	9991	10431
Uttarpradesh	6163	6682	7517	8606	4326	4411	4589	4876
West Bengal	7272	7909	8836	10546	5323	5299	5409	5941

Source: Same as Table 10.2

This chapter consists of summary and conclusions of the MDG Report on Madhya Pradesh.

Goal 1: Eradicating Extreme Poverty and Hunger

Overall poverty in Madhya Pradesh has declined, but it remains above the MDG target. During the 1990s there was an upturn in poverty; the gains in poverty alleviation are more recent and confined to the past decade. The poverty gap ratio indicates that many among the poor are very poor in MP. Among the vulnerable groups, the situation of tribals (ST) and dalits (SC) is still a great cause for concern and needs focussed policies.

Madhya Pradesh is clearly off-track in terms of achieving the MDG target for nutrition. The gap between MDG target and the projection for 2015-16 in case of the state is based on the latest available trend is as high as 13%. According to independent surveys, prevalence of severe underweight is one of the highest in Madhya Pradesh amongst all Indian states.

Madhya Pradesh has chosen a growth-oriented strategy supported by public allocations for agriculture and allied activities for its development path. Agriculture driven growth

Summary and Conclusion

CHAPTER 11

and MGNREGS have been the major anti-poverty strategies. Public policy has largely failed to address the issue of malnourishment in children. Reforms of PDS and ICDS, with higher public allocations, could contribute to reversing the situation. Food security bill, ensuring minimum food entitlement for all, is especially relevant for the state.

Goal 2: Universalization of Primary Education

MDG 2 targets are fairly simple given the universalization of elementary education as a fundamental right for children of 6-14 age group. However, Madhya Pradesh is likely to miss these seemingly easy targets. Net enrolment rate at the primary level after peaking to 95% has shown marginal decline. Retention rate, an indicator of continuity in schooling has not crossed 75% in MP. Literacy among youth between 15-24 years is increasing at a very slow pace. Going by this trend, it is very likely that the state could miss the MDG target of 100%.

Quality of education has been of great concern in the state. One of the prime reasons for quantity sans quality is the massive teacher shortage and its uneven distribution in the state. Low public expenditure on education out of state budget (compared to EAG states) and greater reliance on SSA appears to be the pattern in Madhya Pradesh. With 14th Finance Commissionecommendations and greater devolution of untied funds, the state has much greater freedom to fix its priorities. Greater attention and allocations to elementary education are possible and essential for the state.

Goal 3: Promote Gender Equality and Empower Women

Madhya Pradesh holds the distinction of being the first state in the country to introduce gender responsive budgeting in 2007-08. Despite the increase in number of departments under gender budgeting from 13 in 2007-08 to 25 in 2013-14, indicators such as Child sex ratio, GPI of primary and secondary classes and share of women in

wage employment in non-agricultural sector are worsening over time. Effective monitoring mechanism of gender budget is found be absent in the state.

Gender Parity Index (GPI) for primary grades has shown a declining trend off-late, although the state was almost close to the target in the mid-2000s. Gender Parity Index (GPI) in secondary education (Grades IX-X) and tertiary education is also far from parity and unlikely to meet the MDG target. There exists huge disparity in women's participation vis-a-vis men in the non- agricultural sector. This trend is similar in the case of women's political participation. The performance of Madhya Pradesh is below EAG average for almost all the indicators of gender equality, except for ratio of literate women to men (7 years & above) and share of wage employment in the non-agricultural sector.

Goal 4: Reduce Child Mortality

All indicators under this goal are off-track in the case of Madhya Pradesh. Under five mortality rate and infant mortality rate both show a declining trend but at a low rate. Going by this trend, it is more likely to miss the MDG target. The state is likely to fall short of full immunization against measles by 6 per cent.

Neo-natal mortality rate is higher than post neo-natal mortality rate in Madhya Pradesh, in both rural and urban areas. Hence, neo-natal mortality accounts for high IMR in MP. Madhya Pradesh accounts for 10.5% of the U5MR in India as per 2012-13(Share of MP in total population of age 0 to 5 years is 6.6%) and with respect to IMR, MP's share accounts for more than 9% in India (Share of MP in total population of age 0 to 1 is 6.8%). Within EAG states, Madhya Pradesh is the second worst performing state in terms of both U5MR and IMR in 2012-13. Gender and sectoral analysis of U5MR and IMR shows that the indicator is skewed towards female child in Madhya Pradesh and is higher in rural areas as compared to urban areas.

In the absence of corresponding human resources, adequate labour rooms, functional new born care units, neo-natal and post neo-natal mortality rates cannot be improved. Reforms in the health sector needs to address efficient increase on health sector and focus on preventative health care, ensure greater access to health care by the poor, and significantly improve the productivity of public spending.

Goal 5: Improve Maternal Health

MMR in the State is decreasing but at a slow pace and is off-track. Proportion of births attended by skilled health personnel is showing a steep rise and is likely to meet the MDG target. However, a fall in number of mothers receiving ANC is an issue of concern as maternal health care is highly correlated to better ANC.

Janani Suraksha Yojana (JSY) has been successful in increasing institutional deliveries but these deliveries do not guarantee a decrease in maternal mortality ratio without having access to proper health infrastructure and sufficient health man power in hospitals. The shortages of obstetricians & gynecologists are found to be increasing over time in the State. An increase in institutional deliveries will imply a reduction in the MMR only when it is supported by adequate man-power, health infrastructure, adequate training of ANMs, etc.

Goal 6: Combat HIV/AIDS, Malaria and other diseases

Madhya Pradesh is one of low HIV prevalent state and is not among the high focus states of National AIDs Control Programme. The spread of HIV is limited to seven districts and concentrated efforts in these districts should restrict the spread and incidence of HIV. Major influencing factor of HIV spread in Madhya Pradesh is sexual transmission and not due to drug injection or blood transfusion. High prevalent districts are the border districts of the state and could be largely due to migration. With spread of awareness of condom use, the state can restrict the increase in the prevalence of HIV. Although condom use rate has increased during various NFHS rounds, it is not very significant compared to neighboring state of Uttar Pradesh.

Decline in malaria incidence rate in recent past is a positive sign. The Incidence rate in the state was lower than all India average. But recently the decline in incident rate of malaria in MP is lower than all India average and the state's incidence rate appears to increase the national burden. Additional efforts are needed to bring this below the national average. In terms of TB, prevalence rate in Madhya Pradesh is fluctuating and is at national average levels as of now. However, the fluctuating trend also reflects that the state is at

high risk and needs to be prepared for effective implementation of the central programme.

All the disease control programmes, both communicable and vector borne, are majorly strategized and supported by the Government of India through centrally sponsored programmes. The technology and treatment drugs are supported by the centre. An effective administration and implementation of these schemes, which is in state government domain, could result in restricting the incidence and deaths associated with these diseases. The state government needs to supplement the central assistance through human resources, purchase of drugs and equipment.

Goal 7: Ensure Environmental Sustainability

Forest cover as percentage of total geographical area in Madhya Pradesh is declining, although this has been reversed recently. Solid fuel use, measured by proportion of households using solid fuels, has registered very slow decline in the state considering a decade of development. Even after various policy measures, the usage of solid fuels in the state is higher compared to national average.

Percentage of households with access to drinking water within premises and tap water has declined between 2001 and 2011. This is a matter of grave concern. Also, close to 70% of households in Madhya Pradesh are going to lack access to proper sanitation even in 2015. The share of slum population in total urban population has been rising in the state whereas the same is declining at all India level.

All the indicators without targets in goal 7 are trending in the wrong direction except for proportion of households using solid fuels. Several public policies that have been in place to tackle these problems have failed to reverse the adverse trends of these indicators.

MDG 8: Develop a Global Partnership for Development

Reach of communication technology is fast spreading throughout the country as well as in Madhya Pradesh. However, in the case of percentage of internet subscribers, Madhya Pradesh is way behind the national average.

Inter-district analysis

The inter-district analysis of MDGs for Madhya Pradesh shows substantial heterogeneity in achievements of MDGs across districts within an overall picture of shortfall from state-level targets. There are clear patterns of clustering with a large number of districts located in the eastern corner of the state performing poorly in majority of the indicators. In education, the number of districts on the western end of the state have huge MDG gaps. A group of districts in the northern part of the state have very low scores on gender equity. Along with the tribal characteristic, the spatial characterization of backwardness emerges strongly.

There is a strong correlation among a number of MDG indicators which shows the inter- connection of the MDG targets. Significantly, facilities such as drinking water and sanitation, where the gaps are very substantial across the state can impact not only MDG 7 outcomes but crucially outcomes of children's health and maternal health, children's nutrition and education. Public policy has to take cognizance of the synergies among the various targets.

A regressive trend is the low gender equity in districts with higher literacy levels and in non-tribal districts. It must be seen that gender equity improves alongwith other MDG targets.

Public expenditure and Human Development

Per-capita expenditure on Human development in Madhya Pradesh is much lower than all EAG states except Bihar, Uttar Pradesh and other non-EAG states except Punjab. With huge population, Madhya Pradesh needs to increase its expenditure on Human developmental sectors in particular health sector to improve the human resources and other infrastructure at state level.

Increase in human development expenditure is only a necessary but not sufficient enough to attain the human development goals. For example, increase in health expenditure alone is not expected to help in achieving the targets. Together with health expenditures, there is a need for higher investments in other economic sectors such as infrastructure sectors like roads, water supply and energy. Such investments compliment

the social sector expenditure and could lead to better developmental outcomes.

Inter district variations favouring the districts with better human developmental indicators is a worrying factor. It is time for the State government to divert its funds towards districts lagging behind in human development. The districts with lower per capita expenditures and lagging in human development achievements need a special attention in improving the services by increasing public expenditures along with other innovative interventions.

In terms of MDG Resource Gap, the report suggest that at the state level, there is a need to increase the social sector expenditure by at least 30 per cent. But at the district level, the results suggest that nearly 12 districts needs to spend at least twice as much as they are spending at the moment on the social sector expenditures in order to achieve the MDGs by the end of 2015. The districts are 1) Dindori, 2) Sidhi, 3) Singrauli, 4) Panna, 5) Umaria, 6) Satna, 7) Shahdol, 8) Alirajpur, 9) Anuppur, 10) Damoh, 11) Sheopur, and 12) Mandla. Interestingly, most of these districts are clustered in the eastern region of the state and MDG localization strategy might be effective in improving the MDG outcomes in the state.

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Appendix 1

Methodology for tracking the progress of selected indicators in achieving the millennium development goals (MDGs):

To answer the query, "Will the MDG targets be achieved by 2015?" the standard method used has been to assess current trends in the indicators in relation to the MDG target.

The 1990 levels are compared to the most recent levels to determine if improvement has occurred, and extrapolations of 1990 to present trends are used to determine if the world or a specific region or country is likely to meet the mark by 2015. On this basis, performance is evaluated as being 'on track' or not. For example, the UN Monitor applies this method at the country level to assess performance and classifies countries in four categories: (i) achieved; (ii) on track, very likely to be achieved; (iii) possible to achieve if some changes are made; and (iv) off track (UNICEF,2011).

Other major international institutions use the same approach to measuring progress. The World Bank's 2011 Global Monitoring Report is structured around whether the goals at the country, regional, or global levels are likely to be achieved by 2015 depending on the distance to the target. Countries are categorized by assessment of whether the country trends are: 'on target', 'close to the target', or 'far from the target' (World Bank 2011).

Similar to previous methods, UNESCAP also places each country or country group into one of four categories based on trends of progress since 1990 for selected indicators:

Early achiever – Already achieved the 2015 target, On track – Expected to meet the target by 2015, Off track: slow – Expected to meet the target, but after 2015, Off track: no progress and regressing – Stagnating or slipping backwards.

UNESCAP uses two different procedures to determine the categories depending on whether or not an indicator has an explicit target value for 2015.For indicators without such a target value, where targets are specified in terms of reversal of the trend, such as HIV prevalence, TB prevalence, TB death rate, forest cover, protected area, CO2 emissions and consumption of ozone-depleting substances, only three of the four categories are used: indicators trending in the 'right' direction since 1990 are categorized as Early achievers; indicators showing no change at all over the period are categorized as On track; and finally indicators trending in the 'wrong' direction are categorized as Off track-No progress/regressing.

For indicators with an explicit target value, poverty, mortality rates, etc, all four categories are used.

Extrapolation or Projection Methodology

Statistical projections of indicators are made to estimate the likely achievement of respective indicators by 2015. There are certain indicators which are expected to improve over time if they decline over the period and some are expected to perform better if they increase over time. E.g. Child mortality is expected to fall over time and literacy rate is expected to increase over time. Following the methodology of UNDP and ADB, the same method has been adopted for estimating trends of both increasing and decreasing indicators.

The projections for increasing indicators (indicators in which a higher level is better) are based on a linear model of the average rate of change between two data points. The formula is as given below:

$$PV_{2015} = RYV + q * (FY - RY)$$

where $q = (RYV - EYV)/ (RY - EY)$

PV_{2015} = Projected value for 2015

RYV = Value (observed) of an indicator in recent year

EYV = Value of an indicator prior to recent year[44]

FY = Year for which value is to forecasted

RY = Recent Year

EY = Year prior to recent year

For decreasing indicators, the formula is

$$PV_{2015} = RYV * r^{(FY - RY)}$$

Where $r = (RYV/EYV)^{[1/ (RY - EY)]}$

Where "r" represents the average growth rate between RYV and EYV, calculated as a slope that declines at a decreasing rate. This method takes into account that indicators will often improve at decreasing rates.

[44] *EYV is the observed value of an indicator prior to the latest year. Depending on the data availability the prior year or EY might be at an interval of 1 year, 2 years or 3 years or more.*

Appendix 2

Methodology for Construction of Indices

In general, the standard HDI methodology has been followed for calculation of indices. According to this methodology, for a given indicator,

$$\text{Index} = \left(\frac{\text{actual value-worst value}}{\text{target value-worst value}} \right) X\ 100 \quad ...(1)$$

By 'target value' here, we mean the MDG target value of the indicator in question. This will enable us to get idea about how far each district is from the MDG target with respect to each selected indicator. By 'worst value' we mean the minimum value of the indicator in question. All indices are expressed here in terms of positive outcomes with higher values denoting higher welfare levels.

Transformations of indicators to indices

- For many of the series where the indicators are expressed in percentage terms like literacy rate and retention rate, and the target value is 100%, no transformation is required. The indicator could be directly expressed as an index.
- For certain other cases, where the indicators are negative indicators like percentage of households using solid fuels where the desirable value is zero, the indicator is transformed into a positive indicator by

  Index = 100 - actual % value

- For series that are not expressed in percentage terms, formula (1) above was applied to standardize it on a scale of 0-100.

Example: Child sex ratio is expressed as number of females to 1000 males in the age group 0-6 years. Sidhi district's child sex ratio in 2011 was 914. Target value of child sex ratio is 1000 as that would mean perfect equity. The worst performing district with child sex ratio of 801 in 2011 was Bid (Maharashtra). Hence,

Child Sex Ratio index =

$$\left(\frac{914(\text{actual value})-801(\text{worst value})}{1000(\text{target value})-801(\text{worst value})} \right) * 100 = 56.78$$

For the worst value in the above example one could have used zero instead on 801 (the score of Bid district). However, in closely located observations (i.e. where the observations are bunched) using the worst score of 801 helps magnify the scale. Wherever, the problem of clustering was observed, the worst value has been taken as the observed worst value rather than the normative one.

Table A1 below gives the transformation of each of the 16 indicators into indices.

Once indicators are transformed into indices, the next step is to aggregate these into respective MDG indices as mapped in Table A2 below. All the indicators have been assigned equal weights for computing the goal specific indices. Further, for construction of overall index, equal weights have been assigned to each of the six millennium development goals. This is consistent with the view that all the goals have been envisaged to be equally important in the Millennium Development Project.

Table A1

Indicators	Methodology
1. % of population living below poverty line	$\text{Index} = \left(\frac{\textit{actual value} - 100}{\textit{MDG target} - 100}\right) * 100$ **Example:** In Alirajpur district, 42.81% of population was living below poverty line in 2011-12. The MDG target here is 21.8. In this case index = {(42.81-100)/(21.8-100)}*100 = 73.14.
2. Underweight children under 5 years	$\text{Index} = \left(\frac{\textit{actual value} - 100}{\textit{MDG target} - 100}\right) * 100$ **Example:** In Betul district, in 2010-11, 43.2% of 0-5 year children were underweight. MDG target here is 21.9. In this case index = {(43.2-100)/(21.9-100)}*100 = 50.19.
3. Retention Rate	Index = actual % value
4. Overall Literacy Rate	Index = actual % value
5. Under 5 mortality rate	$\textit{Index} = \left(\frac{\textit{Actual score} - \textit{worst value}}{\textit{MDG target} - \textit{worst value}}\right) * 100$ Kandhamal District of Orissa registered the highest U5MR of 139 in 2012-13 . MDG target is 49. **Example**: Dewas district had U5MR of 76 in 2012-13. Hence, $\text{index} = \left(\frac{76 - 139}{49 - 139}\right) * 100 = 70.$
6. Infant Mortality Rate (IMR)	$\textit{Index} = \left(\frac{\textit{Actual score} - \textit{worst value}}{\textit{MDG target} - \textit{worst value}}\right) * 100$ Balangir District of Orissa registered the highest IMR of 97 in 2012-13 . MDG target is 37. **Example:** Guna district had IMR of 75 in 2012-13. Hence, $\text{index} = \left(\frac{75 - 97}{37 - 97}\right) * 100 = 36.67.$
7. Proportion of one year old children immunised against measles	Index = actual % value

[45] *From http://www.censusindia.gov.in/Vital_Statistics/AHSBulletins/AHS_Bulletin_2012-13_Presentation.pdf*
[46] *From http://www.censusindia.gov.in/Vital_Statistics/AHSBulletins/AHS_Bulletin_2012-13_Presentation.pdf*
[47] *From http://www.censusindia.gov.in/Vital_Statistics/AHSBulletins/AHS_Bulletin_2012-13_Presentation.pdf*
[48] *From http://censusindia.gov.in/2011-prov-results/data_files/maharastra/Census%20of%20India%202011- Brief%20analysis.pdf*

Indicators	Methodology
8. Maternal Mortality Ratio (MMR)	$Index = \left(\frac{Actual\ score - worst\ value}{MDG\ target - worst\ value} \right) * 100$ Faizabad Mandal District of UP registered the highest IMR of 451 in 2012-13 . MDG target is 151. **Example:** Jhabua district had MMR of 164 in 2012-13. Hence, $\text{index} = \left(\frac{164 - 451}{151 - 451} \right) * 100 = 95.67.$
9. Proportion of births attended by skilled health personnel	Index = actual % value
10. Ratio of Girls and boys in primary	Index = actual % value
11. Ratio of literate women to literate men	Index = actual % value
12. Share of women in main workers	$\text{index} = \left(\frac{Actual\ Score}{50} \right) * 100$ as the desirable target for share of women in main workers should be 50% and worst value is zero. **Example:** In Mandla district, 39.62% of main workers were women. In this case, $\text{index} = \left(\frac{39.62}{50} \right) * 100 = 79.24$
13. Child sex ratio	$\text{index} = \left(\frac{Actual\ Score - worst\ value}{1000 - worst\ value} \right) * 100$ For child sex ratio, Bid district's (Maharashtra) score (801) has been taken as worst. **Example:** Sidhi district's child sex ratio in 2011 was 914. Here $\text{index} = \left(\frac{914 - 801}{1000 - 801} \right) * 100 = 56.78$
14. Proportion of Households using solid fuels	Index= 100-actual %value **Example:** In Rewa district in 2011, 91.1% of households were using solid fuels. Here Index = 100-91.1 = 8.9

Indicators	Methodology
15. Proportion of Households without proper sanitation facility (%)	$Index = \left(\frac{Actual\ score - worst\ value}{MDG\ target - worst\ value} \right) * 100$ **Example:** In Panna district in 2011, 69.9% households did not have proper sanitation facility. And MDG target for MP is 42.5%. Assuming worst value to be 100%, Index = {(69.9-100)/(42.5-100)}*100 = 52.35
16. Proportion of households having drinking water source within premises (%)	$Index = \left(\frac{Actual\ score - worst\ value}{MDG\ target - worst\ value} \right) * 100$ MDG target for MP is 61% and worst value is zero **Example:** In Rewa district, 22.1% of households have access to drinking water within premises. Here Index = (22.1/61)*100 = 36.23

Table A2

Indicators	MDG Indices	
• % of population living below poverty line • Underweight children under 5 years	MDG 1: Poverty alleviation and nutrition	**Overall MDG Index**
• Retention Rate • Overall Literacy Rate	MDG 2: Primary Education	
• Ratio of Girls and boys in primary • Ratio of literate women to literate men • Share of women in main workers • Child sex ratio	MDG 3: Gender Parity	
• Under 5 mortality rate • Infant Mortality Rate • Proportion of one year old children immunised against measles	MDG 4: Child Health	
• Maternal Mortality Ratio • Proportion of births attended by skilled health personnel	MDG 5: Maternal Health	
• Proportion of Households using solid fuels • Proportion of Households without proper sanitation facility • Proportion of households having drinking water source within premises	MDG 7: Facilities	

Appendix 3

Notes on Data Issues on Poverty [49]

The Millennium Development Goals (MDGs) were set in 2002 to achieve before 2015. Looking at the achievement of these goals in a particular state, and intra-state level, there are many problems in availability of reliable information.

The availability, periodicity, consistencies and comparability of the data related to MDG outcomes at sub provincial level is always a challenging issue. Broadly these MDG indicators are Poverty levels, Education attainment level, health indicators like mortality rates and incidence of diseases, gender and environmental indicators. All of these indicators are arrived through sample surveys. Many times the sample size of these surveys differ from time to time. The definitions change and the methodology of the estimations differ. Many times these sample surveys do not represent all the segments of the sample. Different sources for the same indicator give different pictures. Some of the indicators like under nutrition among children is compiled by the implementing agency or department which would always like to show improvements to exhibit the success of their existence. To site an example, issues related to estimation of poverty is given below.

Substantial amount of debate can be seen in the economic literature on the 'poverty line'. Sen (1976) mentioned it almost 40 years back, on the problem of selection of poverty line and simply present the 'head count ratio' is "insensitive to the distribution of income among the poor". Indian policy makers uses the NSSO estimates calculated by MOSPI with the poverty line defined by 'Planning Commission'. Deaton (2001, 2002/3, 2005, 2010) continuously criticised the measurement problem of poverty through NSSO estimates. Deaton and Kozel (2005), Mukherjee and Chatterjee (1974) and Srinivasan and others (1974) articulated the debate with the discrepancies between NSSO Consumer Expenditure data and National Accounts Statistics. Deaton and Drèze (2002) re-estimate the poverty with NSSO 1987-88, 19993-94 and 1999-2000 data, and found different poverty estimates data, but the output was consistent with National Accounts Statistics. Also the estimates made out different recall periods in NSSO Consumer expenditure data of 7 days, 30 days and 365 days have always been a debatable issue.

The recent poverty estimates are by 'Tendulkar Methodology', instead of 'Lakdawala Committee'. The recent estimates based on NSSO 2011-12 data by Tendulkar Committee are based on the poverty line with a family consumption level of Rs. 3,900 per month in rural areas and Rs. 4,800 per month in urban areas (in both cases for a family of five). This works out approximately Rs. 27 & Rs. 33 per capita per day in rural & urban areas respectively. There is no doubt that the Tendulkar Committee poverty line represents a very low level of consumption, but it is close to World Bank poverty line of $ 1.25 in PPP terms. Nonetheless it may be emphasised that even by adopting the above noted very conservative benchmark, the incidence of poverty remains substantially high. If one adopts benchmarks such as "moderately poor" (with PPP between $1.25 and $2) or "near poor" (with PPP between $2 and $4), Poverty levels are alarming and there has been no reduction in the incidence of poverty with such benchmarks.

These estimates are fine at National level and State level. The problem is when one try to estimate number of poor at district level in a State. For example the poverty line for Madhya Pradesh as estimated by Planning Commission, is Rs. 327.78 for rural and Rs.570.15 for urban in 2004-05, as per capita consumption per month. And in 2011-12, same was Rs. 771 for rural and 897 for urban. Estimates of poverty levels at district level using these poverty lines using the 30 days recall period (Uniform Recall Period (URP)) give a different and unrealistic picture. The problem is that sample becomes smaller at the district level. Some districts like Dhar do not have any observation below poverty line in urban areas. Bhopal shows high drop in rural poverty. Betul shows significant increase in rural poverty and reduction of poverty levels by more than half in urban areas.

[49] *This section has received inputs from Mr Satadru Sikdar, NIPFP. The authors would like to thank Mr Sikdar for these inputs.*

Table 1: District Wise Comparison 04-05 and 11-12

	Rural		Urban	
	2004-05	2011-12	2004-05	2011-12
Alirajpur	NA	44.06	NA	15.82
Anuppur	NA	62.50	NA	24.65
Ashoknagar	NA	13.59	NA	17.97
Balaghat	35.23	63.67	39.57	66.97
Barwani	19.12	39.28	61.10	31.82
Betul	39.05	87.80	45.16	22.88
Bhind	11.10	41.42	59.41	39.19
Bhopal	29.98	4.22	27.37	9.72
Burhanpur	NA	20.80	NA	40.17
Chhatarpur	33.81	11.95	58.27	4.50
Chhindwara	25.86	71.04	61.23	29.82
Damoh	41.98	19.65	70.95	36.04
Datia	9.02	23.53	52.37	44.82
Dewas	12.36	2.37	46.96	6.07
Dhar	26.63	6.44	46.98	0.00
Dindori	57.55	75.96	51.40	43.79
East Nimar	21.24	42.31	38.34	36.88
Guna	10.72	15.41	56.28	10.53
Gwalior	12.18	31.34	45.37	19.00
Harda	46.45	39.46	45.80	6.37
Hoshangabad	35.99	47.22	38.99	14.94
Indore	19.29	27.12	21.50	2.80
Jabalpur	19.93	68.98	21.63	16.93
Jhabua	40.42	25.43	42.14	5.69
Katni	46.83	50.60	63.01	8.76
Mandla	65.42	69.93	50.48	49.58
Mandsaur	9.35	25.40	12.80	4.94
Morena	8.67	26.09	42.07	28.61
Narsimhapur	24.01	16.09	50.97	17.17
Neemuch	0.00	23.75	14.96	10.55
Panna	37.29	39.19	40.35	36.76
Raisen	41.48	13.98	39.41	65.95
Rajgarh	9.56	18.91	29.15	24.41
Ratlam	26.67	55.54	61.69	3.88
Rewa	30.43	51.78	35.82	58.02
Sagar	51.03	24.50	59.69	27.66
Satna	14.20	62.92	37.38	57.70
Sehore	37.36	22.51	37.35	31.41
Seoni	52.79	40.58	60.86	25.62
Shahdol	45.71	75.59	12.37	39.80
Shajapur	27.42	5.56	46.25	1.11
Sheopur	35.58	49.23	45.55	34.78
Shivpuri	31.96	10.60	65.56	28.75
Sidhi	48.45	46.61	18.75	27.34
Singrauli	NA	46.57	NA	37.99
Tikamgarh	36.35	6.92	57.29	25.70
Ujjain	25.89	6.76	21.49	9.90
Umaria	65.20	73.12	20.93	30.66
Vidisha	29.31	24.68	39.34	17.68
West Nimar	13.57	28.22	51.15	38.83

Source: Calculated by authors from unit level data of NSSO 61st and 68th Round (Consumption-Expenditure).

Similar problems related to NSSO sampling methodology to estimates any small area of states have been highlighted by Chandra, Sud and Salvati (2011), Pfeffermann, D. (2002) and Rao J.N.K. (2003). According to Chandra, Sud and Salvati (2011) "The efforts to develop databases required for planning and decision-making at lower than the State level, were initiated quite some time back with the Planning Commission in the Government of India setting up a 'Working Group on Districts Planning' in September, 1982. The Working Group in its report clearly highlighted the data requirement for planning and decision-making at the district level. However, it was found that though a lot of data are collected, processed and published for the country as a whole or for individual states, not much disaggregation of the data for sub-state level is done. The National Sample Survey Organisation (NSSO) surveys are main source of official statistics in India. However, these surveys are planned to generate statistics at state and national level. There is no regular flow of estimates at further below level, e.g., at the district level. Therefore, NSSO surveys provide reliable state and national level estimates; they cannot be used to derive reliable direct estimates at the district level owing to small sample sizes which lead to high levels of sampling variability".

However, Sastry (2003) argued about the feasibility of district wise estimation on the basis of Relative Standard Errors (RSE) criteria. State-wise BPL surveys are usually conducted by state government to identify BPL households. However

these surveys are not available for consistent time period and do not come at the same time period with NSSO consumption Expenditure quinquennial large sample surveys. As Hirway (2003) mentioned that the BPL census has more range of indicators than NSSO and both are not comparable.

Even when one estimates poverty levels at the NSSO Sub – regional level we get peculiar picture. NSSO has divided Madhya Pradesh into 11 Sub-regions. Districts under these sub regions were same except the shift of Hoshangabad from Chhindwara to Bhopal in 2011-12. We assumed that all the new districts automatically covered under these sub regional distributions and the sample size were relatively high, which may improve the accuracy of the poverty estimations. Unfortunately, inconsistencies like significant increase in poverty levels in rural Chhindwara, significant fall in poverty rate in urban Chhindwara. Quite low level of poverty in rural Khandwa in 2004-05, and in urban Indore and urban Ratlam in 2011-12 are noticed.

Table 2: NSS Sub-region wise Comparison 04-05 and 11-12

	Rural		Urban	
	2004-05	2011-12	2004-05	2011-12
Chhindwara	43.23	70.49	49.03	33.16
Bhopal	47.80	24.35	35.14	18.91
Gwalior	20.58	34.35	53.82	29.27
Indore	20.69	13.48	24.39	2.41
Jabalpur	54.96	64.94	39.77	18.32
Khandwa	8.76	33.42	43.74	37.17
Ratlam	31.81	35.20	49.20	6.18
Rewa	47.77	55.62	30.09	43.99
Sagar	52.00	26.40	66.00	27.44
Shivpuri	37.38	11.22	64.52	16.37
Ujjain	20.89	9.01	35.63	11.05

Source: Calculated by authors from unit level data of NSSO 61st and 68th Round (Consumption- Expenditure).

Usually states conduct another sample survey on the same lines as that of NSSO by increasing the sample size to estimate poverty levels at district level. Unfortunately this was done only 2004-05 and the 2011-12 survey is yet to be completed. Therefore estimates of poverty with a combined sample of NSSO and State sample are available only for 2004-05 and not for 2011- 12.

Similar are the problems in other indicators such as Malnutrition, Mortality rates, retention rates etc., which help us to measure achievements in MDGs. It is quite unfortunate, that the information of the first goal of Millennium Development Goal is not available properly to analyse the achievement at sub national level. Without ensuring the availability of reliable and comparable important indicators like poverty rate etc., it will be difficult to assess the achievements in MDGs and could be almost impossible to monitor the proposed Sustainable Development Goal (SDGs).

Abbreviations

ACDPO	Assistant Child Development Project Officer
ADB	Asian Development Bank
AHS	Annual Health Survey
AIDS	Acquired Immune Deficiency Syndrome
ANC	Anti Natal Care
ANM	Auxiliary Nursing Midwifery
ASER	Annual Status of Education Reports
ASHA	Accredited Social Health Activist
AWC	Anganwadi Centres
AWP&B	Annual Work Plan & Budget
BPL	Below Poverty Line
CBGA	Centre for Budget and Governance Accountability
CDPO	Child Development Project Officer
CES	Coverage Evaluation Survey
CFC	Chloro Fluoro Carbons
CHC	Community Health Centre
CHERG	Child Health Epidemiology Reference Group
CO2	Carbon Dioxide
COPD	Chronic Obstructive Pulmonary Disease
CRSP	Central Rural Sanitation Programme
CSO	Central Statistics Office
CSR	Child Sex Ratio
CSS	Centrally Sponsored Schemes
CST	Care, Support & Treatment
DDT	Dichloro Diphenyl Trichloroethane
DISE	District Information System for Education
DLHS	District Level Household Survey
DMCs	Designated Microscopy Centers
DOTS	Directly Observed Treatment, Short Course
EAG	Empowered Action Group
FDAs	Forest Development Agencies
FRBM	Fiscal Responsibility Budget Management Act
FRU	First Referral Units
FSI	Forest Survey of India

FYP	Five Year Plans
GA	Geographical Area
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GOI	Government of India
GPI	Gender Parity Index
GSDP	Gross State Domestic Product
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HRG	High Risk Groups
IAY	Indira Awas Yojana
ICDS	Integrated Child Development Services
IEC	Information, Education & Communication
IFA	Iron Folic Acid
IMR	Infant Mortality Rate
IT	Information Technology
IYCF	Infant and Young Child Feeding
JFMC	Joint Forest Management Committee
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JRM	Joint Review Mission
JSY	Janani Suraksha Yojana
LHV	Lady Health Visitor
LLY	Ladli Lakshmi Yojana
MCCD	Medical Certification of Cause of Death
MDG	Millennium Development Goals
MDRTB	Multi Drug Resistant Tuberculosis
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MHRD	Ministry Of Human Resource Development
MKY	Mukhyamantri Kanyadan Yojana
MMR	Maternal Mortality Ratio
MOSPI	Ministry of Statistics and Programme Implementation
MPSACS	MP State AIDS Control Society
NACO	National AIDS Control Organisation

NACP	National AIDS Control Programme
NAEB	National Afforestation and Eco-Development Board
NAP	National Afforestation Programme
NAPCC	National Action Plan on Climate Change
NBA	Nirmal Bharat Abhiyan
NCERT	National Council of Educational Research and Training
NER	Net Enrolment Ratio
NFHS	National Family Health Survey
NGP	Nirmal Gram Puraskar
NHM	National Health Mission
NMCP	National Malaria Control Programme
NMEP	National Malaria Eradication Programme
NRDWP	National Rural Drinking Water Programme
NRHM	National Rural Health Mission
NSSO	National Sample Survey Office
NUSP	National Urban Sanitation Policy
NVBDCP	Directorate of National Vector Borne Disease Control Programme
ODS	Ozone Depleting Substance
PEC	Per Capita Energy Consumption
PGR	Poverty Gap Ratio
PHC	Primary Health Centre
PHCR	Poverty Head Count Ratio
PMDT	Programmatic Management of Drug Resistant TB Cases
PNC	Post Natal Care
PNDT	Pre-Natal Diagnostic Techniques
PTA	Parent Teacher Association
PTR	Pupil Teacher Ratios
RCH	Reproductive and Child Health
RGI	Registrar General of India
RMNCH	Reproductive Maternal Newborn and Child Health
RMNCH+A	Reproductive, Maternal, Newborn, Child and Adolescent Health Services
RNTCP	Revised National Tuberculosis Control Programme

RTE	Right To Education
SAARC	South Asian Association for Regional Cooperation
SCR	Student to Classroom Ratio
SCs	Scheduled Castes
SER	Social Expenditure Ratio
SHG	Self-Help Group
SMC	School Management Committees
SNP	Supplementary Nutrition Programme
SPR	Social Priority Ratio
SRS	Sample Registration System
SSA	Sarva Shiksha Abhiyan
STs	Scheduled Tribes
TB	Tuberculosis
TRAI	Telecom Regulatory Authority of India
TSC	Total Sanitation Campaign
TTO	Telecommunication Tariff Order
U5MR	Under Five Mortality Rate
UDISE	Unified District Information System for Education
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNICEF	United Nations Children's Fund
URP	Uniform Recall Period
UTs	Union Territories
WHO	World Health Organisation

Note:

Note:

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