



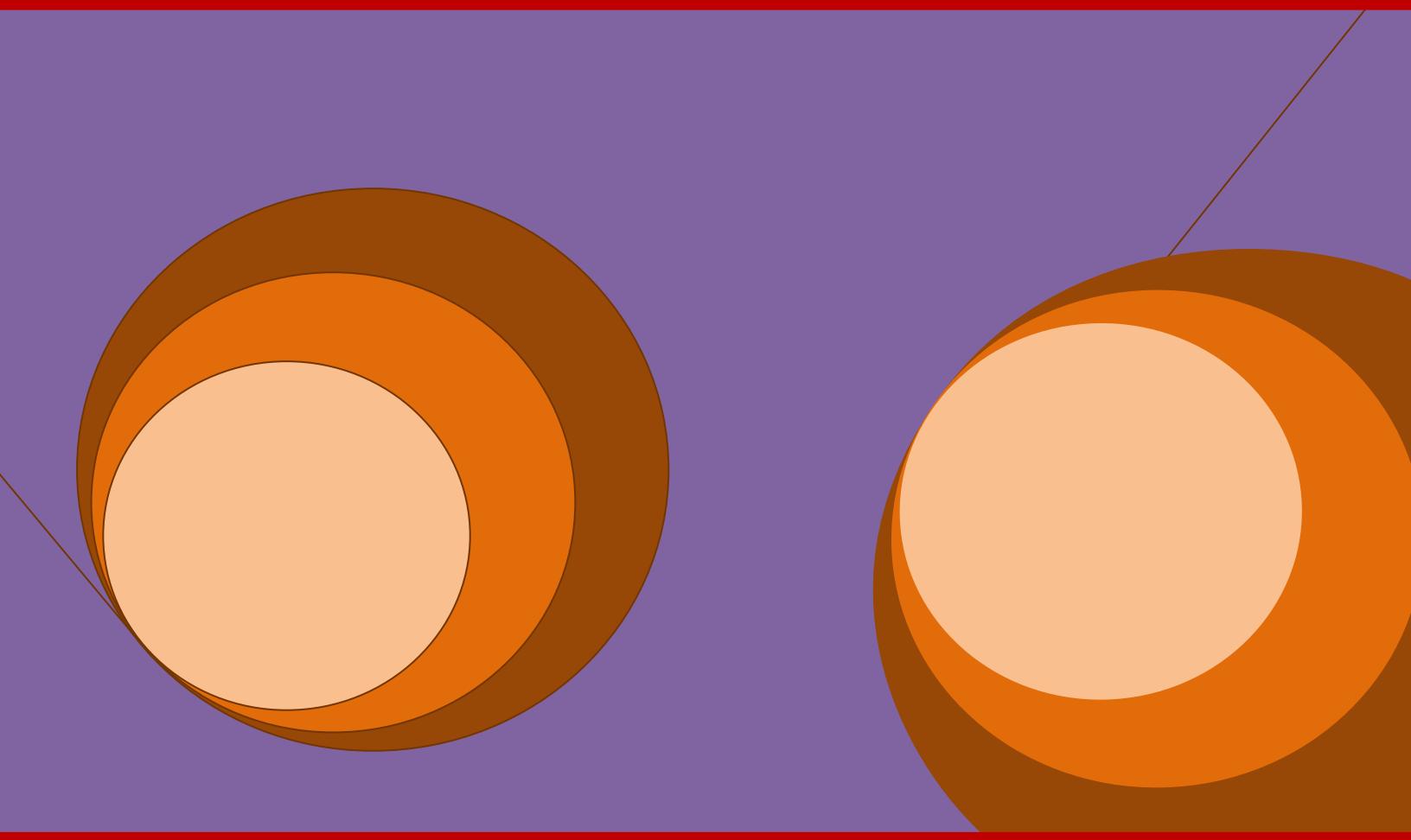
OFFICE OF THE REGISTRAR GENERAL & CENSUS COMMISSIONER, INDIA
MINISTRY OF HOME AFFAIRS, GOVERNMENT OF INDIA
2/A, MANSINGH ROAD, NEW DELHI-110011



ANNUAL HEALTH SURVEY REPORT

A REPORT ON CORE AND VITAL HEALTH INDICATORS

PART I



IN COLLABORATION WITH



INSTITUTE OF ECONOMIC GROWTH
DELHI UNIVERSITY ENCLAVE, NORTH CAMPUS
DELHI 110007

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LIST OF ABBREVIATIONS

AHS	Annual Health Survey
AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante-natal Care
ANM	Auxiliary Nurse Midwife
ARI	Acute Respiratory Infection
BCG	Bacillus Calmette–Guérin vaccine
CBR	Crude Birth Rate
CDR	Crude Death Rate
CEB	Census Enumeration Blocks
CHD	Child Health Deprivation
CSO	Central Statistics Office
CV	Coefficient of Variation
DCO	Directorate of Census Operations
DLHS	District Level Household Survey
DTP	Diphtheria, Tetanus, Pertussis (whooping cough)
EAG	Empowered Action Group
EMW	Ever Married Women
EPI	Expanded Program on Immunization
HAF	Home Available Fluid
HIV	Human immunodeficiency virus
IFA	Iron and Folic Acid
IMR	Infant Mortality Rate
IUD	Intrauterine Device
JSY	Janani Suraksha Yojana
LFPR	Labour Force Participation Rates
LHV	Lady Health Visitor
MCH	Maternal and Child Health
MHD	Maternal Health Deprivation
MMR	Maternal Mortality Ratio
MOHFW	Ministry of Health and Family
MPCE	Monthly Per-capita Consumption Expenditure
MRP	Mixed Reference Period
NCD	Non-Communicable Diseases
NFHS	National Family Health Survey
NIHFW	National Institute of Health &
NMR	Neonatal Mortality Rate
NRHM	National Rural Health Mission
NSDP	Net State Domestic Product
NSSO	National Sample Survey Office
NSU	Neonatal Stabilization Unit
ORGI	Office of Registrar General of
ORS	Oral Rehydration Solution
ORT	Oral rehydration therapy
PCNSDP	Per Capita Net State Domestic
PNC	Post-natal Care
PRSE	Percentage Relative Standard Error
PSU	Primary Sample Units
RBD	Registration of Births and Deaths
RCH	Reproductive and Child Health
RTI	Reproductive tract infection
SBA	Skilled Birth Attendant
SC	Scheduled Caste
ST	Scheduled Tribe
SRS	Sample Registration System
STI	Sexually Transmitted Infection
TAG	Technical Advisory Group
TFR	Total Fertility Rate
TT	Tetanus Toxoid injection
UFMR	Under-five mortality rates
UIP	Universal Immunization Program
UT	Union Territories

EXECUTIVE SUMMARY

0.1 The Annual Health Survey (AHS) was conceived during a meeting of the National Commission of Population, held in 2005 under the Chairmanship of the then Prime Minister. It was decided that “there should be an Annual Health Survey of all districts which could be published/ monitored and compared against benchmarks”. The AHS, through such benchmarks, aims to monitor the performance of the government’s various health interventions, including those under the National Rural Health Mission (NRHM), at relatively more frequent intervals. With this end in view, the AHS has been made an integral part of the NRHM, Ministry of Health & Family Welfare. The responsibility for the project has been entrusted to the Office of the Registrar General, India, on behalf of the Ministry of Health & Family Welfare, in view of its expertise in handling the Sample Registration System, one of the largest demographic surveys in the world.

0.2 The first AHS was conducted in 2010-11. The data and estimates of 2010-11 have been used as baseline reference for assessment of health and health care performance during first and second updation surveys of the AHS conducted during 2011-12 and 2012-13, respectively. The AHS was conducted across 9 States of India. These States are Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand. The AHS States account for about 50 percent of the total population of India, 61 percent of births, 71 percent of infant deaths, 72 percent of under 5 deaths and 62 percent of maternal deaths. Clearly, rapid improvements across these States is critical to ensure overall social and economic development of the country. Altogether, 284 districts are covered under the

survey as follows: 23 districts of Assam, 37 districts of Bihar, 16 districts of Chhattisgarh, 18 districts of Jharkhand, 45 districts of Madhya Pradesh, 30 districts of Odisha, 32 districts of Rajasthan, 70 districts of Uttar Pradesh and 13 of districts Uttarakhand. The AHS household sample size was of over 4.1 million for first updation (2010-11), 4.2 million for second updation (2011-12) and 4.3 million for third updation (2012-13) thus making it the largest household sample survey in the world.

0.3 This report is divided into 10 chapters including an introductory chapter that describes the genesis, objective, coverage, survey design and core vital and health indicators of the AHS as well as presents a brief developmental profile of AHS States. Following this, eight chapters are designed to present key findings related to various aspects of maternal and child health and health care utilization as well as prevalence of chronic and acute illness, disability and injury. Each of the chapter presents the definition of the key indicators, State-level and district-level trends and patterns across the three AHS surveys, list of 100 poorest performing districts and its distribution across the States, spatial and gender differentials in outcomes and observed associations of core and vital health indicators with developmental and programmatic indicators. The last chapter of the report presents a district level index of maternal and child health deprivation.

0.4 The AHS elicits information on key household and demographic characteristics including sex ratio, dependency ratio, and effective literacy rate, legal age of marriage, schooling, drop outs and work participation rate. Important programmatic indicators such as

: Unmet need for contraception and the usage of contraceptive measures are estimated to understand fertility and family planning behaviour. The status of maternal health and health care services has been presented through the indicators of ante-natal care, delivery care, post-natal care, and maternal mortality. On the other hand, to understand the status of child health and healthcare, the report analyses the levels of immunization, prevalence of low birth weight, breastfeeding practices, and supplementary nutrition. While indicators such as neo-natal, infant and under-five mortality rates have been deployed to understand child mortality levels, the dimensions of childhood diseases have been examined through the prevalence level of diarrhoea, fever and acute respiratory infection across districts. The report also analyses instances of acute illness and chronic illness –for the former, by focussing on the prevalence level of diarrhoea, fever and acute respiratory infection and for the latter, by studying diabetes, hypertension and arthritis. Information regarding disability and injury is also discussed.

Household population and characteristics

0.5 Household population and its characteristics have a direct bearing on social and economic well-being of the households including important aspects such as education, health and employment. In this regard, decline in birth rates can play an important role to help reduce the dependency burden on the working-age members of the households and to encourage investments in health and education of the household members. Most of the AHS States are still to achieve significant fertility transition and consequently this has not relieved these States from a high economic dependency burden. According to AHS 2012-13, the average size of a household is the highest in Uttar Pradesh and lowest in Odisha: 5.5 and 4.2, respectively.

Further, there are wide inter-district disparities in average household size across the AHS States which are also associated with disparities observed in terms of developmental outcomes. Some districts, such as Sant Ravidas Nagar and Bhadohi in Uttar Pradesh, have large average household size (6.2 persons), thus indicating a greater need to understand its nature and composition as well as its impact on developmental outcomes.

0.6 It is noted that a decline in dependency ratio (defined as the ratio of dependent age population, children and elderly, to the total working age population, aged 15-19 years) can favourably increase the share of working age population and encourage further improvements through higher savings, human capital accumulation and female labour force participation. However, a few districts particularly from Bihar and Uttar Pradesh display very high dependency ratios and could also affect overall household well-being. In fact, Kishanganj district in Bihar has a dependency ratio as high as 106.4 dependent age population per 100 working age population while Siddharth nagar district in Uttar Pradesh has a ratio of 105.7. These ratios are very large and almost twice of that compared to a number of districts that are already at lower levels of dependency ratio.

0.7 Imbalanced sex ratio with female disadvantage is a major developmental concern. In particular, highly skewed child sex ratio is distorting the demographic profile of several States. While most of the AHS States perform better than other Indian States but child sex-ratio profile of two AHS States namely Uttarakhand and Rajasthan is rather worrisome. Although, Rajasthan has the lowest child (aged 0-4) sex ratio of 878 females per 1000 males but the AHS data informs that the problem essentially has significant association with a few districts. For

instance, Morena district of Madhya Pradesh has the lowest child sex ratio (793 females per 1,000 males) and Pithoragarh district of Uttarakhand has the lowest sex ratio at birth (767 females per 1,000 males). It is also problematic to observe that the district level literacy profile do not show a favourable association with child sex ratio thereby necessitating effective planning and interventions to achieve greater balance in sex ratio profile across such districts.

0.8 Most of the districts of the AHS States are affected by high illiteracy levels, particularly among married women. This has direct implications for maternal and child health outcomes and also restricts ability of the society from deriving large externalities in the form of better knowledge, health awareness and practices. For instance, in Bihar about 56.7 per cent of the married women are illiterate and to that extent other benefits associated with education may be curtailed. In a few districts, illiteracy among married women exceeds 70 per cent. Besides, high gender differential in effective literacy rates is also an important aspect of households across the AHS districts. For instance, in Rajasthan the gender gap in effective rate is about 25 per cent and this is much larger than the rural-urban literacy differentials observed across AHS States.

0.9 Apart from illiteracy, a high school drop-out level among both boys and girls is an area of concern. The report also finds that districts with higher school dropout levels also have higher levels of child labour and higher percentage of marriages below the legal age. Also, districts where the male drop out level is high clearly have a higher share of male child labour whereas districts with high female drop outs have higher levels of female marriages before the legal age. A lower mean age at marriage among females is associated with higher household size and high fertility levels in a district. In this regard, it is

observed that improvements in literacy and increased years of schooling could contribute towards increasing the mean age at marriage in such districts. In particular, Rajasthan has the highest level of marriages under the legal age for both males and females signifying that increasing the mean age at marriage for both is important. However, it is encouraging to observe that at district level between 2010-11 and 2012-13, the mean age at marriage among females has increased.

Fertility and family planning

0.10 Fertility reduction has been an important demographic and policy concern in India. Various national policies and programmes have focussed on better provisioning of family planning services by improving access to limiting and spacing alternatives and to increase awareness and acceptability of the various methods of contraception. The progress is assessed by examining reduction in total fertility rates – defined as the average number of children to be born to a woman if she was to live to the end of her child-bearing years and bear children as per a given age-specific fertility schedule. The AHS 2012-13 reveals that Bihar has the highest total fertility rate of 3.5, followed by Uttar Pradesh (3.3). In fact, 9 districts in Uttar Pradesh have TFR of 4.1 and above. In 2012-13, Shrawasti district of Uttar Pradesh has the highest TFR of 5.5. Nevertheless, across districts there is a considerable shift and most of them are now displaying TFR levels in the range of 2.2 to 3. However, sustained efforts are required to achieve replacement level fertility of 2.1. As of 2012-13, only 35 out of 284 AHS districts have achievement the target of replacement level fertility.

0.11 Access to family planning services has been instrumental in influencing average household

size, fertility levels, and dependency ratio across districts. It is encouraging to note that the use of any method of contraception has increased during 2010-11 to 2012-13. In 2012-13, Rajasthan recorded the highest use of any method of family planning (70 per cent), while Bihar recorded the lowest (41.2 per cent). Also, it is observed that unmet need for contraception has also declined across most of the districts in 2012-13. The report finds that overall district level literacy rates share a significant association with contraceptive prevalence and fertility behaviour. It is observed that districts with higher levels of literacy have lower TFR and higher contraceptive usage. The districts with higher literacy level have lower unmet need for contraceptive. Besides, districts with low mean age at marriage for females also have high TFR.

0.12 Important policy challenges are also apparent as large proportion of currently married women in Bihar reported of unmet need for family planning. Clearly, there is wide scope for fertility reduction across several high TFR districts by increasing awareness and promoting use of family planning methods. It may be noted that female sterilisation continues to be the predominantly used limiting method in every State whereas use of male sterilization is very low. Among the various spacing methods, use of copper-T/IUD and pills is low during 2010-11 and 2012-13. Particularly, use of copper-T/ IUD is very low in Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh and Odisha. This reveals a greater need to understand the behaviors and preferences regarding use of family planning methods in AHS States.

Maternal health and health care

0.13 Improving access to quality maternal health care services is critical to ensure safe motherhood. But despite concerted efforts there

are stark inter-district disparities in maternal health and maternal health care utilization. The levels of antenatal care (ANC) provided in the nine AHS states are low: pregnant women are less likely to receive full ANC, and even women receiving 3 or more ANC are much lower. An assessment of data from the three successive AHS rounds suggests of only marginal improvement in ANC levels across states. In 2012-13, while Uttar Pradesh recorded the lowest levels of 3 ANC visits by pregnant women at 37.8 per cent, Odisha reported the highest level among all states (81.9 per cent). Similarly, while Jagatsinghpur in Odisha reported the highest full ANC levels (54.6 per cent), Shrawasti, Balrampur and Budaun district in Uttar Pradesh has the lowest level of full ANC (1 per cent). A critical step to ensure access to pregnancy care is through improved ANC registration services across districts. It is observed that Chhattisgarh had the maximum proportion of pregnant women (83.9 per cent) registering for ANC in 2012-13, while Uttar Pradesh achieved 61.9 per cent registration.

0.14 Home-based births have witnessed modest reductions as the AHS 2012-13 notes that in five of the AHS States the levels of home delivery continues to be over 40 per cent. In Chhattisgarh and Jharkhand the levels of home delivery are very high at 59.4 per cent and 53.4 per cent, respectively. Although Uttarakhand performs relatively better than other AHS States but the State also shares a very high proportion of home-based births (40.1 per cent). The lowest proportion of home delivery is observed in Madhya Pradesh (17 per cent). Institutional deliveries across AHS States ranged between 39.5 per cent in Chhattisgarh to 83 per cent in Madhya Pradesh. The data reveals that public health facilities have been mostly accessed for delivery care whereas a smaller proportion of deliveries are conducted at private health care facilities.

0.15 Postnatal Care (PNC) is another aspect of maternal health meriting utmost attention. To encourage institutional deliveries, the government launched the Janani Suraksha Yojana (JSY), and an upward trend was observed in the number of women availing of its benefits. In fact, study of the three successive years suggests that the rate of women who received PNC has increased over the years. Odisha, demonstrating the finest levels of both PNC and JSY, has displayed exemplary levels of maternal health. It is further ascertained that districts with higher overall and female literacy rates perform better in maternal health and health care utilization. In particular, such districts displayed higher utilization of antenatal care and institutional delivery care. Nevertheless, improving consumption of IFA tablets during pregnancy remains a prominent concern across districts.

Maternal mortality

0.16 The report presents estimates of maternal mortality ratio and maternal mortality. In order to facilitate direct intervention, the maternal mortality indicators are combined and released for a group of districts on the basis of existing administrative divisions in the respective AHS States. It is noted that most of the AHS divisions fall under the maternal mortality ratio range of 200-300 maternal deaths per 100,000 live births and maternal mortality rate range of 20-30 per 1,000 women aged 15-49 years. In the case of maternal mortality ratio, there is a clear shift in the concentration of divisions from 300-400 maternal deaths per 100,000 live births in 2010-11 to 200-300 maternal deaths per 100,000 live births (in 2012-13). The estimates based on the three successive AHSs (2010-11, 2011-12 and 2012-13) suggest that the pace of reduction in maternal mortality ratio is decelerating and that a few divisions are unable to sustain a consistent pace of reduction.

0.17 Besides, a few divisions continue to have unusually high MMR, exceeding 300 maternal deaths per 100,000 live births. As of 2012-13, divisions such as Uppar Assam (404) in Assam, and Devi Patan Mandal (366) and Faizabad Mandal (364) in Uttar Pradesh display very high levels of MMR and require greater policy attention to reduce such stark intra-State disparities. In 2012-13, in the categories of maternal mortality ratio and maternal mortality rate, respectively, Uttar Pradesh and Bihar jointly account for 15 and 17 of the total 25 worst performing divisions.

0.18 It is observed that State level maternal mortality and female literacy rates are negatively correlated. Furthermore, it is also discerned that MMR is negatively associated with district level coverage of institutional delivery and ANC check-up. It emerges that improving access and availability of basic health facilities can be a critical aspect in reducing maternal deaths among backward districts across EAG States and Assam. However, it must also be acknowledged that larger reduction in maternal mortality rate is mostly experienced when divisions are at higher levels, whereas small and increasingly divergent reductions are observed across divisions with lower MMR levels.

Child health and health care

0.19 Child immunization is a critical tool for improving child health and can have significant impact on reducing infant and child mortality. At 79.6 per cent, Uttarakhand has the highest full immunization coverage, while Uttar Pradesh has the lowest at 52.7 per cent. In this category, Uttarakhand also shows the lowest inter-district disparity, while Odisha registers an absolute increase of 13.8 per cent from 2010-11 to 2012-13. However, Malkangiri district in Odisha shows very low levels of full immunization at 29.6 per

cent. Clearly, further efforts are required to achieve universal coverage in full immunization. It is worthwhile to note that in 2012-13, cases of no immunization was highest in Uttar Pradesh (7.6 per cent) and the lowest in Odisha (0.8 per cent). Besides, there are wide disparities in coverage levels across different vaccines, with the coverage of BCG being higher in all States when compared with polio, DPT and measles. District level full immunization coverage is associated with female literacy and districts with higher literacy tend to have higher levels of child immunization.

0.20 A high proportion of babies born across AHS States tend to have low birth-weight of 2.5 kg or below. Rajasthan reported 36.3 per cent low birth weight babies in 2012-13 which is almost three times that of the lowest reported in Chhattisgarh (13.2 per cent). However, from 2010-11 to 2012-13, the level decreased in all the States, Jharkhand recording the highest reduction at 8.2 per cent.

0.21 Early initialization of breast feeding has various health benefits for the newborn but the levels are as low as 37 and 39 percent in Bihar and Uttar Pradesh, respectively. Breast feeding within an hour of birth is usually higher when the childbirth occurs at a medical facility. In the case of exclusive breastfeeding for six months, every State displays only marginal progress. Chhattisgarh and Jharkhand record the highest level at 50 per cent. Similarly, consumption of supplementary nutrients such as Vitamin A and IFA syrups are important for improving nutritional status of children but at present the levels of intake are lower across all the AHS States.

0.22 In 2012-13, the highest level of acute respiratory infection is observed in Bihar at 28.2 per cent, closely followed by 27.9 per cent in

Uttar Pradesh. The lowest level of 11.4 per cent is observed in Uttarakhand. In 2012-13, Bihar reported the highest level of fever among children at 36.7 per cent, followed by 30.6 per cent in Odisha. Uttarakhand showed the lowest level at 12 per cent, followed by 16.3 per cent in Chhattisgarh. Higher instances of diarrhoea are noted in rural rather than urban areas. Whereas acute respiratory infection is generally higher in urban areas except in Assam and Madhya Pradesh.

Neonatal, infant and under-five mortality

0.23 Neonatal deaths constitute the most significant component of child mortality across EAG States and Assam. The estimates suggest that the pace of reduction in neonatal mortality rate is slow and about one in four districts are unable to sustain a consistent pace of reduction in neonatal mortality. Besides, huge inter-state, inter-district and rural-urban disparities in neonatal mortality rates emerge as a fundamental developmental concern. Although, since 2010-11 most of the districts show favourable reductions, 30 AHS districts continue to have unusually high UFMR exceeding 100 child deaths per 1,000 live births.

0.24 Districts in Odisha have the highest NMR (71 deaths per 1,000 live births in Bolangir), IMR (97 deaths per 1,000 live births in Bolangir) and UFMR (139 deaths per 1,000 live births in Kandhamal). It is revealed that larger reduction in mortality rate is experienced when districts are at higher levels whereas small and increasingly divergent reductions are observed at lower levels.

0.25 Gender differential in child mortality is a prominent concern across all the nine AHS states. IMR and UFMR among female children are always greater than in males. The gap in female and male IMR and UFMR is widest in Rajasthan

(9 point and 13 point disadvantage respectively). Rajasthan also has more districts with higher gender differential in IMR and UFMR. It is also observed that district level child mortality and district literacy rates are positively correlated. Furthermore it is noted that higher gender differentials in child mortality are correlated with gender gaps in literacy. These associations highlight potential determinants of female disadvantage in child survival.

0.26 Districts with a higher share of SC and ST population (more than 40 per cent) display higher neonatal, infant and under-five mortality rates. However, districts with lower share of SC and ST population do not necessarily follow a favourable pattern and tend to display wide variations in child mortality. While a negative association exists between district-level open defecation and child survival, of the one between district-level electricity coverage and child survival is positive. Expansion of basic infrastructure services such as access to electricity and safe sanitation can go a long way towards improving child survival and health among backward districts across EAG states and Assam.

Acute and chronic illness

0.27 In case of acute illness, the prevalence and source of treatment of fever, diarrhoea and acute respiratory infection has been studied. Bihar recorded the highest instances of diarrhoea/dysentery, at 1,876 per 100,000 of population along with high levels of acute respiratory infection at 4,721 and fever at 6,719. Rajasthan, Jharkhand and Uttarakhand all reported relatively lower levels of diarrhoea. While Rajasthan also showed the lowest instances of fever, Uttarakhand registered fewer instances of respiratory infection. Wide disparities have been observed in the source of treatment with the percentage of acutely ill

people availing treatment from a government source being only 5.2 and 5.4 per cent in Bihar and Uttar Pradesh respectively, and Odisha showing the highest level at 51 per cent. Such low levels reveal the deplorable situation of health care centres in these States.

0.28 The chronic illnesses studied here are diabetes, hypertension and arthritis, there being wide variations in their prevalence levels in each State. Assam has substantially higher instances of diabetes, hypertension and arthritis, while Madhya Pradesh and Rajasthan have fewer ones. A relatively lower number of people have received medical aid for chronic illnesses from any source, as compared to that for acute illnesses. If chronic and acute illnesses are taken into account simultaneously, dissimilarities can be observed in the direction of change in the level of instances.

0.29 There is a clear increase in the prevalence levels of the four chronic illnesses of diabetes, asthma, hypertension and arthritis from 2010-11 to 2012-13. However the increase in levels of tuberculosis and any other chronic illness is not as high over the same period. Thus chronic illnesses need to be contained through policy measures. A comparison of the prevalence of chronic and acute illnesses between men and women shows a higher number of men than women suffering from both types of illnesses. The prevalence of chronic illness is higher in urban areas while that of acute illness is higher in rural areas.

Disability and injury

0.30 Disability impairs one's ability to lead a normal life and increases the level of dependency in households. Odisha recorded the highest instances of disability in 2012-13 at 2,358 per 100,000 of population, while Uttar Pradesh

recorded the lowest at 1,496 per 100,000 per population.

0.31 Odisha showed a higher level of both major and minor injuries: 284 and 1735 cases respectively. Jharkhand recorded the highest occurrences of severe injuries at 376 while Uttarakhand reported the lowest at 184. While some States show a considerably wide rural-urban divide, no particular pattern can be observed, as some States reported higher number of cases in urban areas and others in rural areas.

0.32 While instances of disability have clearly increased from 2010-11 to 2012-13, levels of major, minor and severe injury have remained similar over the same period. In case of both disabilities as well as major and minor injuries, men report higher instances than women. However there is no clear rural-urban disparity in case of severe and major injuries.

Maternal and child health deprivation index

0.33 The maternal health deprivation index provides an aggregate inter-temporal comparison of the performance of districts in five major maternal health indicators viz. total fertility rate, unmet need for contraception, non-SBA assisted home deliveries, no ANC and no PNC. Uttar Pradesh and Bihar have a particularly high score, indicating high levels of deprivation. Bihar's Sheohar district recorded the poorest conditions of maternal health at 0.871 as opposed to Jagatsinghpur in Odisha that registered the finest performance at 0.248 in the 2012-13.

0.34 The child health deprivation index provides an aggregate inter-temporal comparison of the performance of districts in five major child health indicators viz. incomplete immunization, not breastfed in first hour of birth, low birth weight, infant mortality rate and diarrhoea. Several

districts from Uttar Pradesh, Madhya Pradesh and Rajasthan show higher levels of deprivation. Baudan (Uttar Pradesh) recorded the poorest conditions of child health at 0.731 while Rudraprayag in Uttarakhand registered the finest performance at 0.170 in the 2012-13.

0.35 As per the multidimensional maternal and child health deprivation index, in 2010-11, 7 districts from Odisha made it to the list of top 10. Odisha maintained its record in 2012-13 too as 6 of its districts were among the top 10. Jharsuguda district in Odisha exhibited the finest conditions of maternal and child health among all the AHS states with the lowest deprivation index value of 0.256. On the contrary, a majority of States down the rank list were from Uttar Pradesh and Bihar, with Purba Champaran district showing the highest maternal and child health deprivation in 2012-13 at 0.736.

0.36 Collective assessment of maternal and child health deprivation suggests that the States performing poorly in terms of maternal health have also shown a dismal performance in child health conditions. This is evident from the positive correlation between the collective maternal and child health deprivation index and maternal and child deprivation index individually. Badaun district in Uttar Pradesh has been consistently poor with regard to maternal health and child health conditions individually and also in combined sense.

0.37 Though districts of Uttarakhand showed the highest levels of child health conditions, none of its districts were among the top 10 when data of maternal and child health was collated. Overall, a negative relation can be observed between child and maternal health deprivation and literacy rate, as districts with lower overall literacy have poorer quality of maternal and child health conditions.

1.1. Background

1.1 Health of the population significantly affects both social development and economic progress. Given the relevance of health for human well being and social welfare, it is important to ensure equitable access to health care services by identifying priority areas and ensuring improvements in quality of healthcare services. However, the implementation of such measures requires a regular availability of district specific information on the varied dimensions of health, healthcare access and service delivery. In the absence of vital data for the district level is likely to affect effective planning and action, particularly among districts requiring special attention. While the District Level Household Survey conducted every five years primarily focuses on indicators pertaining to maternal health and child welfare programmes, none of the present Surveys provide estimates of core vital indicators on fertility and mortality at the district level. Recent years have therefore witnessed a surge in demand from various quarters for generating timely and reliable statistics at the district level to enable informed decision making in the health sector. Timely and systematic estimates of the magnitude and changes in health indicators can play a crucial role in creating and assessing policies which aim to eliminate the disproportionate burden of health deprivations among disadvantaged populations.

1.2. Genesis, Objective and Coverage

1.2 The Annual Health Survey was conceived during a meeting of the National Commission of Population held in 2005 under the Chairmanship of the Prime Minister. It was decided that “there should be an Annual Health Survey of all districts

which could be published / monitored and compared against benchmarks”. The objective was to monitor the performance and outcome of various health interventions of the Government including those under National Rural Health Mission (NRHM) at closer intervals through these benchmark indicators. The AHS has been made an integral part of the NRHM, Ministry of Health & Family Welfare. The responsibility of the project has been entrusted to the Office of the Registrar General, India on behalf of the Ministry of Health & Family Welfare.

1.3 Realizing the need for preparing a comprehensive district health profile on the basis of key parameters in a community, the AHS has been designed to generate benchmarks of vital health indicators at the district level. These include prevalence of disabilities, injuries, acute and chronic illnesses, access to health care for identified morbidities and access to maternal, child health and family planning services. By virtue of being a panel survey, it has the unique ability to map the rate of change in these indicators on a yearly basis. Thus as compared to other periodic cross-sectional surveys, AHS would not only capture the health seeking behaviour of the population, but also enable the implementation of corrective strategies. The AHS covers 284 districts (as per 2001 Census) of the eight Empowered Action Group States (Bihar, Jharkhand, Uttar Pradesh, Uttarakhand Madhya Pradesh, Chhattisgarh, Odisha and Rajasthan) and Assam. These 9 high focus States with relatively high fertility and mortality account for about 48 percent of the total population in the country.

1.3. Core Vital and Health Indicators

Crude birth and death rates

1.4 The crude birth rate (CBR), generally computed as a ratio, is the number of live births per 1,000 of the population estimated at midyear and shows the growth or decline of population in a region. The numerator is the number of live births observed in a population during a reference period and the denominator is the number of person-years lived by the population during the same period. Crude death rate (CDR) is the total number of deaths per year per 1,000 people. Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration. These indicators are “crude” because these are unadjusted for age-sex differences among the population.

Overall and child sex ratio

1.5 Sex ratio is defined as the number of females per 1000 males in a population and is thus an indicator of the differences between the number of men and women in the population, the acceptance of a female child in a family and women's status in society along with the trends in discrimination against them. Ideally the sex ratio should be at unity. Sex ratio can be affected by sex-specific migration in a region, sex selective abortions and infanticides. Sex ratio can be measured across age groups to provide a better understanding of the age-wise distribution of sexes. While an adverse child sex ratio indicates sex selective abortions and female infanticides, differences in number of men and women in the age category of 18-60 indicates sex-specific migration or sex-differentials in mortality.

Fertility and family planning

1.6 Fertility rate refers to the average number of children born to a woman, and has important implications for the various development goals

pursued. It provides insights into the issues of women's well-being and availability of contraception and helps in monitoring population growth for the national population policy. A reduction in fertility level can initiate various changes at the household level, with a fall in fertility levels enabling parents to provide greater resources for improving children's education and health. Globally, high fertility levels are associated with the early stages of economic development and a high correlation exists between economic progress and fall in fertility. Fertility level is influenced by literacy levels, especially female educational attainments, social and religious acceptance of birth control means and availability of temporary contraceptives in the locality. However various non-linear associations, such as a fall in fertility levels among illiterate women, can also be observed.

1.7 Family planning is an extremely efficient technique for having the desired number of children at the desired time and is implemented mainly through birth control/contraceptive methods. Access to safe and voluntary birth control means is an individual right and saves women from the drudgery of repeated and unwanted pregnancies. Family planning or contraceptive methods can be broadly categorised into temporary and permanent. The former is used when a women wants to have children but not at present, so as to achieve reasonably long birth intervals. In such cases, the methods used are oral contraceptives, intrauterine device (IUD) implants and condoms. Permanent measures such as vasectomy for males and tubal ligation for females and sterilization are taken only when an individual or couple do not want any more children. Family planning also comprises abortion, i.e., termination of unwanted pregnancy. Family planning services are available at all levels of government hospitals in India.

Maternal and child health

1.8 Access and utilization of health care services during pregnancy and childbirth is critical in determining the health of both the expectant mother and the unborn child. In this regard, an overview of maternal health status could be presented through an assessment of key indicators such as antenatal care (ANC), delivery care and postnatal care (PNC). The ANC visits facilitate clinical assessments of mother and foetus which help in ensuring safe motherhood and are critical in early detection of high-risk pregnancies. A full ANC check-up comprises of at least three visits to a trained health care provider and receipt of health promoting advice, diagnosis and medication such tetanus toxoid injections and iron and folic acid supplementation.

1.9 Institutional delivery assisted by skilled birth attendants is a critical component for ensuring safe motherhood. Delivery or childbirth can be categorized on the basis of place of delivery, type of delivery (normal/caesarean section) and the personnel conducting delivery. These factors affect the chances of survival and subsequent health of mother and child. Presence of skilled birth attendants during delivery plays a significant role in ensuring safe pregnancy outcomes. Apart from Ante-natal care, Postnatal care is a crucial component of care and therefore following institutional delivery mother and the child are advised to stay at the hospital for at least 48 hours.

1.10 Child health requires immense policy attention as children are more prone to malnutrition and infectious diseases than adults. There is significant policy attention on critical aspects related to child health and health care such as immunization, growth monitoring and childhood ailments. Following the Alma Ata

Declaration in 1978, India has adopted the Expanded Program on Immunization (EPI) and introduced six childhood vaccines - Bacillus Calmette-Guerin (BCG), DPT, Polio, typhoid, and measles as part of the basic vaccination schedule. To achieve full immunization coverage these services are provided free of cost at all public health facilities in India. To enable further coverage the Government of India launched the Universal Immunization Program (UIP) Immunization but with the exception of polio vaccine there are large regional variations in immunization coverage in India. Similarly, birth weight is an important indicator reflecting the pre-natal nutritional status of the child and chances of survival. A low birth weight (below 2.5 kg) indicates higher vulnerability of childhood diseases. Also, it is critical to monitor prevalence of acute respiratory infection (ARI), fever and diarrhea as these ailments account for a significant burden of overall child morbidity and mortality.

Maternal and child mortality

1.11 Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. The maternal mortality ratio (MMR) depicts the number of maternal deaths relative to the number of live births and is usually reported as the number of maternal deaths per 100,000 live births. High incidences of maternal mortality in a populous country such as India cause huge losses in terms of human life and social welfare. Moreover, there are significant inter- and intra-State disparities and critical equity concerns with a higher burden of maternal deaths among marginalized communities and tribal population.

1.12 Child mortality is a critical indicator of social and economic progress and a country's commitment to child health and development. Regular monitoring of child mortality is essential for assessing and designing policies which would ensure improvements in child survival chances, focusing specifically on the poorest and marginalized social groups. Neonatal, infant and under-five mortality are the important indicators related to child mortality. Out of these, neonatal mortality reflects important aspects such as prenatal, intra-partum, and neonatal care. For instance, factors affecting pregnancy and maternal healths are strongly associated with early neonatal deaths, whereas factors affecting the newborn's environment are responsible for late neonatal deaths. Infant mortality rate is a widely used indicator as it provides valuable insights into the health infrastructure and health status of a country. Moreover, in being influenced by the mother's level of education, environmental conditions, infrastructure, sanitary conditions, access to clean drinking water, immunization against infectious diseases and public health policies and programmes, it gives indications about poverty and other socio-economic characteristics of a particular community. Likewise, under-five mortality is affected by a number of socio-economic characteristics of the community and child health programmes and presents an accurate picture of the child health status.

Breastfeeding and supplementation

1.13 Early breastfeeding and complementary feeding practices are significant determinants of child health and nutritional outcomes. It is recommended that children be put to the breast immediately or within one hour of birth. There is growing evidence of the benefits to mother and child of early initiation of breastfeeding preferably in the first hour of the birth. Early

initiation of breast feeding contributes to reducing neonatal mortality. It ensures early skin to skin contact which is important in preventing hypothermia and establishing the bond between the mother and her child. Early initiation of breastfeeding also reduces the mother's risk of post partum hemorrhage, one of the leading causes of maternal mortality. Exclusive breastfeeding (not even water) for the first six months of a child's life is an essential component of the optimal infant and young child feeding practices. Complementary feeding of solid and semi-solid food to children after six months of age complements the breast milk and sustains the growth and development of the child.

Acute and chronic illness

1.14 Acute illnesses are sudden in onset and require immediate treatment. Chronic illnesses are the ones which develop, persist and worsen over a period of time. Both acute and chronic diseases include life-threatening types of diseases. The common chronic illnesses are cardiovascular diseases, hypertension, diabetes, respiratory illnesses and mental disorders. In particular, cardiovascular diseases and diabetes were often thought to be products of affluence, but now-a-days developing countries bear the brunt of double burden, as these types of diseases are on the rise along with communicable diseases. Demographic and epidemiological transition has altered the population and disease profile of India. Globalization and rapid urbanization have also led to critical economic and structural changes which hold significant implications for population health. Moreover, changing socio-cultural environments have influenced the customary life-style and dietary patterns in both rural and urban areas. These are also systematically associated with an elevated risk and prevalence of chronic non-communicable diseases (NCDs). There has been

increasing recognition of chronic NCDs in national policies and programmes.

Personal habits and awareness

1.15 Personal habits are another important determinant of health and well-being besides medical care. Certain habits such as chewing, smoking, drinking can be detrimental to health. The different ways of tobacco intake are chewing and smoking. A usual smoker is defined as the one who smokes at least once a day and the usual drinker is the one who drinks once a week. This variable also differs across gender and socio-economic status. Consumption of tobacco and alcohol are also linked with the chronic and acute illnesses. As such, lack of awareness is an important factor determining some health practices and outcomes. In this regard, areas such as personal habits, contraceptive practices and sexual health deserve greater emphasis for improving knowledge and attitudes towards health and health care. Awareness on any issue is dependent on educational levels to a considerable level. There are gender differentials in case of awareness of sexual and reproductive health matters. Also, greater awareness is desirable regarding unhealthy habits and use of tobacco and alcohol for its association with chronic non-communicable diseases.

Disability and injury

1.16 Disability is an umbrella term which includes biological impairments, psychological disorders and the disability induced on individuals by society rather than by their bodies. Almost everyone who survive to old age experience increasing difficulties in functioning. There are different types of disability such as mental, visual, hearing, speech, locomotor and multiple. There are different sources of origin for disabilities. While some are birth defects

whereas others may be due to lack of medical attention, work place injuries, accidents etc. Disability may increase the risk of poverty, through barriers created by physical and social environment such as lack of employment and education opportunities, lower wages, and increased cost of living with a disability. Clearly, disability is a developmental issue and is an indicator of social and economic progress as certain types of disabilities can be prevented with better intervention. Detection at an early stage can reduce the spread of the problem. Actions can be taken to reduce the impact of an already established disease by restoring function and reducing disease-related complications. Unlike disability, injury is difficult to quantify, so it is measured by analyzing the duration of stay in hospital for treatment. There can be intentional and unintentional injuries. Road traffic injuries are a major public health challenge that requires concerted efforts for effective and sustainable prevention.

Birth registration

1.17 Achieving universal birth registration is a goal pursued by India. Since the Registration of Births and Deaths (RBD) Act, 1969 it is mandatory to register every birth and provide a birth certificate free of cost to the informant. Moreover India is a signatory to the United Nations Convention on Rights of the Child, 1989 which recognizes birth registration as a child's first right. The registration system in India functions at different levels of efficiency across States and Union Territories (UTs). In order to assess the functioning of the Civil Registration System in the community, information on whether the birth of the baby as registered with the civil authority and if so the birth certificate was received or not in respect of all living children has to be examined. Based on this the percentage of children whose births were

registered and who also received the birth certificates have been arrived at and presented. According the RBD Act, the institutions where birth takes place is to register the birth and issue the birth certificate in case they have been declared as the registration units or to report the event to the local registrar of Births and Deaths. However, there is lack of a complete reporting system across different States/UTs.

1.4. Survey Design

1.4.1. Technical consultation

1.18 The outline of the survey such as approach, periodicity, coverage, sampling strategy, sample size, permissible levels of relative standard errors, and levels of aggregation, was finalized after a series of deliberations with the representatives from Ministry of Health & Family Welfare, National Sample Survey Office, Central Statistics Office, Ministry of Women & Child Development, Indian Council of Medical Research, Planning Commission (NITI Aayog), International Institute for Population Sciences and other subject experts. Based on the recommendations, various technical details including preparation of sample design, derivation of sample size etc. were worked out and vetted by the Technical Advisory Group constituted for the purpose.

1.4.2. Survey strategy and sample design

1.19 Annual Health Survey has been conducted in the following three years:

- AHS Baseline study (2010-11)
- AHS First updation (2011-12)
- AHS Second updation (2012-13)

1.20 The Sample design adopted for Annual Health Survey is a uni-stage stratified simple

random sample without replacement except in case of larger villages in rural areas (population more than or equal to 2000 as per 2001 Census), wherein a two stage stratified sampling has been applied. The sample units are Census Enumeration Blocks (CEBs) in urban areas and villages in rural areas. In rural areas, the villages have been divided into two strata. Stratum I comprises villages with population less than 2000 and Stratum II contains villages with population 2000 or more.

1.21 Smaller villages with population less than 200 were excluded from the sampling frame in such a manner that the total population of villages so excluded did not exceed 2 per cent of the total population of the district. In case of Stratum I, the entire village is the sample unit. In case of Stratum II, the village has been divided into mutually exclusive (non-overlapping) and geographically contiguous units comprising group of EBs called segments of more or less equal size and population not exceeding 2000 in any case. One segment from the frame of segments thus prepared was selected in a random manner to represent the selected village at the second stage of sampling.

1.22 The number of sample villages in each district was allocated between the two strata proportionally to their size (population). The villages within each size stratum were further ordered by the female literacy rate based on the Census 2001 data, and three disjoint and equal size substrata were established. The sample villages within each substratum were selected by simple random sampling without replacement. Similarly, in urban areas, the CEBs within a district were ordered by the female literacy rate based on the Census 2001 data, and three disjoint and equal size substrata were established. The sample CEBs within each substratum were selected by simple random sampling without

replacement. Thus, female literacy which has a direct bearing on the fertility behaviour was used for implicit stratification. The sample selection ensured equal representation across three sub-strata both in rural and urban areas besides rendering the sample design as self-weighting.

1.4.3. Sample size

1.23 Generating robust estimates of Infant Mortality Rate (IMR) at the district level has become an utmost necessity as reduction in IMR constitutes one of the key targets in the Reproductive & Child Health Programme (RCH) under the umbrella of NRHM. The IMR has therefore been taken as the decisive indicator for

estimation of sample size at the district level. The permissible level of error has been taken as 10 percentage relative standard error (PRSE) at the district level. The sample size so worked out would yield relatively better estimates of Crude Birth Rate / Crude Death Rate and may also enable generation of rarer indicators like MMR (for a group of districts) with good precision. In the absence of district level estimates from any other reliable source, the district level derived estimates of IMR based on Sample Registration System (SRS) pooled data have been used for estimation of sample size for each district. The sample size for each State and for all the three rounds of AHS (2010-11, 2011-12 and 2012-13) is reported in Table 1.1.

Table 1.1: AHS sample particulars for all the nine AHS States

State	Baseline Year (2010-11)		First Updation (2011-12)		Second Updation (2012-13)	
	Households	Population	Households	Population	Households	Population
Assam	380148	1734296	386025	1781833	388853	1809610
Bihar	594272	3089904	604998	3172972	612684	3227867
Chhattisgarh	273551	1220077	279604	1240713	287085	1264309
Jharkhand	378373	1922296	383715	1979221	392734	2019298
Madhya Pradesh	494266	2296952	507274	2344948	519811	2389787
Odisha	456413	1925439	468067	1966581	477065	1992799
Rajasthan	351439	1790673	354096	1799932	362671	1828116
Uttar Pradesh	847297	4528409	869959	4750285	883613	4808503
Uttarakhand	367183	1605561	389734	1711745	392643	1726477
All 9 AHS States	4142942	20113607	4243472	20748230	4317159	21066766

1.4.4 Survey tools

1.24 The baseline survey in all the nine AHS States was carried out during July 2010 to March 2011; the first updation survey in all the nine AHS States was carried out during October 2011 to April 2012 and the Second updation survey in all the nine AHS States was carried out during November 2012 to May 2013. In all, four Schedules were administered. These are: (i) House-listing Schedule, (ii) Household Schedule, (iii) Woman Schedule and (iv) Mortality Schedule. During the baseline study the House-

listing Schedule included the mapping and listing of all the houses and households in a sample unit and collecting information regarding housing characteristics (type and ownership), basic amenities available to the household and assets possessed by them were collected. In the first updation survey, the details collected during the baseline survey was updated for the existing houses and households and recorded afresh for the new houses and households. In the second updation except for the new houses and households the details available in the first updation was updated.

1.25 In the Household Schedule, during the baseline survey, all Usual Residents as on 01.01.2010 were listed and for each listed member, information on background characteristics like Name, Sex, Relationship to Head, Date of Birth, Age, Religion, Social Group, Marital Status, Date at first Marriage, Education and Occupation/Activity Status was captured. Besides, information in respect of Disability, Morbidity (Injuries, Acute Illness, and Chronic Illness) and Personal Habits (like Chewing, Smoking and Consumption of Alcohol) was also collected wherever applicable.

1.26 During the first updation survey, all the Usual Residents as on 01.01.2011 were listed in the Household Schedule wherein the information on a few back ground characteristics viz. Name, Sex, Identification Code, Date of Birth and Date at first Marriage were copied from the baseline Household Schedule for the Usual Residents of baseline survey. For the new Usual Residents, these details along with all the other information were recorded afresh except the personal habits, the details of which were not to be captured in the subsequent rounds. Similarly, during the second updation survey, all the usual residents were listed as on 01.01.2012 and the above details are copied from the first updation Household Schedule for the existing usual residents and collected afresh for the new usual residents. The information on access to health insurance/scheme is collected in the Household Schedule in the updation surveys.

1.27 Woman Schedule comprised two sections. Section-I was administered to all Ever Married Women (EMW) aged 15-49 years and information relating to the outcome of pregnancy(s) (live birth/still birth/abortion); birth history; type of medical attention at delivery; details of maternal health care(antenatal/natal/post-natal); immunization of children;

breast feeding practices including supplements; occurrence of child diseases (Pneumonia, Diarrhoea and fever); registration of births, etc. taken place during the reference period i.e. 01.01.2007 to 31.12.2009 was collected. Section II focused on information on pregnancy; use, sources and practices of family planning methods; details relating to future use of contraceptives and unmet need; awareness about RTI/STI, HIV/AIDS, administration of HAF/ORT/ORS during diarrhoea and danger signs of ARI/Pneumonia; and these details were collected from all Currently Married Women aged 15-49 years.

1.28 Through the Mortality Schedule, details relating to death occurred to usual residents of sample household during the reference period 01.01.2007 to 31.12.2009 were captured and it included information on name & sex of deceased, date of death, age at death, registration of death and source of medical attention received before death. For infant deaths, a question on symptoms leading to death was also probed. In case of deaths associated with pregnancy, information on a variety of questions on factors leading/contributing to death, symptoms leading to death, time between onset of complications and death, etc. were asked to yield data on various determinants of maternal mortality.

1.29 Through the Mortality Schedule, details relating to death occurred to usual residents of sample household during 01.01.2007 to 31.12.2009 were captured and it included information on name & sex of deceased, date of death, age at death, registration of death and source of medical attention received before death. For infant deaths, a question on symptoms leading to death was also probed. In case of deaths associated with pregnancy, information on a variety of questions on factors leading/contributing to death, symptoms leading

to death, time between onset of complications and death, etc. were asked to yield data on various determinants of maternal mortality. These schedules were finalized after a series of deliberations in the TAG and thereafter piloting in the field situation. The fieldwork in sample units was carried out by teams of field enumerators which had at least one female in each team. This was done to ensure that besides canvassing of woman schedule, questions on morbidity for female members in household schedule and questions relating to infant deaths as well as deaths associated with pregnancy in the mortality schedule were also probed and recorded only by the female enumerator.

1.5. Fieldwork and Implementation

1.5.1. Fieldwork strategy

1.30 The project is being implemented as a hybrid model wherein the actual field work has been outsourced to seven selected Survey Agencies on the pattern of National Family Health Survey (NFHS) and District Level Household Survey (DLHS). The co-ordination, supervision and monitoring of the fieldwork in the States are being carried out by dedicated staff posted at various levels in the respective Directorate of Census Operations (DCOs). The responsibility for overall co-ordination, supervision and monitoring across the nine AHS States rests with the AHS Division of ORGI. For smooth and effective execution of the survey, the AHS States have been divided into 18 mutually exclusive and exhaustive zones, each having a group of contiguous districts with more or less equal workload.

1.5.2. Sample identification work

1.31 One of the essential prerequisites for the commencement of the survey was to uniquely

identify the sample units on ground. This was done in all the sample units across the nine AHS States by the regular staff of Office of the RGI. The work involved firming up of the boundary of the selected villages / Enumeration Blocks; resorting to segmentation in case of villages exceeding the population 2000, random selection of segment thereof and drawing of appropriate notional maps of the sample units to serve as the base map for the survey work.

1.5.3. Training, supervision and third party audit

1.32 Since information on morbidity, disability and few specific details in case of infant and maternal deaths etc. were collected at the district level in such a large survey setup for the first time, adequate emphasis was given to training. An exhaustive training manual for the field staff was prepared with inputs from various stakeholders and subject experts. A three day ‘Training of Trainers’ programme was organized at New Delhi prior to commencement of State/Zone level training sessions wherein experts imparted training on concepts, definitions and how best to collect data on different parameters. A pool of medical doctors was arranged with the help of National Institute of Health & Family Welfare (NIHFW) who imparted training to the field staff on disability and morbidity during State/Zone level training programmes. A standardized Video Training Module was specially developed for the purpose. Officers from ORGI and DCOs were deputed to observe the training programmes conducted at State level by Survey Agencies.

1.33 In addition to the multilayer supervision mechanism adopted by the Survey Agencies, regular inspections were carried out by the officers/officials of respective DCOs and those from ORGI headquarters to ensure the data

quality. The inspections were a judicious mix of concurrent as well as post survey audit. Over and above, a component of Third Party Audit was included to verify and authenticate the surveyed data through an independent mechanism. The Third Party Audit work was carried out in 20 randomly selected AHS units in each of the districts covering every fourth household thereof by following a standard protocol prescribed by ORGI.

1.6. AHS Bulletin and Factsheet

1.34 In view of the large volume of data collected under AHS and significant time required for validation and processing, dissemination of AHS results is done in two phases. The first set of data was released in August 2011 in the form of State-wise bulletins, which contained the district level data on crude birth rate, crude death rate, natural growth rate, infant mortality rate, neo-natal and post neo-natal mortality rates, under 5 mortality rate, sex ratio at birth, sex ratio (0-4 years) and overall sex ratio. In addition, the Maternal Mortality Ratio (MMR), Maternal Mortality Rate and life time risk were released for a group of districts. In order to facilitate direct intervention, the maternal mortality indicators were combined and released for a group of districts on the basis of existing

administrative divisions in the respective AHS States.

1.35 Under the second phase of dissemination, data on host of other important parameters covered in AHS under Household and Woman Schedules are being released in the form of State and District Level Factsheets. Though the sample size has been calculated for the district as a whole, the rural and urban estimates at the district level have also been published as by product. Users are advised to keep the above fact into consideration while using the rural / urban estimates of a district. In order to ward off unusual sampling fluctuations, the urban estimates have not been published in respect of some indicators for the districts where the number of urban sample units was less than six.

1.36 The baseline bulletins and factsheets were released in August 2011 and July 2012 respectively. This was followed by the first updation bulletins and factsheets released in May and December 2013 respectively. The bulletins and factsheets of second updation round of AHS were released in April and July 2014.

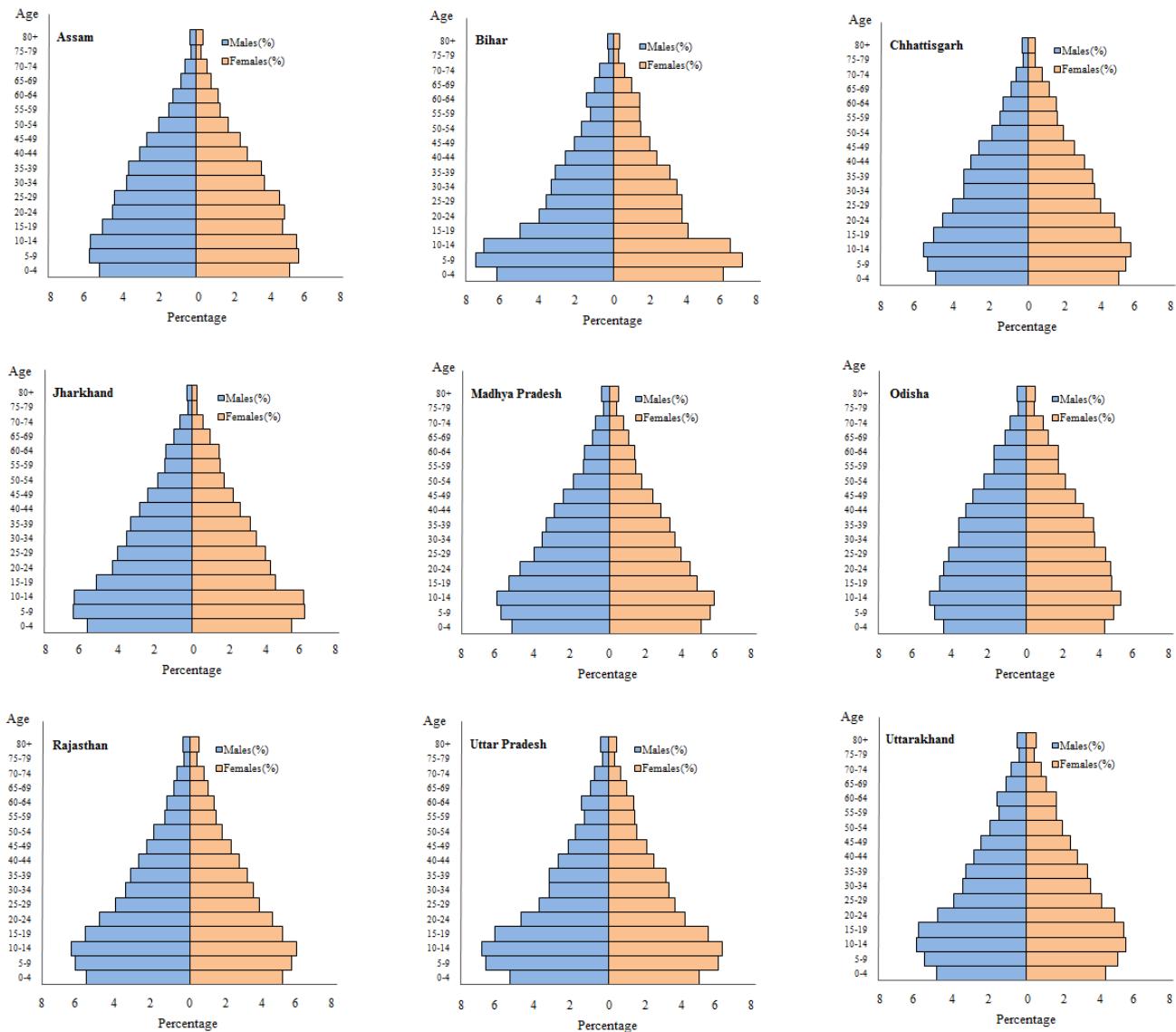
1.7. Developmental Profile of AHS States

1.7.1. Demographic profile

Table 1.2: Population distribution of the nine AHS States, Census of India 2011

State	Population (in Cr)	% Increase (2001-11)	Urban %	Rural %	SC %	ST %	SCST %
Assam	3.1	16.9	14.1	85.9	7.2	12.5	19.7
Bihar	10.4	25.1	11.3	88.7	15.9	1.3	17.2
Chhattisgarh	2.6	22.6	23.2	76.8	12.8	30.6	43.4
Jharkhand	3.3	22.3	24.1	76.0	12.1	26.2	38.3
Madhya Pradesh	7.3	20.3	27.6	72.4	15.6	21.1	36.7
Odisha	4.2	14.0	16.7	83.3	17.1	22.9	40.0
Rajasthan	6.9	21.4	24.9	75.1	17.8	13.5	31.3
Uttar Pradesh	20	20.1	22.3	77.7	20.7	0.6	21.3
Uttarakhand	1.0	19.2	30.2	69.8	18.8	2.9	21.7

Source: Census of India, 2011

Figure 1.1: Distribution of the AHS States population by age and sex, Census of India 2011

Source: Based on age-sex population distribution, Census of India, 2011

1.37 Table 1.2 presents the population profile of the nine AHS States. Uttar Pradesh has the highest population (20.0 crore) followed by Bihar (10.4 crore) and Madhya Pradesh (7.3 crore). Uttarakhand has the lowest population (1.0 crore). The decadal population growth during 2001-11 was highest for Bihar (25.1 per cent) followed by Chhattisgarh (22.6 per cent) and Jharkhand (22.3 per cent). Odisha (14.0 per cent) and Assam (16.9 per cent) displayed lower

decadal population growth rates. The nine AHS States have varying level of urbanization. Uttarakhand has highest urban population (30.2 per cent) whereas Bihar has lowest urbanization (11.3 per cent) among the AHS States. The share of rural population is higher in Bihar (88.7 per cent), Assam (85.9 per cent) and Odisha (83.3 per cent). The share of scheduled caste (SC) population in the total State population is highest in Uttar Pradesh (20.7 per cent) and lowest in

Assam (7.2 per cent). The distribution of tribal population varies considerable across the nine AHS States. The share of scheduled tribe (ST) population in State population is highest in Chhattisgarh (30.6 per cent) and lowest in Uttar Pradesh (0.6 per cent). The combined share of SC and ST population is highest in Chhattisgarh (43.4 per cent) followed by Odisha (40.0 per cent) and Jharkhand (38.3 per cent) whereas Bihar has the lowest share (17.2 per cent).

1.38 An age pyramid shows the distribution of population in a region across age and gender. This is an important tool to visualize the population age-structure. This also informs about the stage of demographic transition which refers to the process of transition from high birth and death rates to lower birth and death rates. For instance, if the lower end is wider than the upper areas then it indicates high levels of fertility in the respective States. Figure 1.1 shows the population pyramid of the nine AHS States suggests that most of the AHS States are at the beginning of the demographic transition and have higher fertility rates. The shape of population pyramid for Odisha's population is more altered than other States suggesting that the State is

ahead of other AHS States in demographic transition.

1.7.2. State economy

1.39 There is considerable variation in economic structure, per capita incomes and employment profile of the nine AHS States. The economy of Uttar Pradesh is the largest among the nine AHS States. The net State domestic product (NSDP) of Uttar Pradesh (in 2004-05 prices) is almost twice that of Madhya Pradesh and four times that of Jharkhand (Table 1.3). However, in terms of per capita NSDP, Uttar Pradesh's economy is very low compared to most of the AHS States whereas Bihar has the lowest per capita NSDP. Uttarakhand reports the highest per capita NSDP which is almost three times that of Uttar Pradesh. Employment is an important dimension of economic well being. In this regard, the estimates from the Employment and Unemployment Survey (2011-12) of the National Sample Survey Organization inform that the labour force participation rates (LFPR) is the lowest in Bihar for both rural and urban areas. The female labour force participation rates for are also the lowest in Bihar.

Table 1.3: Key economic and employment indicators for the nine AHS States

State	NSDP (in Rs. Crore)	PCNSDP (in Rs.)	LFPR (All persons)		LFPR (Females)	
			Rural	Urban	Rural	Urban
Assam	77394	23968	359	348	129	97
Bihar	171802	16801	284	267	58	54
Chhattisgarh	78428	29047	490	393	416	252
Jharkhand	102196	30950	378	300	204	73
Madhya Pradesh	222882	29218	407	334	239	119
Odisha	116566	26531	427	395	251	158
Rajasthan	237530	33186	427	336	349	144
Uttar Pradesh	427759	20057	341	331	178	106
Uttarakhand	66653	63820	390	322	315	108

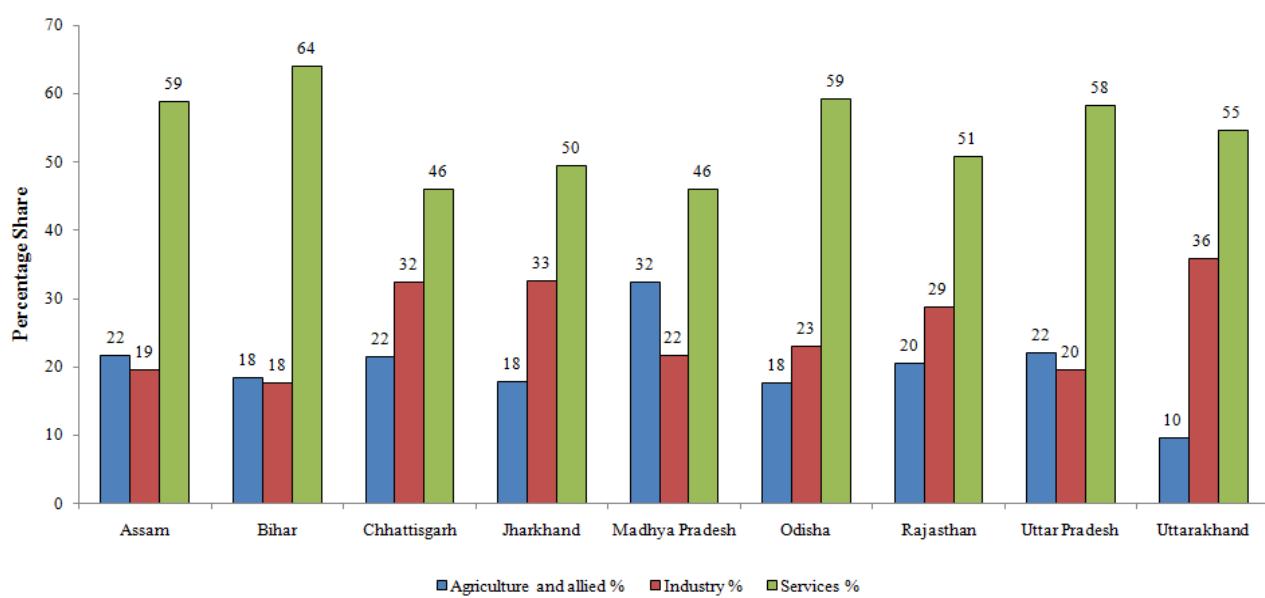
Note: NSDP and PCNSDP are sourced from Central Statistical Office (CSO), 2015. NSDP figures are at 2004-05 prices.

Labour force participation rate (LFPR) estimates are based on Employment and Unemployment Survey 2011-12, National Sample Survey Office (NSSO). LFPR is defined as the number of persons/person-days in the labour force (which includes both the employed and unemployed) per 1000 persons /person-days. The labour force according to the usual status (principal status + subsidiary status) is obtained by considering the usual principal status and the subsidiary status together.

1.40 The structural composition of the economy, particularly the respective contributions of agricultural, industrial and services sector to overall Net State Domestic Product (NSDP) holds important implications for economic growth and development. All the nine AHS States have a predominant share of services sector (Fig 1.2). For instance, in case of Bihar both agricultural and industrial sector account for

a share of 18 per cent each whereas the services sector contributes to about 64 per cent of the total NSDP. Nevertheless, there are some variations in structural composition of these States. In Madhya Pradesh, agriculture and allied activities have a share of 32 per cent in NSDP, which is the highest among nine States. Uttarakhand (36 per cent) has the highest share of industrial sector contributing to NSDP.

Figure 1.2: Share of agriculture, industries and services sectors in NSDP of the AHS States



Source: Central Statistical Office (CSO), 2015

Table 1.4: Estimates of consumption expenditure and inequality in nine AHS States

State	Average MPCE (in Rs.) 2011-12		Inequality: Lorenz ratios 2011-12	
	Rural	Urban	Rural	Urban
Assam	1057	2090	0.213	0.350
Bihar	970	1397	0.205	0.284
Chhattisgarh	904	1776	0.244	0.391
Jharkhand	920	1844	0.214	0.340
Madhya Pradesh	1024	1842	0.264	0.366
Odisha	905	1830	0.236	0.348
Rajasthan	1446	2207	0.230	0.311
Uttar Pradesh	1073	1942	0.250	0.411
Uttarakhand	1551	2452	0.258	0.346

Note: Inequality Lorenz ratios are based on the Report on Level and Pattern of Consumer Expenditure 2011-12 published by the National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India and is based on Mixed Reference Period (MRP) from the NSS 68th round on Household Consumer Expenditure Survey. The monthly per capita consumption expenditure (MPCE) is also based on MRP definition.

1.41 As per the Household Consumer Expenditure Survey 2011-12, the average monthly per capita consumption expenditure (MPCE) is highest for rural and urban Uttarakhand (Rs.1551 and Rs.2452). Rural Chhattisgarh and Odisha have the lowest MPCE of Rs. 904 and Rs. 905. In urban areas, Bihar has the lowest MPCE of Rs. 1397. There are significant disparities in MPCE across rural and urban areas within the AHS States. For instance, in Assam, Chhattisgarh, Jharkhand and Odisha the average MPCE in urban areas is almost two times that of rural areas. A glance at the Lorenz ratios provides insights regarding inequality in the distribution of consumption expenditure across the rural and urban areas of the AHS States. It is immediately discernible that inequalities in monthly per capita consumption expenditure are relatively higher in urban areas than rural areas. Bihar has lower inequality in rural and urban areas (Lorenz ratios of 0.205 and 0.284). Madhya Pradesh has relatively high inequality in rural areas (0.264) an Uttar Pradesh has highest inequality in urban areas (0.411).

1.7.3. Access to basic services

1.42 There is wide variation in the access to clean drinking water across the nine AHS States (Table 1.5). In Bihar, only 3 per cent of the households have access to treated tap water whereas a substantial majority of 86.6 per cent access water through hand pump. In Uttarakhand more than half of the households (53.9 per cent) have access to treated tap water; access to untreated tap water is also the highest in Uttarakhand when compared with the other States. Rajasthan has high share of tube-wells (12.2 per cent).Important explanations behind the wide variations can be observed in terms of socioeconomic development, geographical and climatic conditions. In Assam only 9.2 per cent of the households have access to water from treated source and this is the second lowest level among the 9 States. Jharkhand has the highest percentage of uncovered wells. Overall, other than Uttarakhand and Rajasthan approximately one-half of all households in the 9 States use water from hand pumps.

Table 1.5: Source of drinking water for households in nine AHS States

State	Tap water		Well		Hand pump	Tube well / Bore well	Other sources
	Treated source	Untreated source	Covered	Uncovered			
Assam	9.2	1.3	1.7	17.2	50.2	9.2	11.3
Bihar	3.1	1.3	0.7	3.7	86.6	3.0	1.7
Chhattisgarh	12.3	8.4	0.8	10.6	58.4	7.2	2.3
Jharkhand	10.0	2.9	1.9	34.6	43.8	3.5	3.4
Madhya Pradesh	16.4	6.9	1.1	18.9	47.1	7.6	2.0
Odisha	10.0	3.9	2.2	17.3	41.4	20.0	5.2
Rajasthan	32.0	8.5	1.2	9.6	25.3	12.2	11.1
Uttar Pradesh	20.2	7.1	0.6	3.4	64.9	2.9	0.9
Uttarakhand	53.9	14.3	0.7	0.4	22.0	2.0	6.7

Source: Census of India, 2011

Note: Other sources include river, spring, canal, tank, pond, lake and any other sources.

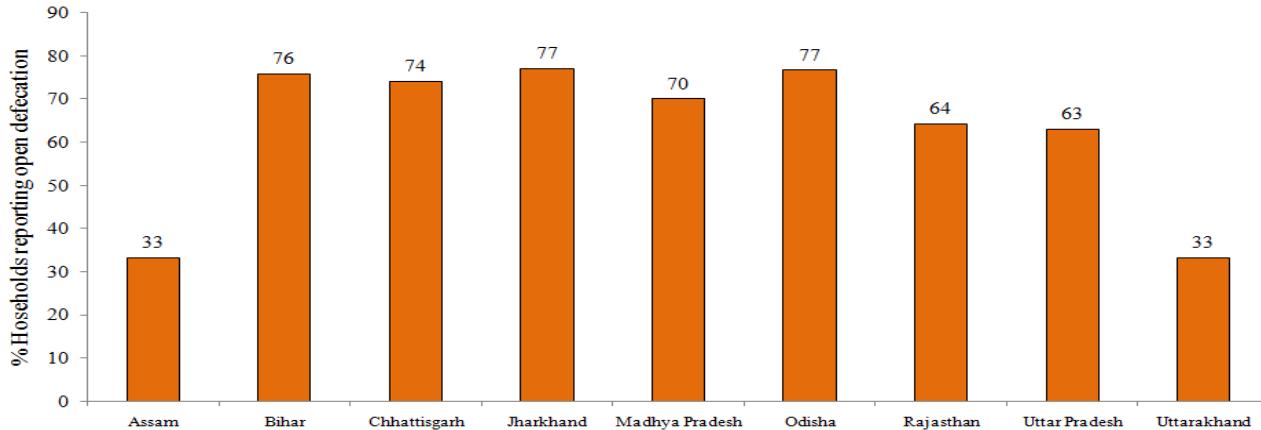
1.43 Reducing the levels of open defecation and expansion of latrine facility within premises is a prominent health and developmental concern across AHS States. As shown in Figure 1.3,

Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh and Odisha have 70 per cent and above open defecation. Assam and Uttarakhand however have the low open defecation levels. In five of the nine

AHS States, majority of the households use kerosene as the main source of lighting (Table 1.6). However, in Uttarakhand, Chhattisgarh, Madhya Pradesh and Rajasthan electricity has a major presence. 87 per cent of the households in

Uttarakhand use electricity for lighting purposes whereas in stark contrast 82 per cent of the households use kerosene for lighting in Bihar. Odisha has the highest percentage (1.1 per cent) of households with no lighting.

Figure 1.3: Percentage households reporting open defecation in nine AHS States



Source: Census of India, 2011

Table 1.6: Source of lighting for households in nine AHS States

State	Electricity	Kerosene	Others	No lighting
Assam	37.0	61.8	1.0	0.2
Bihar	16.4	82.4	1.1	0.1
Chhattisgarh	75.3	23.2	1.2	0.3
Jharkhand	45.8	53.1	1.0	0.1
Madhya Pradesh	67.1	32.1	0.6	0.2
Odisha	43.0	55.3	0.6	1.1
Rajasthan	67.0	30.9	1.2	0.8
Uttar Pradesh	36.8	61.9	1.0	0.2
Uttarakhand	87.0	11.1	1.6	0.3

Source: Census of India, 2011

Note: Other sources include solar energy, other oil and any other sources.

1.8. Navigating this Report

1.44 This report is presented in 10 chapters: (1) Introduction; (2) Household Profiles; (3) Fertility and Family Planning; (4) Maternal Health and Health Care; (5) Maternal Mortality Ratio; (6) Child Health and Health Care; (7) Child Mortality; (8) Chronic and Acute Illness; (9) Disability; and (10) Index. The report presents

and discusses the findings related to key indicators based on the three AHS years 2010-11 (baseline), 2011-12 (first updation) and 2012-13 (second updation). The chapters highlight the shift in the levels and trends observed in 2012-13 by drawing a comparison to the data of 2010-11 and 2011-12. A graphical comparison 2012-13 (second updation) estimate for the key indicators across districts along with the 2010-11 (baseline)

estimates is attempted to understand the direction of change and improvement across districts. The inter-district variations in key indicators are highlighted by listing the names of the best and worst performing districts. Further, the chapters list the 100 districts that fared poorly under each category. Gender differentials and rural-urban differentials are presented for key indicators across districts and States. Disparities in maternal mortality ratio and rates are discussed for geographical grouping of districts (administrative divisions) across States.

1.45 The report also describes the associations between key health policy indicators such as total fertility rate, use of family planning, child immunization, antenatal care, delivery care, neonatal and infant mortality rate and

development indicators like literacy and mean age of marriage. Associations have also been made between programme indicators to ascertain how one factor influences the other and with what intensity. Finally, Maternal and Child Health (MCH) index, which focuses on multi-dimensional nature of maternal and child health, is presented. The index is developed using a total of ten indicators related to maternal health and child health. All the indicators are normalized and aggregated with equal weights provided to each indicator. The report also presents index of maternal health deprivation (MHD) and index of child health deprivation (CHD) separately. To understand the performance of districts , they have been ranked based on their performance into the best performing and worst performing 10 districts.

2.1 A household is a unit constituted by one or more persons dwelling under one roof, and sharing meals and accommodation. The sizes of households differ across States and areas. This chapter delineates the key components of the surveyed households, focusing on background information for important aspects like sex ratio, dependency ratio and effective literacy rate. Information related to factors such as marriage before the legal age and school dropouts are also presented.

2.1. Definition of Indicators

- Sex ratio of a population is defined as the number of women per 1,000 men at any given time.
- Child Sex Ratio is defined as number of females under 0-4 years per thousand males in the same age group in human population.
- Total dependency ratio is defined as the ratio of the sum of the population of the young (0–14 years) and the elderly (60 years and above) to the working-age population (15–59 years).

- Effective literacy rate is the percentage of population aged seven years and above who can read and write with understanding.

2.2. Levels and Trends

2.2.1. Household size

2.2 Table 2.1 shows the average household size in the nine AHS States. It can be observed that Uttar Pradesh has highest average household size of 5.5 persons, followed by Bihar and Jharkhand (5.2 persons). Odisha has households with the lowest average size of 4.2 persons. Across the three AHS, while the household size has remained constant in Bihar, it has marginally risen from 5.4 in 2010-11 to 5.5 in 2012-13 in Uttar Pradesh. Wide variations in household size can be observed across the districts of Uttar Pradesh. For instance, S R Nagar has an average household size of 6.2 persons, while the average household size in Jhansi is about 4.5 persons. Most of the districts from Bihar, Madhya Pradesh and Uttar Pradesh have an average household size ranging from 5 to 7 persons. In the other States, a majority of the districts have an average household size of less than five.

Table 2.1 Household Size

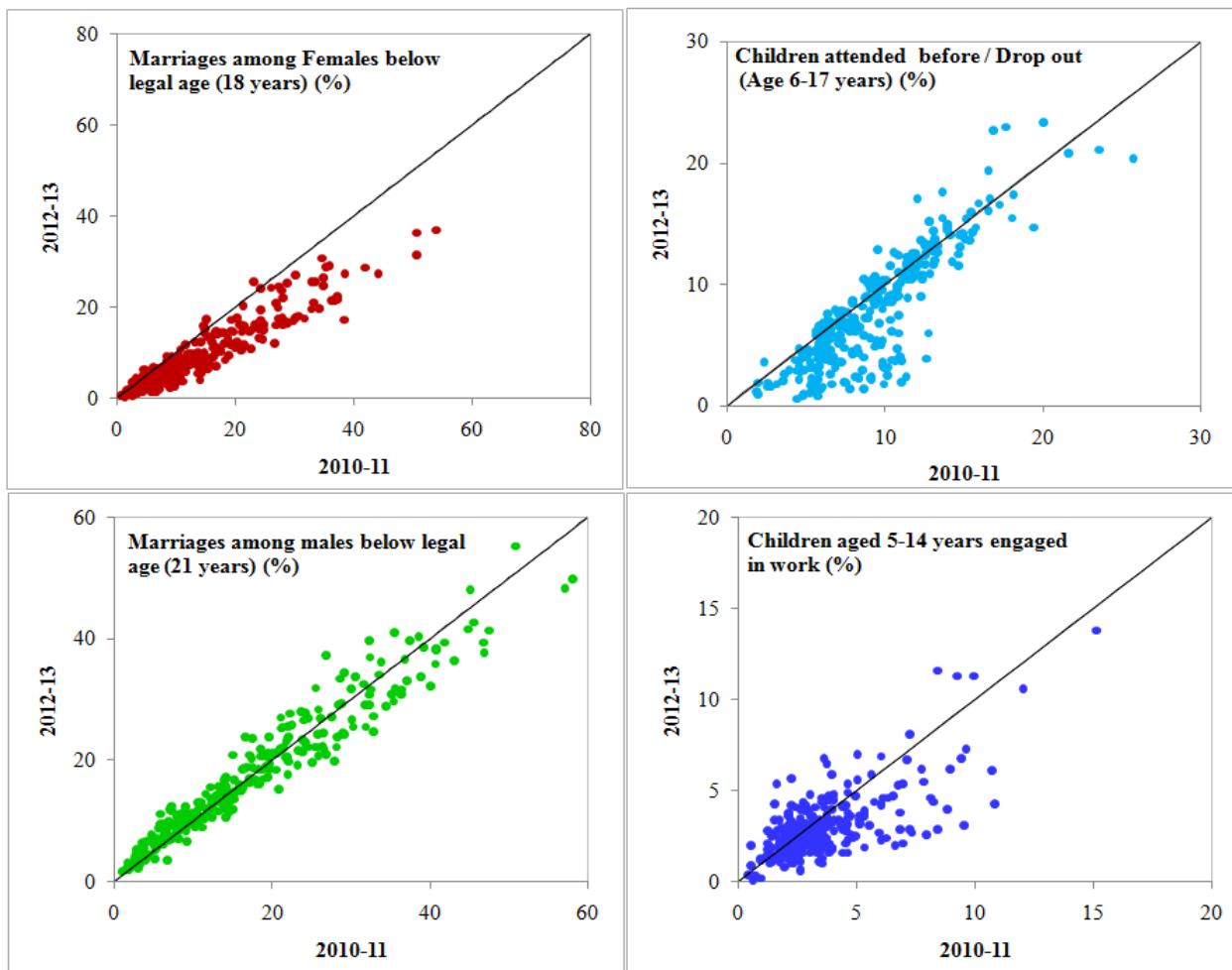
Average house-hold size at State-level for 2010-11, 2011-12 and 2012-13 and lowest and highest household size at district level for 2012-13

State	AHS	AHS	AHS	District (Household Size) 2012-13	
	2010-11	2011-12	2012-13	Lowest	Highest
Assam	4.5	4.6	4.6	Kamrup (4.1)	Dhemaji (5.2)
Bihar	5.2	5.2	5.2	Sitamarhi (4.7)	Gopalganj (6)
Chhattisgarh	4.5	4.5	4.4	Raigarh (4)	Jashpur,Rajnandgaon, Durg (4.7)
Jharkhand	5.1	5.2	5.2	Purba Singhbhum (4.7)	Giridih, Kodarma (5.9)
Madhya Pradesh	4.7	4.7	4.6	Rewa, Shahdol (4)	Jhabua (5.6)
Odisha	4.2	4.2	4.2	Nayagarh (3.6)	Bhadrak (4.8)
Rajasthan	5.1	5.1	5	Chittaurgarh, Ganganagar (4.6)	Dhaulpur (5.8)
Uttar Pradesh	5.4	5.5	5.5	Jhansi (4.5)	S R Nagar (Bhadoli) (6.2)
Uttarakhand	4.6	4.6	4.5	Pithoragarh (4.1)	Udham Singh Nagar (5.1)

2.3 Figure 2.1 provides insights regarding district-level improvements in four important indicators between 2010-11 and 2012-13. A box with a diagonal is plotted to facilitate interpretation of change in performance across districts. The scatter lying above this line indicates that the value of the concerned indicator is higher in 2012-13 as compared to 2010-11. On

the other hand, if the scatter lies below the 45 degree line, it indicates a decline in the value of indicator between 2010-11 and 2012-13. Figure 2.1 shows that there has been a decline in marriages below legal age among females as well as in the drop-out rates among children aged 6-17 years. Also, the percentage of children aged 5-14 years who are engaged in work is decreasing.

Figure 2.1: Selected Household Indicators 2010-11 and 2012-13



2.4 Table 2.2 lists the districts in each of the nine AHS States that have the highest and lowest household size in rural and urban areas. The table indicates that rural areas have a larger average household size in comparison to urban areas. The inter-district differentials are apparent with

Nayagarh district in Odisha having the lowest household size in both rural (3.6) and urban areas (3.5) respectively. On the other hand, S.R. Nagar in Uttar Pradesh has the highest household sizes for both urban and rural areas: 6.2 and 6.5 persons, respectively.

Table 2.2 Rural and Urban Household Size (2012-13)
Lowest and highest household size in rural and urban areas at the district level

State	Rural		Urban	
	Lowest	Highest	Lowest	Highest
Assam	Sibsagar(4.5)	Dhemaji(5.3)	Kamrup(3.8)	Dhemaji(4.8)
Bihar	Purnia(4.7)	Gopalganj(6)	Sitamarhi(4.5)	Nawada(5.9)
Chhattisgarh	Raigarh(3.9)	Durg; Rajnandgaon (4.8)	Janjgir-Champa(3.9)	Bastar(4.7)
Jharkhand	Purba Singhbhum(4.6)	Kodarma(6)	Pakaur(4.5)	Chatra, Raipur(5.8)
Madhya Pradesh	Shahdol(3.9)	Jhabua(5.7)	Katni, Umaria, Dindori (4.2)	East Nimar(5.3)
Odisha	Nayagarh(3.6)	Bhadrak(4.7)	Nayagarh(3.5)	Bhadrak(5.3)
Rajasthan	Rajsamand(4.6)	Barmer; Dhaulpur(5.7)	Alwar, Ganganagar (4.5)	Dhaulpur(6.1)
Uttar Pradesh	Jhansi(4.4)	Varanasi; S R Nagar (6.2)	Sonbhadra, Hamirpur (4.6)	Etawah, S R Nagar(6.5)
Uttarakhand	Pithoragarh(4.1)	Haridwar(5.4)	Rudraprayag(3.7)	Udham Singh Nagar(4.9)

2.2.2. Sex Ratio

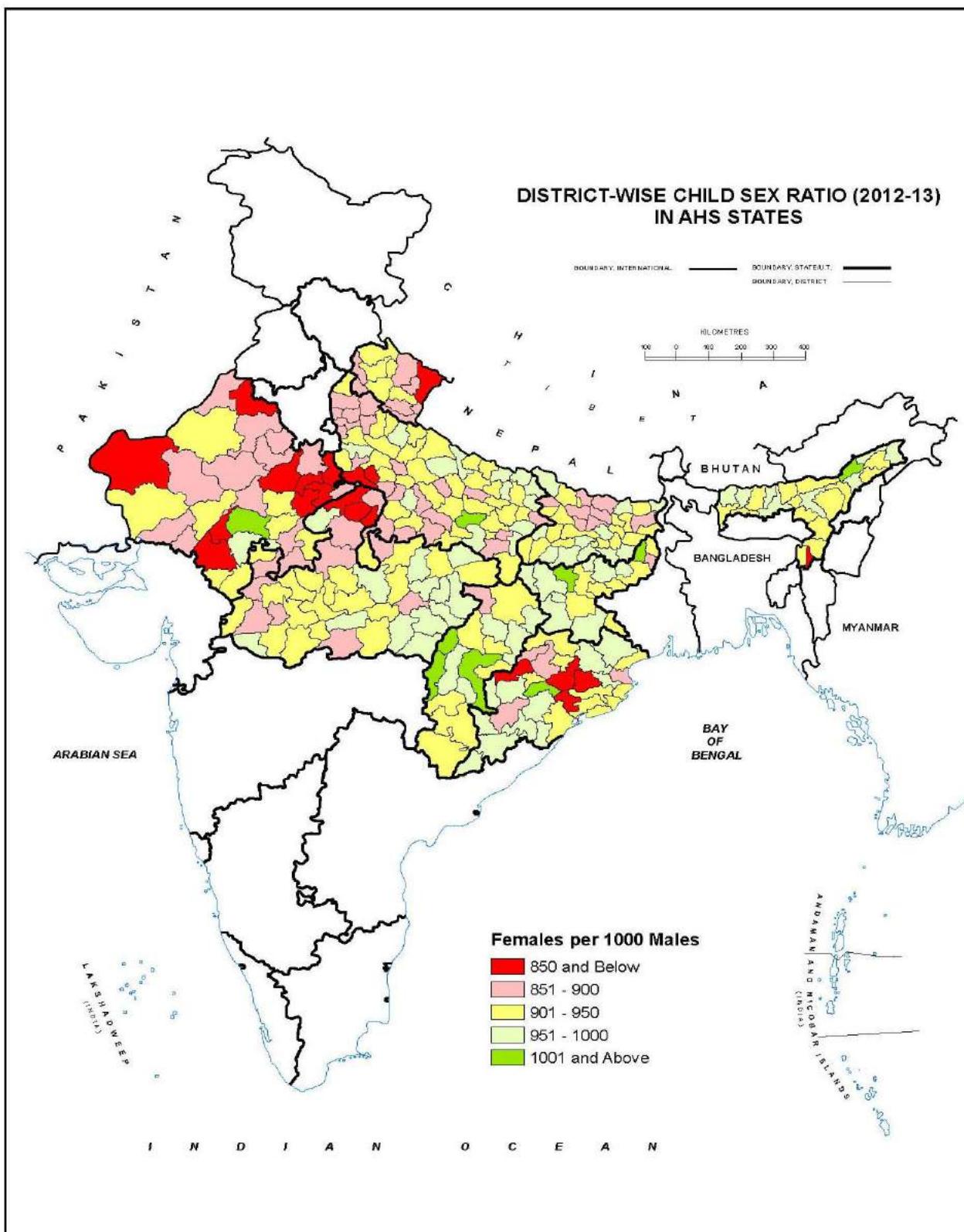
2.5 AHS 2012-13 reveals that Madhya Pradesh has the lowest sex ratio with 920 females per thousand males (Table 2.3). In the age group of 0-4 years, the figures are much lower at 916 females per thousand males and then at birth to 905 females per thousand males. Both at birth as well as in the 0-4 age group, sex ratio is highest in Chhattisgarh: the figures being 956 females per

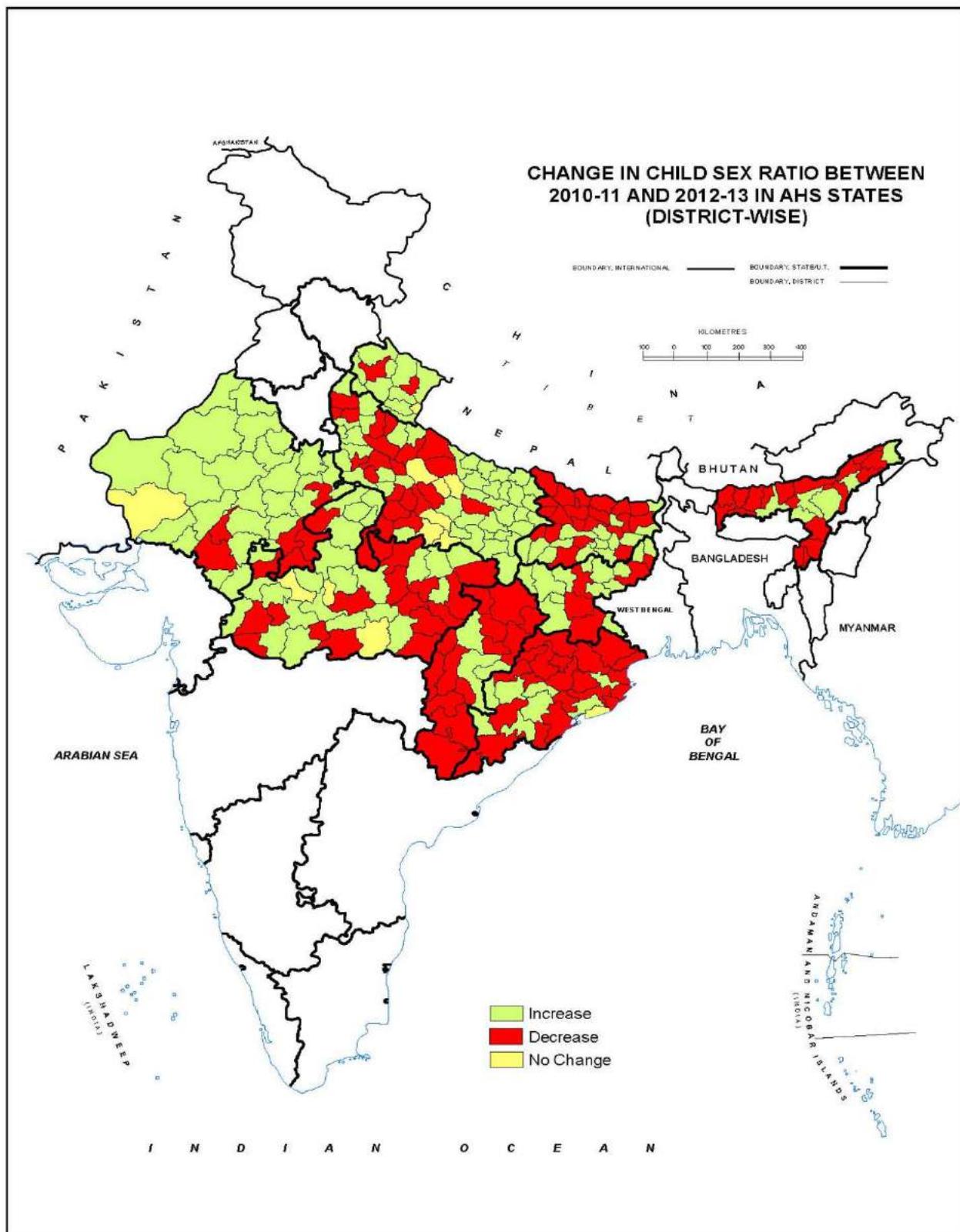
1000 males, and 965 females per thousand males. In Bihar, Rajasthan, and Uttar Pradesh, sex ratio at birth is higher than the sex ratio in the age group 0-4 years while across the other States, sex ratio at birth is lower. Assam is an exception with the same sex ratio in both age groups. The most skewed sex ratio among AHS States is noted in Rajasthan and Uttarakhand, the statistics for the 0-4 age group being 878 females per 1000 males and 883 females per 1000 males.

Table 2.3: Sex Ratio at Birth, Child Sex Ratio and Sex Ratio at State-level (2012-13)

State	All Ages	0-4 years	At birth
Assam	965	947	947
Bihar	956	922	925
Chhattisgarh	974	965	956
Jharkhand	954	948	930
Madhya Pradesh	920	916	905
Odisha	996	925	908
Rajasthan	932	878	887
Uttar Pradesh	946	919	921
Uttarakhand	997	883	873

Map 2.1: District-wise child sex ratio (2012-13) in AHS States



Map 2.2: Change in child sex ratio between 2010-11 and 2012-13 in AHS States (district-wise)

2.6 Table 2.4 presents the district-wise highest and lowest sex ratio at birth and child sex ratio across States. Jharkhand has the highest sex ratio of 1036 in the age 0-4 age group in Chatra district, while Rajnandgaon of Chhattisgarh has

the highest sex ratio at birth at 1020. Different statistics are observed in Uttarakhand with the State having the lowest sex ratio at birth of just 767 females per 1000 males in Pithoragarh and 917 females per 1000 males in Nainital.

Table 2.4 Child Sex ratio and Sex ratio at Birth at District Level (2012-13)
Districts with the highest and lowest child sex ratio and sex ratio at birth in each State

State	0-4 years		At birth	
	Lowest	Highest	Lowest	Highest
Assam	Hailakandi (846)	Lakhimpur (1004)	Hailakandi (822)	Darrang (1003)
Bihar	Sitamarhi(855)	Kishanganj(990)	Sitamarhi(869)	Buxar(997)
Chhattisgarh	Koriya(879)	Kawardha(1001)	Koriya(883)	Rajnandgaon(1020)
Jharkhand	Pakaur(888)	Chatra(1036)	PurbaSinghbhum(881)	Giridih(994)
Madhya Pradesh	Morena(793)	Panna(999)	Gwalior(804)	Dindori(1003)
Odisha	Nayagarh(838)	Baudh(1002)	Nayagarh(831)	Kendrapara(961)
Rajasthan	Jaipur(830)	Bhilwara(1027)	SawaiMadhopur(805)	Bhilwara(996)
Uttar Pradesh	Agra(827)	Pratapgarh(1009)	Badaun(828)	Aligarh(1081)
Uttarakhand	Pithoragarh(820)	Uttarkashi(928)	Pithoragarh(767)	Nainital(917)

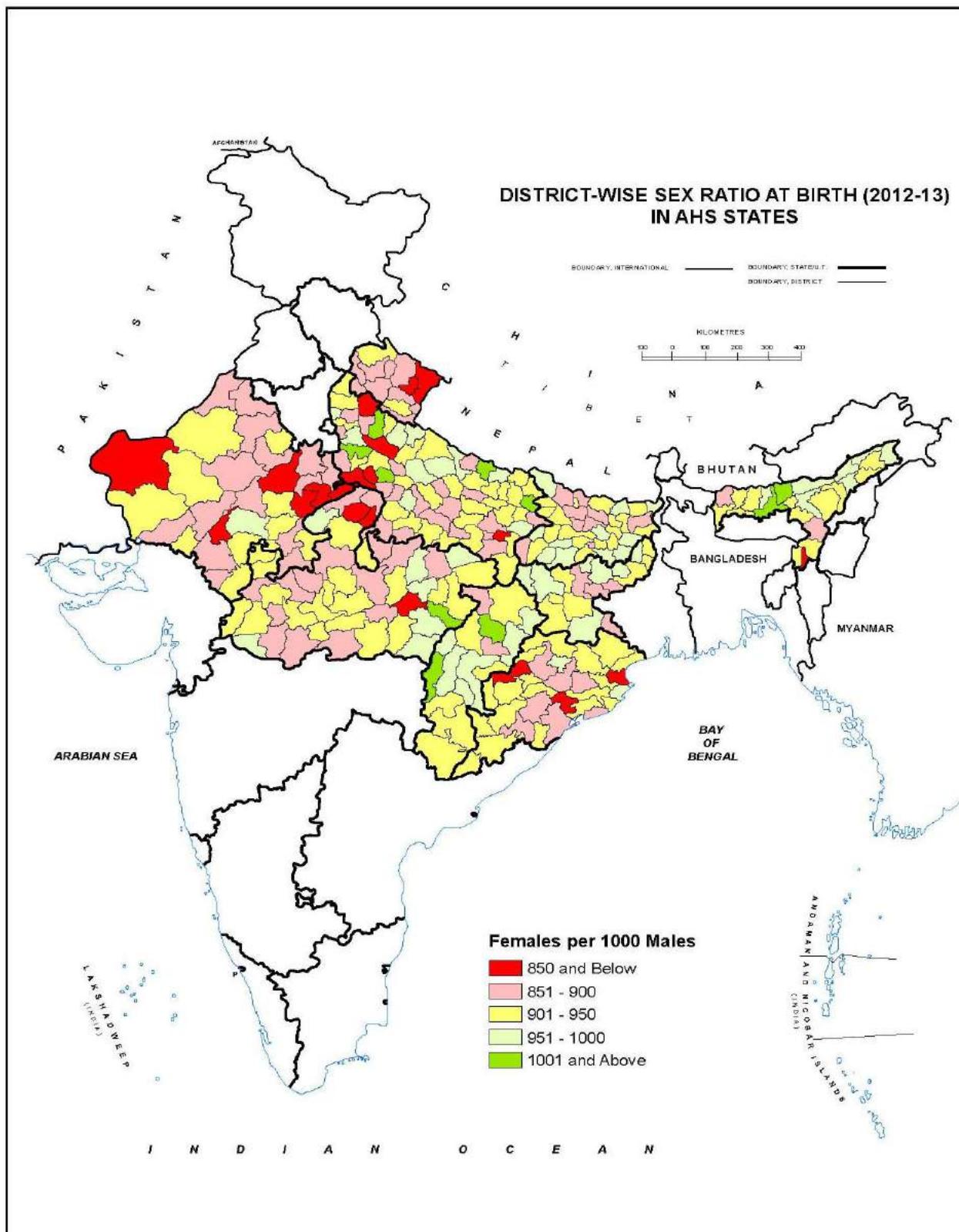
Table 2.5 Rural and Urban Sex Ratio at District Level (2012-13)
Districts with the highest and lowest child sex ratio and sex ratio at birth in rural and urban areas of each State

State	Rural		Urban	
	Lowest	Highest	Lowest	Highest
Assam	Kamrup (911)	Nalbari (1045)	Golaghat (921)	Nalbari (997)
Bihar	PashchimChamparan(896)	Nawada(1080)	Supaul (821)	Jehanabad(1018)
Chhattisgarh	Koriya(950)	Dantewada(1009)	Jashpur(880)	Dhamtari(1022)
Jharkhand	Garhwa(933)	PashchimiSinghbhum(1005)	Sahibganj(887)	Gumla(957)
Madhya Pradesh	Gwalior(828)	Mandla(1009)	Morena(840)	Balaghat(992)
Odisha	Sonapur(942)	Kendrapara(1106)	Jagatsinghapur(872)	Kendrapara(1066)
Rajasthan	Karauli(823)	Jalor(1055)	Dhaulpur(865)	Dungarpur(997)
Uttar Pradesh	Shahjahanpur(848)	SantKabir Nagar(1184)	G B Nagar(775)	Deoria(1094)
Uttarakhand	Haridwar(872)	TehriGarhwal(1278)	Rudraprayag (741)	Pithoragarh(1006)

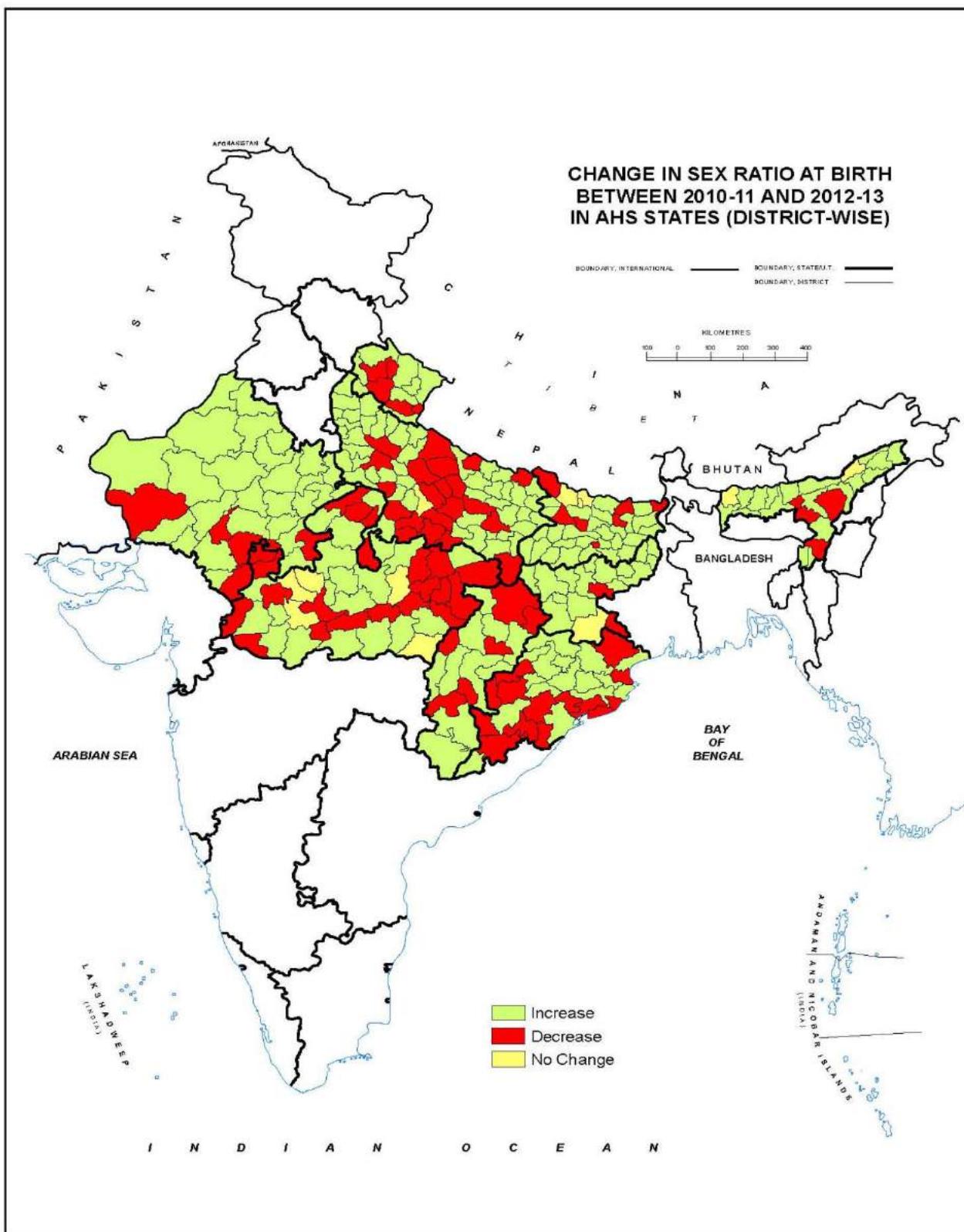
2.7 Table 2.5 illustrates those districts of the nine AHS States with the highest and lowest sex ratio across all age groups, with specific rural-urban distinction. It can be observed that in rural areas, Tehri Garhwal in Uttarakhand has the highest sex ratio (1278 females per 1000 males), while Karauli in Rajasthan at 823 shows the lowest. In

the combined analysis of all the age groups, the inter-district divide is stark even in the case of rural areas, with Rudraprayag in Uttarakhand showing a meagre sex ratio of 741 females per 1000 males as opposed to a sex ratio of 1094 in Deoria in Uttar Pradesh, followed by Kendrapara (1066) district of Odisha.

Map 2.3: District-wise sex ratio at birth (2012-13)in AHS States



Map 2.4: Change in sex ratio at birth between 2010-11 and 2012-13) in AHS States (district-wise)



2.8 Table 2.6 shows the number of districts in the corresponding ranges of sex ratio. Rajasthan has 2 districts in the lowest sex ratio range of 800-850 females per 1000 males. The highest numbers of districts (17) in the 1000 and above range are from Uttar Pradesh. Also, 29 of Uttar Pradesh's 70 districts are in the range of 850-900, while 10 of Rajasthan's 32 districts are in the range of 950-1000. Interestingly, most districts in

Uttarakhand have a favourable overall sex ratio, with 9 of its 13 districts in the 1000 and above category. The highest numbers of districts across the various ranges are as follows: from Assam (18) in the 950-1000 sex ratio range, from Madhya Pradesh (26) in the 900-950 range followed by Bihar (16) and Uttar Pradesh (15) and from Uttar Pradesh (29) in the 850-900 range.

Table 2.6 Frequency Distribution of Sex Ratio (2012-13)
The number of districts in each State classified under a particular range of sex ratio

Range	800-850	850-900	900-950	950-1000	1000 & above
Assam	0	0	4	18	1
Bihar	0	1	16	11	9
Chhattisgarh	0	0	2	12	2
Jharkhand	0	0	7	11	0
Madhya Pradesh	1	9	26	7	2
Odisha	0	0	3	16	11
Rajasthan	2	8	8	10	4
Uttar Pradesh	1	29	15	8	17
Uttarakhand	0	1	3	0	9

2.9 Table 2.7 provides the distribution of AHS districts across different ranges of child sex ratio. Chhattisgarh (3) has the highest number of districts in the 1000 & above range, while Madhya Pradesh is the only State with a district falling within the lowest range of 750-800 range.

The highest number of districts in the 800-850 range is from Rajasthan (including 9 of its 32 districts), while fewer of its districts feature in the higher ranges. Uttarakhand is the only State which has none of its districts in the 950-1000 range.

Table 2.7 Frequency distribution of child sex ratio (2012-13)
The number of districts in each State classified under a particular range of child sex ratio

Range	750-800	800-850	850-900	900-950	950-1000	1000 & above
Assam	0	1	0	13	8	1
Bihar	0	0	8	18	11	0
Chhattisgarh	0	0	1	7	5	3
Jharkhand	0	0	1	7	8	2
Madhya Pradesh	1	2	9	19	14	0
Odisha	0	4	4	10	11	1
Rajasthan	0	9	13	8	1	1
Uttar Pradesh	0	2	21	32	14	1
Uttarakhand	0	1	7	5	0	0

2.2.3. Dependency ratio

2.10 The number of dependents (children and elderly) and working age population is an important indicator of the potential economic opportunities for the households and the region. Higher the number of non-working members, higher will be the dependency on the working age group, limiting accessibility to various resources

and opportunities. Table 2.8 shows households in Bihar having the highest dependency ratio. At the district level, Kishanganj has a dependency ratio of 106.4 dependent-age population per 100 working-age population. The district-level disparity is the highest in Uttar Pradesh at 52. The lowest dependency ratio is in Odisha at 58.4. Notably, the level of dependency is consistently falling across all States from 2010-11 to 2012-13.

Table 2.8 Dependency Ratio

Dependency ratio at State-level for 2010-11, 2011-12 and 2012-13 and districts with the lowest and highest dependency for 2012-13

State	AHS	AHS	AHS	District (Dependency Ratio) 2012-13	
	2010-11	2011-12	2012-13	Lowest	Highest
Assam	64.5	61.9	60.8	Kamrup (48.3)	Karimganj (74.5)
Bihar	92	88.3	87.2	Patna (71.3)	Kishanganj (106.4)
Chhattisgarh	64.6	62.5	61	Kanker (50.7)	Kawardha (70.5)
Jharkhand	75.8	72	69.3	PurbaSinghbhum (55.5)	Godda (81.8)
Madhya Pradesh	68.9	65.5	63.7	Jabalpur (52.1)	Jhabua (82.1)
Odisha	62.1	59.2	58.4	Jharsuguda (50.5)	Malkangiri (68)
Rajasthan	75.2	71.6	68.4	Ganganagar (55.7)	Barmer (94.4)
Uttar Pradesh	82.1	77.7	75.8	KanpurNagar (53.7)	Siddharthnagar (105.7)
Uttarakhand	69.8	66.8	64.3	Dehradun (54)	TehriGarhwal (77.8)

2.11 Table 2.9 shows the number of districts in the different ranges of dependency ratio. While Odisha has the maximum of districts in the 40-60 range (16), Bihar has the highest number of districts (34) in the 80-100 range and only one district in the above 100 range. While there is a balance between the working and non-working

household population in Odisha, a greater pressure on the working age population is recorded in Bihar. Uttar Pradesh too has a high dependency ratio with 24 of its 70 districts in the 80-100 range. While, Madhya Pradesh has low dependency ratio with 14 of its districts falling in the 40-60 range and 30 in the 60-80 range.

Table 2.9 Frequency distribution of dependency ratio (2012-13)

The number of districts in each State classified under a particular range of dependency ratio

Range	40-60	60-80	80-100	100 above
Assam	9	14	0	0
Bihar	0	2	34	1
Chhattisgarh	7	9	0	0
Jharkhand	2	12	4	0
Madhya Pradesh	14	30	1	0
Odisha	16	14	0	0
Rajasthan	3	26	3	0
Uttar Pradesh	4	41	24	1
Uttarakhand	3	10	0	0

2.12 Table 2.10 lists the districts with extreme dependency ratios at the rural and urban levels. The highest dependency ratio of Bihar is seen at 111.4 in Kishanganj (rural) and 93.7 in Sheohar (urban). In the rural areas, Odisha has the lowest dependency ratio (Bargarh at 50.9), while in the urban areas, Assam's ratio is the lowest (Bongaigaon at 38.4). Differences are seen

between the rural and urban areas, with the rural sector displaying higher dependency ratios. With regard to disparities, Bihar has notably higher gap of 38.2 between Muzaffarpur and Sheohar in urban areas. Similar trends can be seen in rural Rajasthan with a wide gap between its lowest ratio of 58.2 in Ganganagar and highest ratio of 97.8 in Barmer.

Table 2.10 Rural and Urban Dependency Ratio (2012-13)

Districts with the highest and lowest dependency ratio in rural and urban areas of a State

State	Rural		Urban	
	Lowest	Highest	Lowest	Highest
Assam	Sibsagar (53.4)	Dhubri (77.9)	Bongaigaon (38.4)	Golaghat (52.7)
Bihar	Gopalganj (82.5)	Kishanganj (111.4)	Muzaffarpur (55.5)	Sheohar (93.7)
Chhattisgarh	Kanker (51.1)	Kawardha (73.3)	Kanker (43)	Kawardha (54.9)
Jharkhand	PurbaSinghbhum(62.5)	Godda (83.1)	Pakaur (48.4)	Palamu (64.9)
Madhya Pradesh	Balaghat (55.5)	Chhatarpur (86.9)	Shahdol (42.1)	EastNimar (64.4)
Odisha	Bargarh (50.9)	Nabarangapur (69.2)	Jagatsinghpur (38.8)	Bhadrak (60.1)
Rajasthan	Ganganagar (58.2)	Barmer (97.8)	Ganganagar (49.8)	Dhaulpur (68.5)
Uttar Pradesh	Jhansi (66.3)	Siddharthnagar(107.6)	Sonbhadra (46.6)	Kaushambi(82.4)
Uttarakhand	Nainital (57.1)	TehriGarhwal (81.5)	Rudraprayag (45.4)	Champawat (63.6)

2.2.4. Effective literacy rate

2.13 AHS 2010-11 shows that Uttarakhand has highest effective literacy rate at 81.3 per cent while Bihar has the lowest effective literacy rate at 66.3 per cent (Table 2.11). The two States continue to hold their respective positions in the years 2011-12 and 2012-13. Uttarakhand showed the least improvement in two years. Although

Assam recorded an improvement of 2.2 per cent in 2011-12, this rate slowed down to just 0.6 per cent in 2012-13. There was a considerable improvement of 3.1 per cent in the effective literacy rate in Odisha and Uttar Pradesh from 2010-11 to 2012-13. Also, Bihar showed substantial improvement. An overall analysis indicates that in most of the States showed an upward trend in effective literacy rates.

Table 2.11 Effective Literacy Rates (%)

Average effective literacy rates at State-level for 2010-11, 2011-12 and 2012-13 and lowest and highest effective literacy rates at district level for 2012-13

State	AHS	AHS	AHS	District (Effective Literacy) 2012-13	
	2010-11	2011-12	2012-13	Lowest	Highest
Assam	78.8	81	81.6	Kokrajhar (72.9)	North cacher Hills (91.6)
Bihar	66.3	67.5	68.7	Purnia (60.6)	Patna (78.7)
Chhattisgarh	74.7	75.6	76.4	Dantewada (52.3)	Dhamtari (84.3)
Jharkhand	71.7	72.8	73.3	Pakaur (59.3)	Ranchi (82.3)
Madhya Pradesh	74.5	75.7	76.9	Jhabua (50)	Bhopal (91.1)
Odisha	76.4	78.1	79.5	Malkangiri (53.5)	Puri (90.9)
Rajasthan	70.7	73.3	74.2	Jalor (59.4)	Jaipur (83.5)
Uttar Pradesh	71.2	72.8	74.3	Shrawasti (51.8)	Ghaziabad (88.3)
Uttarakhand	81.3	82.2	82.8	TehriGarhwal (75.7)	Nainital (91.1)

2.14 Table 2.12 shows the number of districts of the nine AHS States in each corresponding range of effective literacy rates. Odisha and Uttar Pradesh has the maximum number of districts 3 each in the 50-60 range, but a majority of the districts (15) of Odisha are in the 80-90 range, thus indicating a varied rate of literacy in the State. Uttar Pradesh too has differing levels of

literacy with 3 districts in the 50-60 range, 15 in 60-70 range, 38 in 70-80 range and 14 in 80-90 range. Madhya Pradesh has the maximum districts in the highest range of 90-100 range. Assam, Madhya Pradesh and Uttarakhand have one district each in the 90-100 range. The maximum number of districts in 60-70 range is from Bihar (22).

Table 2.12 Frequency of Effective Literacy Rates (2012-13)

The number of districts in each State classified under a particular range of effective literacy rate

Range	50-60	60-70	70-80	80-90	90-100
Assam	0	0	7	15	1
Bihar	0	22	15	0	0
Chhattisgarh	1	2	9	4	0
Jharkhand	1	8	8	1	0
Madhya Pradesh	1	5	29	9	1
Odisha	3	5	4	15	3
Rajasthan	1	11	16	4	0
Uttar Pradesh	3	15	38	14	0
Uttarakhand	0	0	3	9	1

2.15 As per the effective literacy rates recorded in the AHS 2012-13, Jhabua district in Madhya Pradesh has the lowest rate at 46.6 per cent among all the districts of the nine AHS States. In urban areas, Sheohar district of Bihar has the lowest effective literacy rate at 57.5 per cent,

while Almora district of Uttarakhand has the highest at 97.3 per cent. With regard to the gaps between districts, Madhya Pradesh has the widest gap in case of rural literacy rate and Assam has the least. In the case of urban areas, the inter-district divide is high in Bihar.

Table 2.13 Rural and Urban Effective Literacy Rates (2012-13)

Districts with the highest and lowest effective literacy rate in rural and urban areas of a State.

State	Rural		Urban	
	Lowest	Highest	Lowest	Highest
Assam	Tinsukia (70.6)	North Cacher Hills (87.1)	Tinsukia (88.8)	Darrang (97.2)
Bihar	Purnia (56.7)	Rohtas, Kaimur (75.5)	Sheohar (57.5)	Muzaffarpur (91.2)
Chhattisgarh	Dantewada (47.7)	Dhamtari (83.9)	Mahasamund (83.2)	Kanker (94.8)
Jharkhand	Pakaur (57.1)	Ranchi (75.4)	Sahibganj (81.4)	Ranchi (92.5)
Madhya Pradesh	Jhabua (46.6)	Balaghat (81.2)	Jhabua (79.1)	Seoni (96.9)
Odisha	Malkangiri (51.2)	Puri (90.8)	Malkangiri (78.2)	Baleshwar (94.8)
Rajasthan	Sirohi (57.4)	Jhunjhunu (80.6)	Dhaulpur (76.4)	Udaipur (92.6)
Uttar Pradesh	Shrawasti (51.3)	G B Nagar (85)	Kaushambi (69.2)	G B Nagar (91)
Uttarakhand	Haridwar (70)	Nainital (90.8)	Champawat (83.8)	Almora (97.3)

2.16 Table 2.14 shows gender wise and region wise (in rural and urban) effective literacy rates

across AHS States. Uttarakhand has the highest level of effective literacy in rural areas at 80.2 per

cent. Assam however has the highest level of urban literacy at 92.1 per cent. Importantly, all the States have more than 80 per cent effective literacy levels. While the rural-urban differentials

are the lowest in Uttarakhand (8.7 per cent) and highest in Jharkhand (18.8) and Madhya Pradesh (19.1), the gender differentials are the lowest in Assam (11.9) and highest in Rajasthan (25).

Table 2.14 Differentials in Effective Literacy Rates (2012-13)

The absolute differences in effective literacy rates between males and females and across rural and urban areas of a State

State	Rural	Urban	Difference (Rural-Urban)	Male	Female	Difference (Male-Female)
Assam	79.2	92.1	12.9	87.5	75.6	11.9
Bihar	66.4	84.1	17.7	78.2	58.9	19.3
Chhattisgarh	73.1	88.8	15.7	85.6	67.1	18.5
Jharkhand	68.2	87	18.8	83.4	63.1	20.3
Madhya Pradesh	70.6	89.7	19.1	85.3	67.7	17.6
Odisha	77.3	90.7	13.4	87.8	71.4	16.4
Rajasthan	69.8	86.9	17.1	86.3	61.3	25
Uttar Pradesh	71.2	84.3	13.1	83.8	64.4	19.4
Uttarakhand	80.2	88.9	8.7	91	74.7	16.3

2.17 Literacy rate of women has been an area of grave concern across States. The level of married illiterate women, in the 15-49 years age group, continues to be high in most States (Table 2.15). Bihar shows the highest percentage of married illiterate women in all three years and the least improvement of 0.3 per cent in both the years. While, Uttarakhand shows the lowest percentage

throughout. While Uttar Pradesh recorded 53.1 per cent in 2010-11, this fell to 49.7 per cent in 2011-12 and further to 47.5 per cent in 2012-13. Odisha too displayed falling rates across the three years: from 32.8 per cent to 29.4 per cent, and then to 28.5 per cent. Despite a slow progress, the figures of married illiterate women across the nine AHS States are declining.

Table 2.15: Married Illiterate Women (%)

Illiteracy rates among married women at State-level for 2010-11, 2011-12 and 2012-13 and the districts with the lowest and highest illiteracy rates for 2012-13

State	AHS	AHS	AHS	District (Married Illiterate Women 15-49 yrs, 2012-13)	
	2010-11	2011-12	2012-13	Lowest	Highest
Assam	32.6	29.7	28.2	North Cachar Hills(15.3)	Kokrajhar(44.7)
Bihar	57.3	57	56.7	Patna(40.8)	Pashchim Champaran(73.9)
Chhattisgarh	40	38.7	36.5	Durg(21.5)	Dantewada(72)
Jharkhand	48.4	47.1	46.7	Ranchi(31)	Pakaur(64.1)
Madhya Pradesh	42.9	41.9	38.1	Bhopal(13.6)	Jhabua(78.5)
Odisha	32.8	29.4	28.5	Khordha(9.5)	Nabarangapur(70.6)
Rajasthan	51.8	51.4	48.7	Ajmer(24.6)	Jalor(72.9)
Uttar Pradesh	53.1	49.7	47.5	Kanpur Nagar(21.4)	Shrawasti(75.2)
Uttarakhand	28.2	26.7	24.9	Nainital(11.8)	Haridwar(41.2)

2.18 Table 2.16 lists the districts with the highest and lowest levels of illiterate married women, with rural-urban distinction. Jhabua district of

Madhya Pradesh has a startling 84.5 per cent of illiterate married women, this being highest among all districts in rural areas. Sheohar in

Bihar, despite being an urban area, follows with 80.1 per cent illiterate married women. Except Haridwar in Uttarakhand and Tinsukia in Assam, other States have similarly high female illiteracy

rates at the rural level. Jagatsinghapur (9.9 per cent) in Odisha and Darrang (0.85 per cent) in Assam have the lowest number of illiterate married women in the rural and urban categories.

Table 2.16: District level Married Illiterate Women (2012-13)

Districts with the highest and lowest illiteracy rate among married women in rural and urban areas of a State

State	Rural		Urban	
	Lowest	Highest	Lowest	Highest
Assam	Nalbari(17.9)	Tinsukia(48.9)	Darrang(0.8)	Tinsukia(16.4)
Bihar	Saran(44.7)	Purnia(78.7)	Muzaffarpur(9.6)	Sheohar(80.1)
Chhattisgarh	Dhamtari(22.6)	Dantewada(79)	Kanker(5.9)	Raigarh(23.6)
Jharkhand	Ranchi(44.2)	Pakaur(67.6)	Pakaur(10)	Sahibganj(31.1)
Madhya Pradesh	Balaghat(20.1)	Jhabua(84.5)	Seoni(2.6)	Sheopur(37)
Odisha	Jagatsinghapur(9.9)	Koraput(76.2)	Nayagarh(4.3)	Malkangiri(33)
Rajasthan	Jhunjhunun(26.7)	Jalor(75.2)	Udaipur(10.9)	Dhaulpur(50.9)
Uttar Pradesh	Ghaziabad(30)	Bahraich(76.9)	Sultanpur(11.4)	Kaushambi(53.8)
Uttarakhand	Nainital(12)	Haridwar(56.1)	Almora(2.4)	Champawat(24.4)

2.2.5. Legal age at marriage

2.19 Table 2.17 reports the percentage of marriages below the legal age for both males and females in the nine AHS States. While the legal age of marriage for men is 21 years, for women it is 18 years. However, data reveals in all the States a certain percent of men and women are married off before the legal age. Rajasthan has the highest percentage of under-age marriages among men (27.5 per cent in 2012-2013), while Uttarakhand has the lowest (5.5 per cent). Even

among females, Rajasthan records the highest percentage of under-age marriages (14.3 per cent). In case of females, Uttarakhand reports the lowest percentage of under-age marriages (1.8 per cent). Jhabua district of Madhya Pradesh records the highest percentage of 55.3 per cent marriages before the legal age among men, while Bhilwara district in Rajasthan reports the highest rate of 37 per cent under-age marriages among females. Odisha shows the lowest rate of under-age marriage among men (1.7 per cent cases from Jagatsinghapur).

Table 2.17: Marriages below Legal Age (2012-13)

Percentage of male and female marriages below the legal age at State level and the district with the lowest and highest rate in each State

State	% Males married below legal age, 21 yrs			% Females married below legal age, 18 yrs		
	Male	Lowest	Highest	Female	Lowest	Highest
Assam	8.3	Hailakandi (3.6)	Dhubri (15.5)	7.4	Nalbari (3.8)	Dhubri (18.2)
Bihar	20.6	Katihar (8.4)	Nawada (48.3)	13.8	Siwan (3.5)	Nawada (36.4)
Chhattisgarh	11.4	Kanker (4.6)	Kawardha (27.3)	4.3	Raigarh (1.4)	Kawardha (11.9)
Jharkhand	15	PurbaSinghbhum (6.9)	Giridih (24.5)	11	Bokaro (4.7)	Pakaur (24.3)
Madhya Pradesh	21.3	Hoshangabad (4.2)	Jhabua (55.3)	10.6	Balaghat (1.1)	Tikamgarh (27.1)
Odisha	6.1	Jagatsinghapur (1.7)	Nabarangapur (25.8)	4.4	Jagatsinghapur (0.6)	Malkangiri (16)
Rajasthan	27.5	Ganganagar (11.3)	Bhilwara (49.9)	14.3	Ganganagar (3.1)	Bhilwara (37)
Uttar Pradesh	16.9	Kanpur Nagar (4.5)	Lalitpur (48.2)	5.4	Bijnor (0.4)	Shrawasti (28.9)
Uttarakhand	5.5	Almora (2.2)	Uttarkashi (11.5)	1.8	Nainital (0.7)	Pithoragarh (5.3)

2.20 Table 2.18 categorises the number of districts in each State into percentage of female marriages in the range of 0-10 percent, 10-20 percent, 20-30 percent and 30-40 percent. In most of the districts there are less than 10 per cent cases of female marriage below the legal age. For instance, 60 districts of Uttar Pradesh fall in this category. 16 districts in Madhya Pradesh, 14

in Bihar and 10 in Jharkhand have under-age marriages within the category of 10-20 percent. Also, high proportion of under-age marriage is largely uncommon across all States, with only 2 districts in Bihar and Rajasthan reporting the same. Clearly, there is large-scale unawareness about the legalities of marriages and associated health risks for under-age girls.

Table 2.18: Frequency of Districts with % Marriages below the Legal Age among Women (2012-13)
The number of districts in each State classified under a particular range of marriages taking place below the legal age among women

Range	0-10 %	10-20 %	20-30 %	30-40 %
Assam	21	2	0	0
Bihar	13	14	8	2
Chhattisgarh	15	1	0	0
Jharkhand	7	10	1	0
Madhya Pradesh	24	16	5	0
Odisha	27	3	0	0
Rajasthan	11	13	6	2
Uttar Pradesh	60	6	4	0
Uttarakhand	13	0	0	0

2.2.6. Schooling, drop outs and work participation

2.21 Table 2.19 provides the State-wise proportion of children aged between 6 years and 17 years, who at present attend school. There is a consistent increase in figures across all the nine States between 2010-11 and 2012-13. Bihar performs better than all the other States, jumping

from its position among the bottom three in 2010-11 to securing the top spot in 2012-13, after recording steady increases across the three survey periods. Odisha ranks the lowest across the three survey periods. The largest relative increase is witnessed in Bihar (an increase of 3.58 per cent) from 92.2 per cent in 2011-12 to 95.5 per cent in 2012-13, whereas the lowest relative increase (of a mere 0.26 per cent) is seen in Odisha.

Table 2.19 Children Currently Attending School (%)
Percentage of children (aged 6-17 yrs) currently attending school in 2010-11, 2011-12 and 2012-13 at the State-level and the lowest and highest level at the district level in 2012-13.

State	AHS	AHS	AHS	Districts	
	2010-11	2011-12	2012-13	Lowest	Highest
Assam	87.1	88.1	88.7	Karimganj (82.8)	North Cacher Hills (96.3)
Bihar	88.8	92.2	95.5	Kishanganj (90.9)	Samastipur (99)
Chhattisgarh	87.9	92.2	94.3	Dantewada (88.6)	Kanker (97.5)
Jharkhand	90	91	91.7	Pakaur (80.5)	Hazaribagh (96.4)
Madhya Pradesh	88	89.8	92.8	Jhabua (72.3)	Shahdol (98.4)
Odisha	83.1	84.7	84.9	Nabarangapur (71.3)	Jagatsinghpur (97.2)
Rajasthan	86.2	87.3	88.3	Sirohi (76.6)	Alwar (95.2)
Uttar Pradesh	86.3	86.8	87.3	Budaun (72.6)	Ballia (95.1)
Uttarakhand	92.6	93.2	93.9	Haridwar (86.7)	Rudraprayag (98.9)

2.22 Table 2.20 reports the dropout rates prevalent among children aged between 6 years and 17 years, children engaged in work and the work participation rate. Odisha has the highest number of dropouts at 13.5 per cent, followed by Uttar Pradesh (10.5 per cent) and Assam (10.4 per cent), while Bihar has the lowest at 2.9 per cent. Female dropout rates generally tend to be higher across States (highest in Odisha with 14.1

per cent and lowest in Bihar with 2.9 per cent). Male dropout rate is the highest at 13 per cent again in Odisha, closely followed by 12.1 per cent in Assam. An assessment of all the States reveals that Bihar performs better in terms of the drop-out rate among males as well (2.9 per cent). The difference between male and female dropout rate is as high as 4.2 per cent in Rajasthan and as low as 0.1 per cent in Madhya Pradesh.

Table 2.20 Levels of School Dropout, Child Labour and Adult Work Participation (2012-13)

Percentage of children who dropped out of school, children aged 5-14 years engaged in work and work participation among population aged 15 years and above at the State-level and the district with the lowest and highest rate in each State.

State	Total	Male	Female	Rural	Urban	Lowest	Highest
Children attended before / drop out (Age 6-17 years, in %)							
Assam	10.4	12.1	8.4	11	6.5	North Cachar Hills(3.6)	Karimganj(14.5)
Bihar	2.9	2.9	2.9	2.8	3.2	Samastipur(0.6)	Kishanganj(7.1)
Chhattisgarh	4.6	5	4.2	4.9	3.4	Kanker(2.4)	Raigarh and Mahasamund (6)
Jharkhand	6.3	6.7	5.8	6.7	4.9	Garhwa(2.6)	Pakaur(11.6)
Madhya Pradesh	5.8	5.7	5.8	6.1	4.9	Shahdol(1.4)	Barwani(13.5)
Odisha	13.5	13	14.1	14.2	9.3	Jagatsinghapur(2.3)	Sambalpur(21.1)
Rajasthan	8.7	6.8	11	9.2	7.2	Alwar(4.1)	Jalor(15.2)
Uttar Pradesh	10.5	9.9	11.1	10.1	11.8	Ballia(3)	Budaun(23.4)
Uttarakhand	5.5	5.1	5.9	5.3	6	Rudraprayag(1)	Haridwar(11.7)
Children aged 5-14 years engaged in work (%)							
Assam	2.8	4.2	1.4	3	1.8	North Cachar Hills(0.6)	Tinsukia(4.2)
Bihar	2.9	3.2	2.4	3	2.1	Pashchim Champaran, Supaul and Rohtas(1.1)	Purnia(11.6)
Chhattisgarh	2.7	2.8	2.6	2.9	1.8	Dhamtari(1)	Dantewada(5.4)
Jharkhand	2.5	2.9	2.1	2.8	1.5	Bokaro(1.3)	Pakaur(6.9)
Madhya Pradesh	3.8	4.2	3.4	4.4	2.2	Gwalior(1)	Jhabua(13.8)
Odisha	3.7	4.2	3.1	3.8	2.8	Jagatsinghapur(0.8)	Koraput(7.3)
Rajasthan	2.8	2.9	2.8	2.9	2.4	Alwar(0.7)	Barmer(6.8)
Uttar Pradesh	3.2	4	2.2	3.1	3.4	Ghazipur(1)	Bahraich(6.8)
Uttarakhand	1.7	2.2	1.3	1.7	1.9	Rudraprayag(0.1)	Haridwar(3.1)
Work Participation Rate (15 years and above)							
Assam	49.1	78.9	18.5	49.5	47.7	Nalbari (40.4)	Tinsukia (59.3)
Bihar	41.0	70.9	10.7	41.4	38.5	Bhojpur (34.3)	Supaul (52.5)
Chhattisgarh	54.4	72.8	35.5	57.5	43.5	Koriya (42.5)	Rajnandgaon (64.7)
Jharkhand	45.7	72.6	18.8	47.7	41	Kodarma (36.9)	Pakaur (56.1)
Madhya Pradesh	52.5	75.3	27.8	56.5	44.8	Bhind (41.9)	Jhabua (74.6)
Odisha	50.8	76.3	26.1	51.6	47.1	Nayagarh (37.1)	Bargarh (63.4)
Rajasthan	49.1	74.4	22.9	51.1	43.5	Sikar (36.9)	Jhalawar (69.3)
Uttar Pradesh	41.6	73.8	9.2	41	43.4	Sant Kabir Nagar (32.7)	Lalitpur (51.8)
Uttarakhand	38.7	69.0	9.9	36.3	43.9	Rudraprayag (27.3)	Haridwar (45.1)

2.23 At 3.8 per cent, Madhya Pradesh has the highest rate of children between 5 and 14 years engaged in work, followed by Odisha (3.7 per cent). In Assam, Madhya Pradesh and Odisha, 4.2 per cent males aged 5-14 years are engaged in work, while Madhya Pradesh also has the highest among females at 3.4 per cent. With respect to the rural-urban distinction, Madhya Pradesh has the highest rate of children engaged in work in rural areas (4.4 per cent), while Uttar Pradesh has the highest percentage in urban areas (3.4 per cent). Jhabua district in Madhya Pradesh has the high percentage (13.8 per cent) of working children.

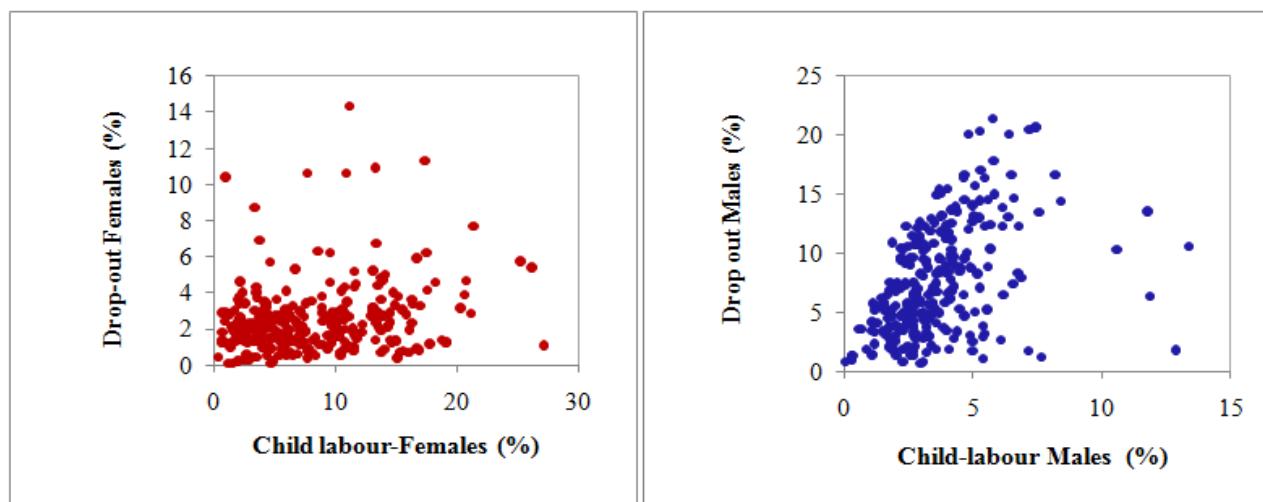
2.24 The work participation rate of children older than 15 years has been significantly high in all the States. Chhattisgarh recorded the highest at 54.4 per cent, closely followed by Madhya Pradesh at 52.5 per cent. In this category too, work participation among males is higher in

comparison to females. While Assam shows the highest rate of employment among males above 15 years at 78.9 per cent, Chhattisgarh records the highest among females at 35.5 per cent.

2.3. Association with Developmental Indicators

2.25 Figure 2.2 illustrates the differences in the instances of child drop-outs across gender. High incidence of poverty and income deprivation often forces children to drop out of school and look for income earning opportunities. Male drop-out rate from schools is highly associated with males entering the labour force before the legal age, but this relation is weaker in case of female drop-outs. Even in districts where female drop-out rate is high, the female child labour force participation remains low, revealing that females tend to drop out for reasons such as early marriage or to participate in household work.

Figure 2.2: Association of dropout of female and male child (%) with child labour female and male (%), AHS 2012-13



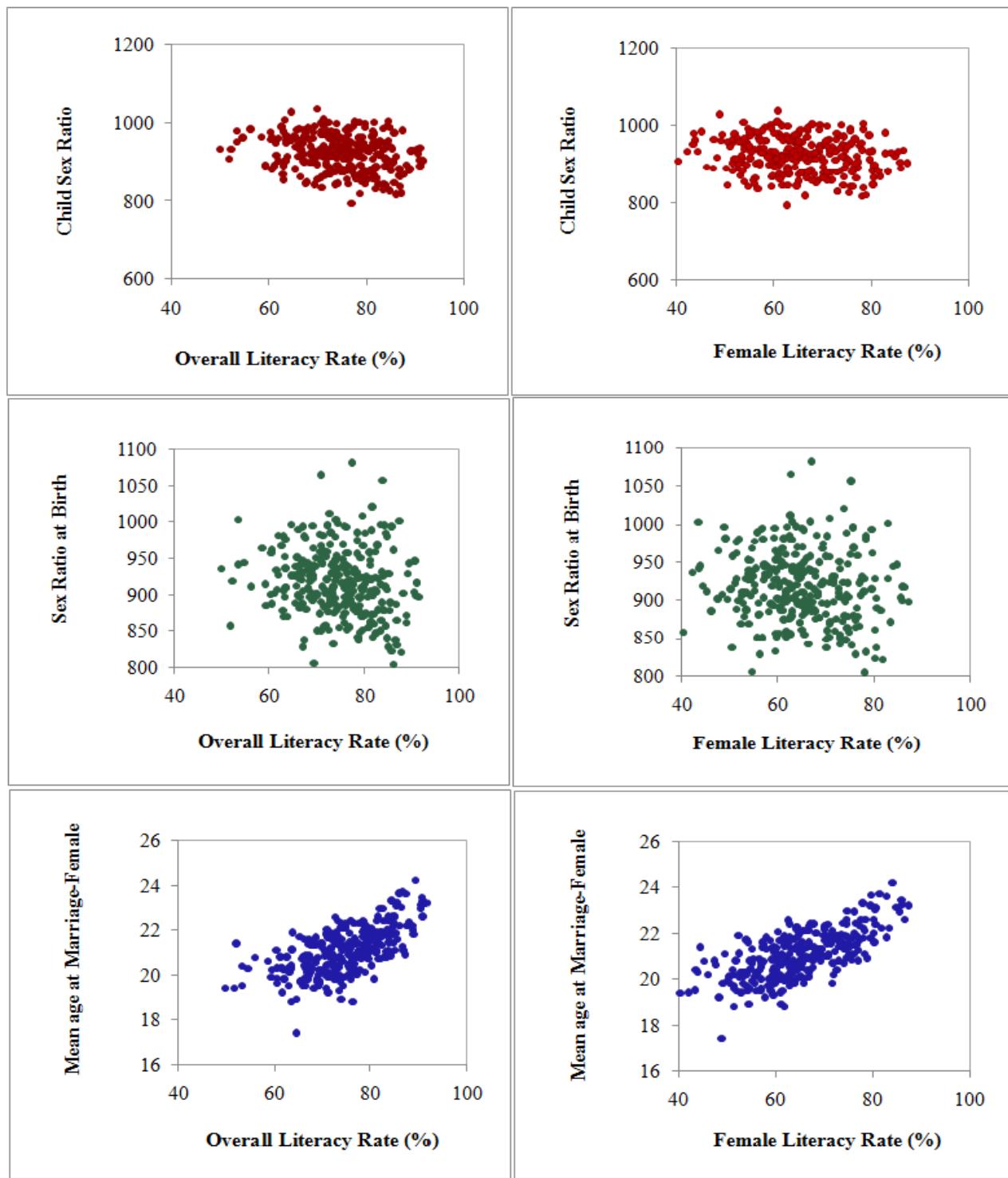
2.26 Figure 2.3 presents some key association between literacy rate and sex ratio with particular stress on female literacy to ascertain the pattern. Data reveal that districts with higher overall

literacy rate also have more adverse sex ratio. It implies that districts with higher literacy levels have lesser number of females than males. The pattern holds true in case of female literacy rate

and child sex ratio as well. While the average rate of literacy ranges between 65 and 85 per cent, the sex ratio is just 850 to 950 females per 1000

males. Even districts with 85-90 per cent literacy have a sex ratio less than 950, thus calling for serious policy intervention.

Figure 2.3: Association of Child sex ratio, sex ratio at birth and mean age at marriage of females with overall fertility rate and female fertility rate, AHS 2012-13



2.27 The relation between literacy and mean age for marriage has however revealed a positive trend. As shown in the figure, mean age at marriage is highly dependent on the overall literacy rate, in particular on female literacy rate. The districts with higher levels of literacy rates

have higher ages for marriage, indicating that improving female literacy increases the possibility of having a higher mean age at marriage among women. This in turn leads to positive socio-economic developments such as smaller household sizes and lower fertility rates.

2.4. Key Findings

- AHS 2012-13 indicates that Uttar Pradesh has the average household size of 5.5 persons, while Odisha has the lowest average household size at 4.2 persons. The inter-district differentials are apparent across the States with Nayagarh district of Odisha having the lowest household size in rural and urban areas (3.6 and 3.5 persons respectively), while S.R. Nagar in Uttar Pradesh having the highest level of household sizes for both urban and rural areas (6.2 and 6.5 persons respectively).
- Sex ratio is a disturbing element pointing to society's preference for the male child. Policy intervention is required in Rajasthan and Uttarakhand where 0-4 age group has a startlingly low ratio of 878 females per 1000 males and 883 females per 1000 males respectively.
- A key factor in household profile assuming prominence across all studies is effective literacy rate, as it can directly influence other factors. Uttarakhand recorded the highest levels of effective literacy rate in 2012-13. On the other hand, despite being the most backward among all States, Bihar showed substantial improvement over the years. Bihar however continues to have the highest levels of illiterate married women, which is a major concern due to its grave impact on socio-economic factors.
- Marrying before the legal age has direct implications on the health and literacy rates of both males and females. Rajasthan reported the maximum cases of under-age marriages among both sexes. Jhabua district of Madhya Pradesh recorded the highest rate of marriages before the legal age among men at 55.3%, while Bhilwara in Rajasthan reported 37% under-age marriages. However, wide inter-State disparities can be seen with Jagatsinghpur in Odisha reporting 1.7% cases in 2012-13, as compared to the statistics of Rajasthan.
- An interrelation exists in most States between school dropout levels and children engaged in labour. The household set-up has a large role to play in this case because poverty and income deprivation can compel children to be breadwinners and directly affect schooling and education. Odisha recorded the highest levels of both overall and female drop-outs. Work participation rate outside homes is higher among males than females.
- A positive relation exists between district-level literacy rates and mean age at marriage as higher levels of literacy rates also result in higher age at marriage. An increase in female literacy increases awareness about the health hazards and social implications associated with early marriages, can help in reducing the fertility rates and household sizes across States.

3.1 The major objective of this chapter is to highlight the variations in total fertility rates (TFR) across AHS States and districts. A section of the chapter focuses on the district-wise distribution of TFR in the AHS States in 2012-13, thus drawing a clearer picture of comparison to 2010-11. A sizeable reduction in TFR as observed in 2012-13 has also been tabulated with 2010-11 data as baseline reference. The chapter further lists the 100 districts of the States with the highest fertility rates in 2012-13 and the inter-district disparity in fertility rates. Results of key family planning indicators have also been presented. Finally, associations between TFR and female literacy rates, use of contraception methods and unmet need for contraception have been presented. Family planning plays a key role in determining the rate of growth of population, the levels of poverty and human development of a country. For securing the well-being and autonomy of women and supporting the health and development of communities, access to preferred contraceptive methods for women and couples must be ensured as part of family planning practices.

3.1. Definition of Indicators

3.2 Total fertility rate : Total fertility rate (TFR) can be defined as the average number of children to be born to a woman if she were to live to the end of her child-bearing years and bear children as per a given fertility rate at each age.

3.3 Methods of family planning: The family planning methods include both modern as well as traditional methods. Modern methods include Tubectomy, Vasectomy, Copper-T/IUD, Pills (Daily), Pills (Weekly), Emergency Contraceptive Pill, Condom/Nirodh, etc., while

the traditional ones are Contraceptive Herbs, Rhythm/Periodic abstinence, Withdrawal, Lactational Amenorrhoea, etc.

3.4 Unmet need for family planning: The sum total of unmet need for limiting and spacing is the unmet need for Family Planning.

3.5 Unmet need for limiting: Currently married women who are not using any method of contraception but who do not want any more children are defined as having an unmet need for limiting.

3.6 Unmet need for spacing: Currently married women who are not using contraception but want to wait for two years or more before having another child are defined as having an unmet need for spacing.

3.2. Levels and Trends

3.2.1. Total fertility rate

3.7 Table 3.1 presents the level of TFR in 2012-13 and its reduction since 2010-11 and 2011-12. The lowest TFR is observed in Uttarakhand (2.1) and the highest in Bihar (3.5), closely followed by Uttar Pradesh (3.3) and Madhya Pradesh (3). At the district level, Shrawasti in Uttar Pradesh has the highest TFR of 5.5 while Pithoragarh in Uttarakhand has the lowest fertility level of 1.7. Fertility rates can be observed to have fallen in all the States during the three AHS surveys, with Jharkhand having experienced the highest fall: an absolute change of 0.4. Madhya Pradesh recorded not only a low absolute change but also a high fertility level of 3. Uttarakhand, Chhattisgarh, Assam and Bihar witnessed similar absolute changes but remarkably different fertility rates.

Table 3.1: Total Fertility Rates (%)

Average fertility rate at State-level for 2010-11, 2011-12 and 2012-13, the absolute change in total fertility rate in 2012-13 in comparison to 2010-11 and the lowest and highest fertility rate at district level for 2012-13

State	AHS 2010 -11	AHS 2011-12	AHS 2012-13	Absolute Change	District (Fertility Rate) 2012-13	
	Lowest	Highest				
Total Fertility rate						
Assam	2.6	2.4	2.4	0.2	Kamrup (1.9)	Hailakandi(3.7)
Bihar	3.7	3.6	3.5	0.2	Patna (2.6)	Sheohar(4.6)
Chhattisgarh	2.9	2.8	2.7	0.2	Koriya, Kanker and Durg (2.3)	Kawardha(3.6)
Jharkhand	3.1	2.9	2.7	0.4	Purba Singhbhum, Lohardaga (2.2)	Pakaur(3.7)
Madhya Pradesh	3.1	3.1	3	0.1	Bhopal(2)	Panna(4.1)
Odisha	2.3	2.3	2.2	0.1	Jharsuguda(1.8)	Baudh(3.5)
Rajasthan	3.2	3.1	2.9	0.3	Kota(2.4)	Barmer(4.4)
Uttar Pradesh	3.6	3.4	3.3	0.3	Gautam Buddha Nagar(2.1)	Shrawasti(5.5)
Uttarakhand	2.3	2.1	2.1	0.2	Pithoragarh(1.7)	Haridwar(2.7)

3.8 Table 3.2 lists the number of districts in various categories of TFR: 0-2.1, 2.2-3, 2.1-4 and 4.1 and above, all statistics being for 2012-13 (in comparison to 2010-11). An overall assessment of the figures points to a significant shift to the lower ranges in most States. While a majority of the districts were part of the 3.1-4 range in 2010-11, most districts fell in the 2.2-3 range in 2012-13. Uttar Pradesh had the maximum number of districts (9) in the 4.1 and above category in

2012-13. A considerable shift in the number of districts from 3.1-4 to 2.2-3 range can be observed. Bihar and Uttar Pradesh have more number of districts under the 3.1-4 range than others. In 2012-13, Uttarakhand had 10 districts with TFR below 2.1, followed by Odisha (14) and Assam (8). In 2012-13, as compared to 2010-11, all the States register a drop in the number of districts in the 3.1-4 range and this has led to an increase in districts in the 2.2-3 categories.

Table 3.2: Frequency Distribution of Total Fertility Rates in 2012-13 (2010-11)

The number of districts in each State classified under a particular range of total fertility rate in 2012-13 and 2010-11

State	0-2.1 TFR	2.2-3 TFR	3.1-4 TFR	4.1 and above TFR
Assam	8 (3)	13 (17)	2 (2)	0 (1)
Bihar	0 (0)	9 (1)	22 (29)	6 (7)
Chhattisgarh	0 (0)	14 (13)	2 (3)	0 (0)
Jharkhand	0 (0)	15 (8)	3 (10)	0 (0)
Madhya Pradesh	2 (0)	25 (19)	18 (22)	0 (4)
Odisha	14 (10)	15 (19)	1 (1)	0 (0)
Rajasthan	0 (0)	22 (16)	9 (13)	1 (3)
Uttar Pradesh	1 (0)	26 (12)	34 (47)	9 (11)
Uttarakhand	10 (7)	3 (6)	0 (0)	0 (0)

Note: () is used to show number of districts as per baseline, 2010-11.

3.9 Table 3.3 presents the distribution of districts in the nine AHS States which have either seen a

reduction in TFR or no change in 2012-13, having 2010-11 figures for baseline reference.

That a substantially higher number of districts have displayed a reduction in TFR constitutes a positive sign. The reduction in TFR in a majority of districts in Uttar Pradesh has been the highest across all States. In six districts in Uttarakhand

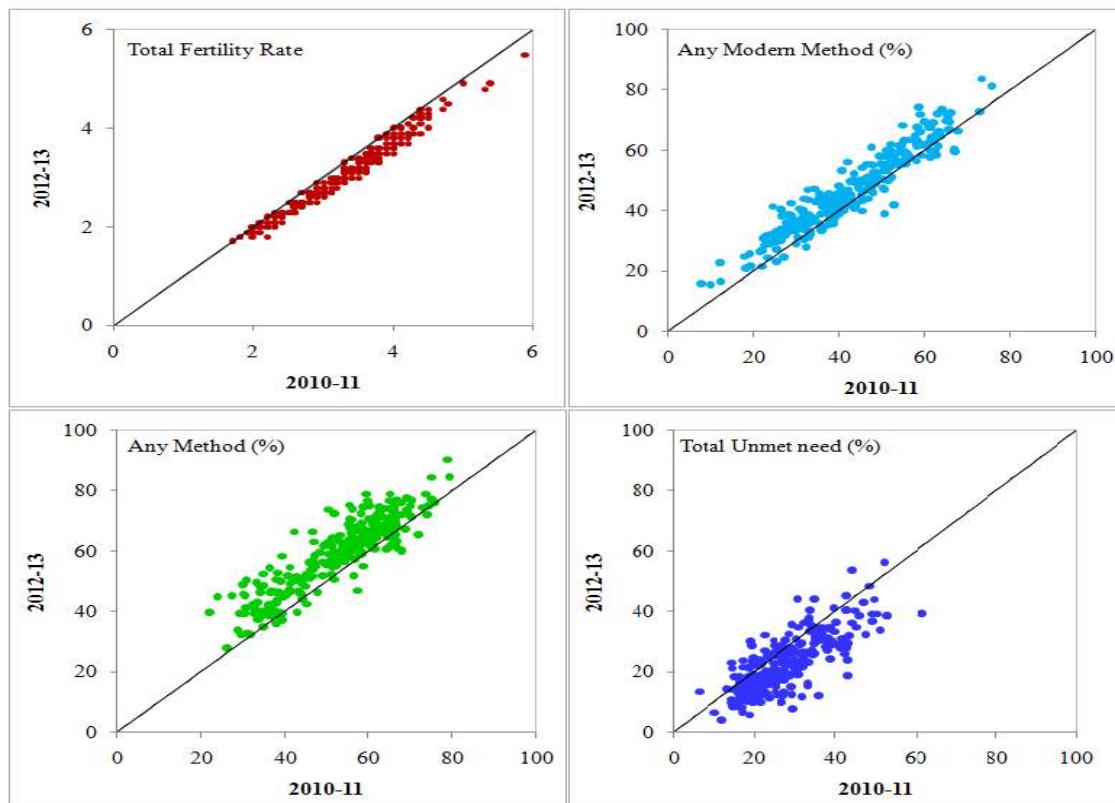
and four in Uttar Pradesh, fertility levels have not changed over the three AHSs. This merits attention as both the States have lower number of districts when compared to Uttar Pradesh but have high representation in absolute measures.

Table 3.3: District-wise trends in Total Fertility Rates

The number of districts in each State when the direction of change in total fertility rates is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates.

State	Decrease	No change
Assam	21	2
Bihar	34	3
Chhattisgarh	14	2
Jharkhand	18	0
Madhya Pradesh	42	3
Odisha	28	2
Rajasthan	32	0
Uttar Pradesh	66	4
Uttarakhand	7	6

Figure 3.1: Total Fertility Rate, Method of current usage (any and any modern) and Total unmet need (%), 2010-11 and 2012-13



3.10 Figure 3.1 plots the association between AHS 1 and AHS 3 statistics for selected fertility

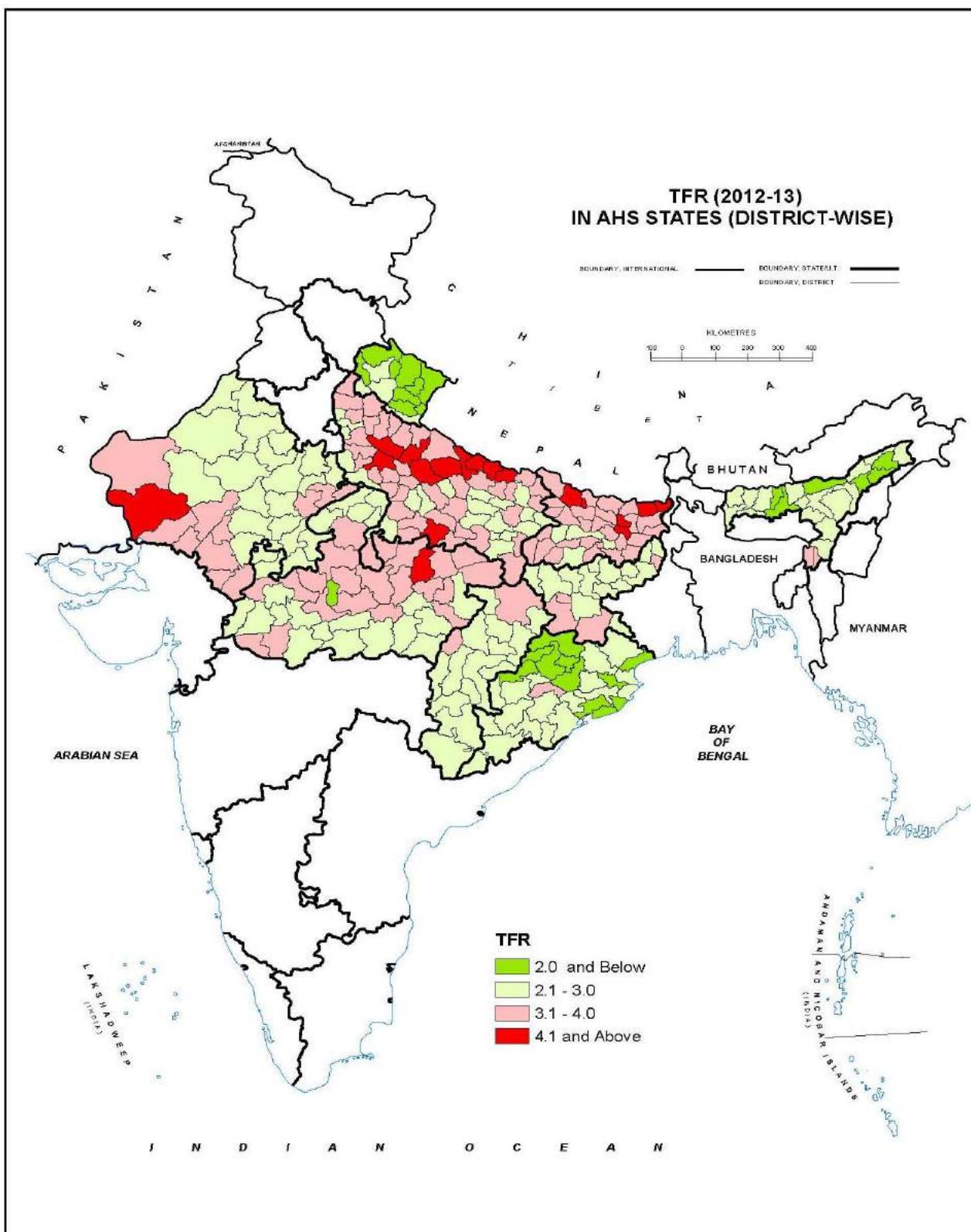
and family planning indicators. In the figure, most of the scatter for the use of any method and

any modern method for family planning lie above the diagonal, pointing towards an increase in the use of family planning methods in 2012-13. Also, the Total fertility rate and percentage of women reporting unmet needs is decreasing. Table 3.4

lists the names of the 100 districts with the highest TFR in 2012-13. Uttar Pradesh has most of its districts towards the top in the list: an indication of a dismal performance across the State.

Table 3.4: List of 100 districts with highest total fertility rates, 2012-13

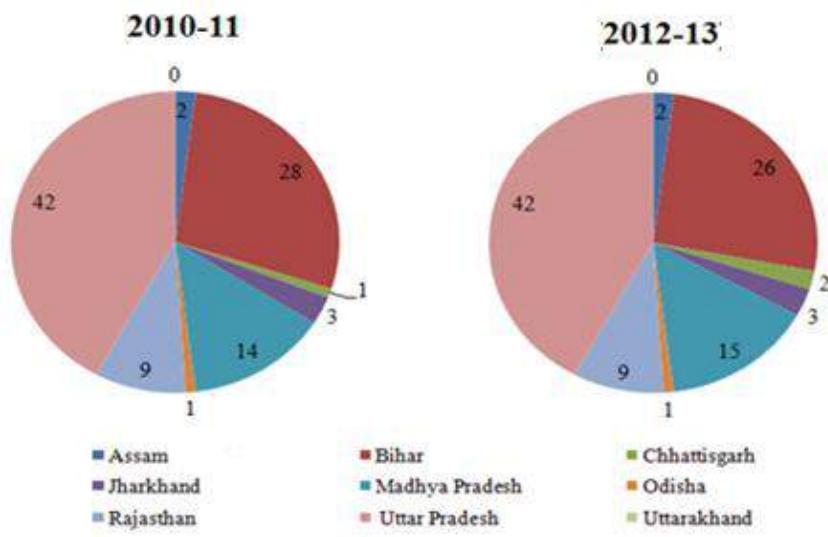
No.	State	District (TFR)	No.	State	District (TFR)
1	Uttar Pradesh	Shrawasti (5.5)	51	Uttar Pradesh	Chitrakoot (3.6)
2	Uttar Pradesh	Balrampur (4.9)	52	Chhattisgarh	Kawardha (3.6)
3	Uttar Pradesh	Bahraich (4.9)	53	Uttar Pradesh	Hamirpur (3.6)
4	Uttar Pradesh	Siddharthnagar (4.8)	54	Uttar Pradesh	Firozabad (3.6)
5	Bihar	Sheohar (4.6)	55	Uttar Pradesh	Pilibhit (3.6)
6	Uttar Pradesh	Budaun (4.5)	56	Uttar Pradesh	Mahoba (3.5)
7	Uttar Pradesh	Sitapur (4.4)	57	Uttar Pradesh	Aligarh (3.5)
8	Bihar	Kishanganj (4.4)	58	Odisha	Baudh (3.5)
9	Rajasthan	Barmer (4.4)	59	Uttar Pradesh	J P Nagar (3.5)
10	Bihar	Araria (4.3)	60	Bihar	Gopalganj (3.5)
11	Bihar	Saharsa (4.3)	61	Bihar	Siwan (3.5)
12	Uttar Pradesh	Hardoi (4.2)	62	Jharkhand	Gumla (3.5)
13	Bihar	Khagaria (4.2)	63	Madhya Pradesh	Damoh (3.5)
14	Bihar	Purba Champaran (4.2)	64	Madhya Pradesh	Sehore (3.5)
15	Uttar Pradesh	Shahjahanpur (4.2)	65	Rajasthan	Dungarpur (3.5)
16	Uttar Pradesh	Etah (4.2)	66	Uttar Pradesh	Rampur (3.5)
17	Uttar Pradesh	Banda (4.1)	67	Uttar Pradesh	Basti (3.5)
18	Madhya Pradesh	Panna (4.1)	68	Uttar Pradesh	Auraiya (3.5)
19	Uttar Pradesh	Gonda (4)	69	Uttar Pradesh	Fatehpur (3.5)
20	Bihar	Madhepura (4)	70	Uttar Pradesh	Bulandshahar (3.4)
21	Bihar	Pashchim Champaran (4)	71	Bihar	Madhubani (3.4)
22	Madhya Pradesh	Shivpuri (4)	72	Bihar	Muzaffarpur (3.4)
23	Rajasthan	Dhaulpur (4)	73	Bihar	Vaishali (3.4)
24	Bihar	Katihar (3.9)	74	Madhya Pradesh	Dindori (3.4)
25	Bihar	Sitamarhi (3.9)	75	Madhya Pradesh	Guna (3.4)
26	Madhya Pradesh	Barwani (3.9)	76	Madhya Pradesh	Raisen (3.4)
27	Madhya Pradesh	Vidisha (3.9)	77	Madhya Pradesh	Rewa (3.4)
28	Rajasthan	Banswara (3.9)	78	Madhya Pradesh	Sidhi (3.4)
29	Uttar Pradesh	Kaushambi (3.9)	79	Madhya Pradesh	Umaria (3.4)
30	Uttar Pradesh	Kheri (3.9)	80	Rajasthan	Rajsamand (3.4)
31	Uttar Pradesh	Barabanki (3.8)	81	Uttar Pradesh	Lalitpur (3.4)
32	Uttar Pradesh	Sant Kabir Nagar (3.8)	82	Uttar Pradesh	Mainpuri (3.4)
33	Bihar	Darbhangा (3.8)	83	Uttar Pradesh	Kushinagar (3.3)
34	Bihar	Samastipur (3.8)	84	Uttar Pradesh	Saharanpur (3.3)
35	Bihar	Supaul (3.8)	85	Bihar	Begusarai (3.3)
36	Madhya Pradesh	Chhatarpur (3.8)	86	Bihar	Bhagalpur (3.3)
37	Uttar Pradesh	Sonbhadra (3.8)	87	Bihar	Rohtas (3.3)
38	Assam	Hailakandi (3.7)	88	Madhya Pradesh	Sagar (3.3)
39	Bihar	Purnia (3.7)	89	Uttar Pradesh	Rae Bareli (3.3)
40	Jharkhand	Lohardaga (3.7)	90	Uttar Pradesh	Chandauli (3.3)
41	Jharkhand	Pakaur (3.7)	91	Uttar Pradesh	Kannauj (3.3)
42	Rajasthan	Karauli (3.7)	92	Uttar Pradesh	Maharajganj (3.2)
43	Uttar Pradesh	Farrukhabad (3.7)	93	Uttar Pradesh	Bijnor (3.2)
44	Uttar Pradesh	Bareilly (3.6)	94	Uttar Pradesh	Muzaffarnagar (3.2)
45	Uttar Pradesh	Moradabad (3.6)	95	Chhattisgarh	Surguja (3.2)
46	Bihar	Sheikhpura (3.6)	96	Uttar Pradesh	Hathras (3.2)
47	Madhya Pradesh	Satna (3.6)	97	Assam	Karimganj (3.2)
48	Rajasthan	Jalor (3.6)	98	Bihar	BANKA (3.2)
49	Rajasthan	Sawai Madhopur (3.6)	99	Bihar	Buxar (3.2)
50	Rajasthan	Udaipur (3.6)	100	Bihar	Kaimur (Bhabua) (3.2)

Map 3.1: TFR (2012-13) in AHS States (District-Wise)

3.11 Figure 3.2 presents the share of each State in the above list 100 highest TFR districts and the changes over AHS 2010-11 and AHS 2012-13. Uttar Pradesh has the highest share (42), followed by Bihar (26), Madhya Pradesh (14) and Rajasthan (9). Bihar's share in terms of number

of districts decreased marginally from 28 to 26, but that of Chhattisgarh and Madhya Pradesh witnessed a substantial increase. Uttarakhand is the only State with no district in this list, owing to its high TFR in both 2010-11 and 2012-13. Odisha had just 1 district in the list.

Figure 3.2: State-wise distribution of 100 districts with the highest Total Fertility Rates (2010-11 and 2012-13)



3.2.2. Family planning

3.12 Table 3.5 presents estimates for AHS States regarding methods adopted for family planning for the years 2010-11, 2011-12 and 2012-13. In 2012-13, Rajasthan recorded the highest use of any method of family planning (70 per cent), while Bihar recorded the lowest (41.2 per cent). The use of any method of family planning has increased in all the States, except Uttarakhand, where the levels have remained constant at 62.7 per cent. Jharkhand has reported the highest increase in the use of any method of family planning (9.7 per cent) from 2010-11 to 2012-13. It is evident that in the levels of family planning, there are significant inter-district disparities across States. The lowest use of family planning has been reported from Siwan district in Bihar

(27.9 per cent), and highest from Hanumangarh district in Rajasthan (90.4 per cent).

3.13 Unmet need for family planning is a vital indicator to judge the demand for family planning services. The highest and lowest proportions of currently married women reporting unmet need in 2012-13 are from Bihar (31.5 per cent) and Rajasthan (13 per cent) respectively. Over the period 2010-11 to 2012-13, Assam has registered the largest increase (10.9 per cent) in proportion of married women reporting unmet need, while Madhya Pradesh showed the smallest increment (0.8 per cent). At the district level, Hanumangarh (4.2 per cent) in Rajasthan has the lowest proportion of married women reporting unmet need for family planning and Siwan in Bihar has the highest proportion (56.4 per cent).

Table 3.5: Family Planning Methods and Unmet Need for Family Planning (%)

Percentage of any method of family planning and unmet need for family planning at State-level for 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison to 2010-11 and the district with the lowest and highest level for 2012-13

State	AHS	AHS	AHS	Absolute Change	District (2012-13)	
	2010-11	2011-12	2012-13		Lowest	Highest
Any method of family planning						
Assam	57.9	65.1	67.2	9.3	Karimganj (49.4)	Kamrup (79.0)
Bihar	37.6	43	41.2	3.6	Siwan(27.9)	Supaul (56.3)
Chhattisgarh	53.9	58.6	60.7	6.8	Dantewada (37.4)	Kawardha (74.7)
Jharkhand	47.8	56.5	57.5	9.7	Paschim Singhbhum(39.4)	Hazaribagh (66.8)
Madhya Pradesh	61.2	63.4	63.2	2	Raisen(47.0)	Damoh (84.9)
Odisha	56.2	59.4	62.4	6.2	Baudh (32.5)	Baleswar (78.9)
Rajasthan	64.5	66.4	70.2	5.7	Tonk(54.8)	Hanumangarh (90.4)
Uttar Pradesh	49.9	58.6	59	9.1	Sitapur (39.8)	Lalitpur(75.3)
Uttarakhand	62.7	61.7	62.7	0	Haridwar (56.8)	Rudraprayag(79.0)
Unmet need for family planning						
Assam	24	15.9	13.1	10.9	Kamrup (5.8)	Karimganj (28.0)
Bihar	39.2	33.5	31.5	7.7	Patna (20.7)	Siwan(56.4)
Chhattisgarh	26.4	24.8	24.4	2	Bastar(12.3)	Koriya(32.6)
Jharkhand	30.5	22.6	22.3	8.2	Dhanbad(11.3)	Paschim Singhbhum(41.2)
Madhya Pradesh	22.4	21.6	21.6	0.8	Damoh(9.9)	Raisen(44.3)
Odisha	23.2	19.1	18.9	4.3	Jharsuguda(8.5)	Baudh (48.4)
Rajasthan	19.6	12.6	13	6.6	Hanumangarh(4.2)	Dhaulpur(25.5)
Uttar Pradesh	29.7	24.1	20.7	9	Ghaziabad(11.5)	Sultanpur(44)
Uttarakhand	23.2	18.1	15.3	7.9	Dehradun (8.3)	Haridwar(26.2)

Table 3.6: District-wise trends in family planning practices and Unmet Need for Family Planning

The number of districts in each State when the direction of change in family planning practices and unmet need for family planning is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates.

State	Any method of Family Planning		
	Increase	No change	Decrease
Assam	21	1	1
Bihar	29	4	4
Chhattisgarh	14	0	2
Jharkhand	18	0	0
Madhya Pradesh	32	0	13
Odisha	28	1	1
Rajasthan	30	1	1
Uttar Pradesh	69	0	1
Uttarakhand	13	0	0
State	Unmet need for Family Planning		
	Increase	No change	Decrease
Assam	0	1	22
Bihar	7	0	30
Chhattisgarh	8	0	8
Jharkhand	1	1	16
Madhya Pradesh	24	6	15
Odisha	6	1	23
Rajasthan	0	2	30
Uttar Pradesh	3	1	66
Uttarakhand	0	0	13

3.14 Out of 284 AHS districts, about 254 have experienced an increase in the use of family planning methods since 2010-11. Table 3.6 shows the district-wise distribution in accordance with the change in family planning practices, with the highest change being reported from Uttar Pradesh (69). Interestingly, 13 districts from Madhya Pradesh recorded a decrease in use of family planning methods. In five of the nine AHS States, all districts recorded some degree of change in family planning practices. In Jharkhand and Uttarakhand, all districts showed an increase

in the level of family planning. Table 3.6 also highlights the direction of change with regard to the unmet need of family planning. In Madhya Pradesh, the trends are quite dismal with 24 districts having shown an increase in the levels of unmet need amongst currently married women, while 66 districts of Uttar Pradesh and 13 districts of Uttarakhand recorded a decrease. In three States (Assam, Rajasthan and Uttarakhand), none of the district showed an increase in the proportion of currently married women reporting unmet need.

Table 3.7: Frequency Distribution of Family Planning Methods and Unmet Need for Family Planning

The number of districts in each State classified under a particular range of any method of family planning and unmet need for family planning in 2012-13 and 2010-11

Any method of Family Planning				
Any method of Family Planning Range	0-30%	30-50%	50-70%	70% & above
Assam	0 (0)	2 (3)	12 (20)	9 (0)
Bihar	1 (4)	29 (31)	7 (2)	0 (0)
Chhattisgarh	0 (0)	3 (7)	11 (9)	2 (0)
Jharkhand	0 (0)	7 (13)	11 (5)	0 (0)
Madhya Pradesh	0 (0)	1 (2)	39 (40)	5 (3)
Odisha	0 (1)	9 (9)	13 (19)	8 (1)
Rajasthan	0 (0)	0 (1)	17 (24)	15 (7)
Uttar Pradesh	0 (3)	13 (24)	50 (42)	7 (1)
Uttarakhand	0 (0)	0 (0)	6 (13)	7 (0)
Unmet Need for family planning				
Unmet need Range	0-20%	20-40%	40-60%	60% & above
Assam	22 (6)	1 (16)	0 (1)	0 (0)
Bihar	0 (0)	31 (20)	6 (17)	0 (0)
Chhattisgarh	3 (4)	13 (12)	0 (0)	0 (0)
Jharkhand	5 (2)	12 (13)	1 (3)	0 (0)
Madhya Pradesh	14 (18)	30 (27)	1 (0)	(0)
Odisha	16 (12)	11 (15)	3 (3)	0 (0)
Rajasthan	27 (16)	5 (16)	0 (0)	0 (0)
Uttar Pradesh	30 (9)	38 (52)	2(8)	0 (1)
Uttarakhand	11 (2)	2 (11)	0 (0)	0 (0)

3.15 Table 3.7 shows the frequency distribution across various ranges of use of any method of family planning and unmet need for family planning in terms of number of districts in each State in 2012-13 and 2010-11. In terms of the

district-wise distribution, the highest number of AHS districts using any method of family planning fall in the 50-70 per cent range. A sharp shift can be observed from the lower range of 0-30 per cent to the higher range of 70 per cent &

above. While most States did not have any district in the 70 per cent & above range in 2010-11, several States made considerable progress in 2012-13. For instance, in 2010-11, Assam had no district in the 70 per cent & above range, but in 2012-13, 9 of its districts reported more than 70 per cent of the currently married women using at least some method of family planning.

3.16 Table 3.7 also shows the distribution of districts with different proportions of currently married women reporting unmet need across the AHS States in 2010-11 and 2012-13. The

maximum number of districts shows a lower proportion of currently married women reporting unmet need, thus indicating an enhanced awareness of preventive measures and availability of required equipment. For instance, in Bihar, 17 districts were in the 40-60 per cent range in 2010-11 which came down to 6 in 2012-13. Also, the number of districts in the 20-40 per cent range has increased from 20 in 2010-11 to 31 in 2012-13. In Uttar Pradesh too, the numbers have reduced from 8 in 2010-11 to 2 in 2012-13, in the 40-60 per cent range and from 9 in 2010-11 to 30 in 2012-13 in the 0-20 per cent range.

Table 3.8: Unmet need for Family Planning Methods for Spacing and Limiting Pregnancy in 2010-11 and 2012-13 (%)

State	Unmet need - Family Planning (%)		Unmet need - Spacing (%)		Unmet need - Limiting (%)	
	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13
Assam	24	13.1	13	6.6	11	6.5
Bihar	39.2	31.5	21.3	17.3	17.9	14.2
Chhattisgarh	26.4	24.4	15.5	14.2	10.9	10.2
Jharkhand	30.5	22.3	16.2	11.5	14.3	10.8
Madhya Pradesh	22.4	21.6	13.8	9.5	8.6	12.1
Odisha	23.2	18.9	10.8	8.7	12.4	10.1
Rajasthan	19.6	13	11.9	7.3	7.6	5.7
Uttar Pradesh	29.7	20.7	17.2	11.2	12.6	9.5
Uttarakhand	23.2	15.3	12	8	11.2	7.2

3.17 Table 3.8 highlights the levels of unmet need for family planning methods with regard to spacing and limiting in the nine AHS States for 2010-11 and 2012-13. Unmet need for spacing refers to women who do not use any method of contraception but want to wait for two years or more before having another child, whereas unmet need for limiting refers to women who do not use any method of contraception, but do not want any more children. The sum total of unmet need for limiting and spacing is the total unmet need for Family Planning. While Bihar had the highest total unmet need for family planning in 2012-13 at 31.5 per cent, Rajasthan had the lowest (13 per cent). Bihar also tops the lists of unmet need for spacing and limiting. However, it has made some

progress over the years. For instance, the total unmet need for spacing has reduced from 21.3 per cent (2010-11) to 17.3 per cent (2012-13). Considerable progress has also been made in Assam with the total unmet need for spacing going down from 13 per cent (2010-11) to 6.6 per cent (2012-13) and total unmet need for limiting being reduced from 11 per cent (2010-11) to 6.5 percent (2012-13). The other States too have made significant improvement.

3.18 Table 3.9 lists the levels of different family planning methods adopted in the nine AHS States in 2010-11 and 2012-13. Female sterilisation continues to be the most predominantly used method, followed by pills, copper-T/ IUD and

male sterilisation. Though there has been a considerable increase in the use of female sterilisation from 2010-11 to 2012-13, male sterilisation usage remained rather constant. In 2012-13, the use of female sterilisation was highest in Chhattisgarh (49.5 per cent) and the lowest in Assam (13.4 per cent). Highest use of male sterilisation in 2012-13 was recorded from

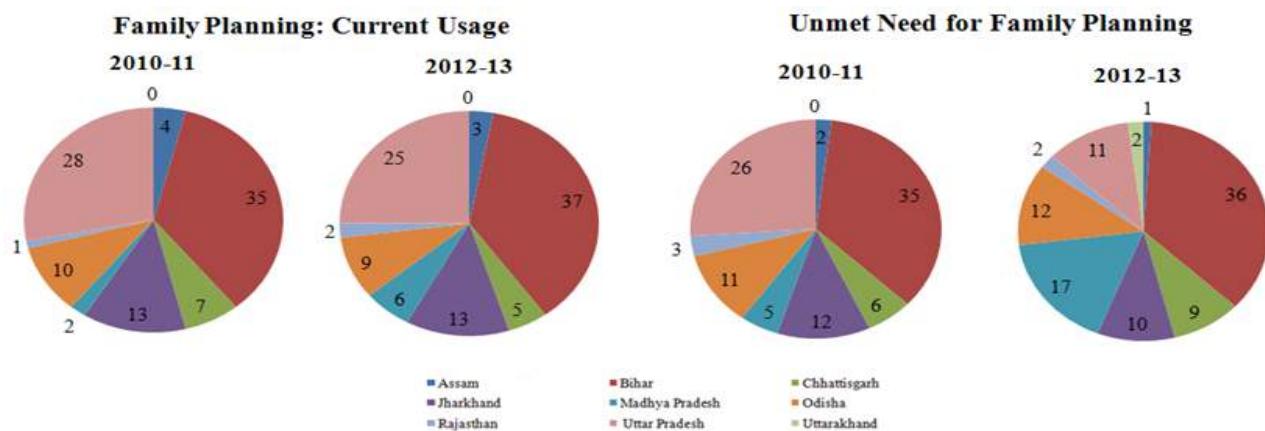
Uttarakhand (1.3 per cent), while Assam, Bihar, Odisha and Uttar Pradesh recorded low usage. Use of copper-T/ IUD too has been low, with Assam recording the highest at 1.5 per cent, and Madhya Pradesh and Odisha recording the lowest. In the case of pills, Assam again recorded the highest usage in 2012-13 at 19.9 per cent and Chhattisgarh the lowest at 1.2 per cent.

Table 3.9: Current Usage of Family Planning Methods

Percentage of female sterilization, male sterilization, copper-T/IUD and pills in current usage of family planning methods in 2010-11 and 2012-13

State	Female Sterilization (%)		Male Sterilization (%)		Copper-T/IUD (%)		Pills (%)	
	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13
Assam	12.6	13.4	0.2	0.3	1.3	1.5	18.3	19.9
Bihar	29.4	30.7	0.3	0.3	0.5	0.6	1.5	1.4
Chhattisgarh	45.6	49.5	1	1.1	0.4	0.6	1.1	1.2
Jharkhand	29	33.5	0.5	0.5	0.8	0.8	4.2	4.2
Madhya Pradesh	47.6	48.7	1	1.2	0.5	0.4	1.9	1.4
Odisha	30.1	32.8	0.3	0.3	0.3	0.4	11.1	11
Rajasthan	45.1	47.6	0.4	0.4	1	1.3	2.8	2.3
Uttar Pradesh	17.5	18.4	0.2	0.3	1	1.1	2.7	3.6
Uttarakhand	32.5	27.6	1.5	1.3	1	0.9	4.1	4.9

Figure 3.3: State-wise distribution of 100 districts with lowest use of any method of Family Planning and highest percentage of unmet need



3.19 Figure 3.3 illustrates the State-wise distribution of 100 districts of the nine AHS States showing lowest use of any method of family planning. In 2012-13, Bihar (37) recorded the highest number of districts. In 2012-13, the

number of districts in Uttar Pradesh with the lowest use of any method reduced from 28 to 25, while in Bihar increased from 35 to 37. The number of districts from other States with the lowest use remained almost similar, except

Madhya Pradesh where the number of districts increased from two (2010-11) to six (2012-13).

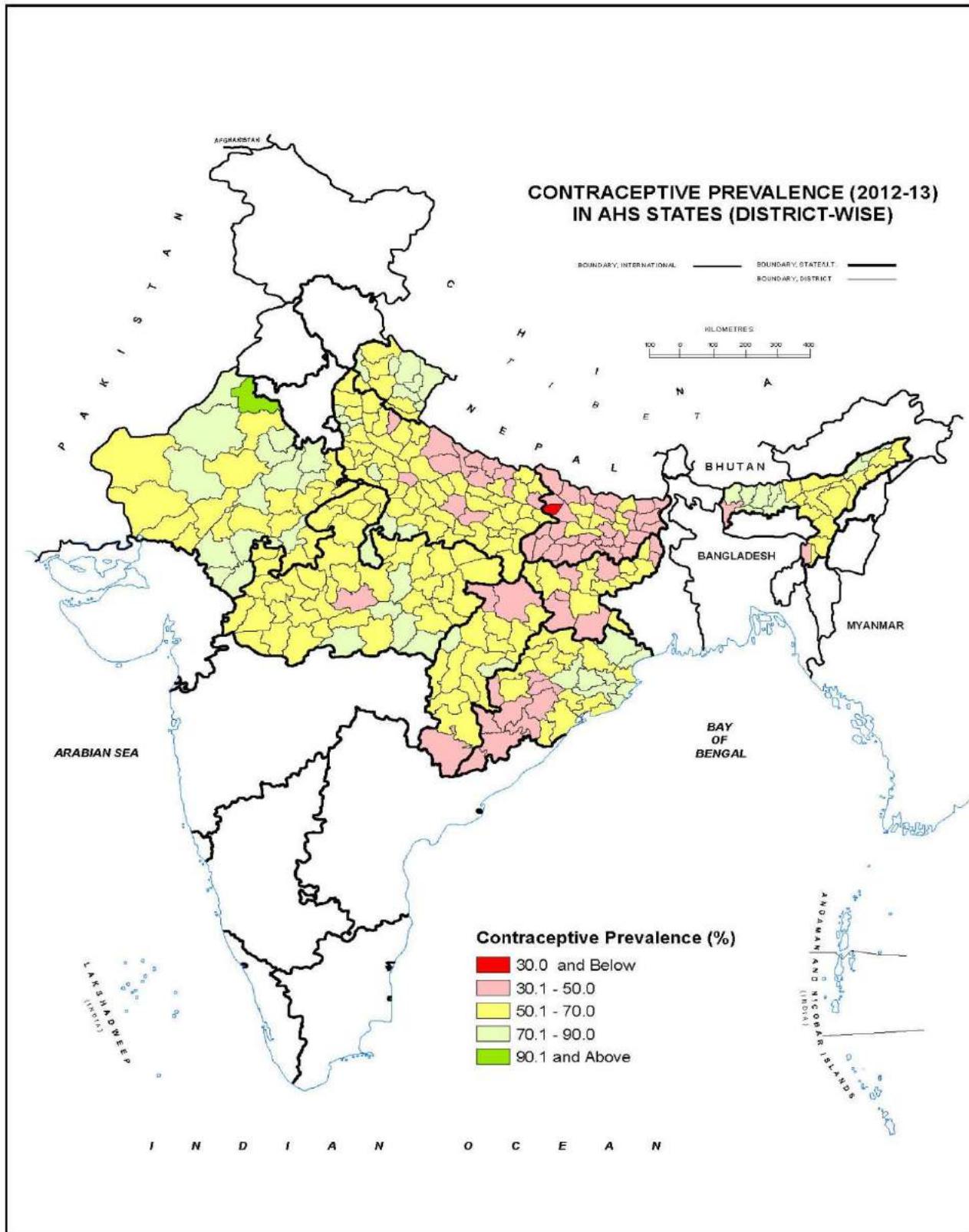
Table 3.10 lists the names of 100 districts, with the lowest use of any method of family planning in 2012-13. The lowest on the list is shown by Siwan in Bihar at 27.9 per cent and the highest by

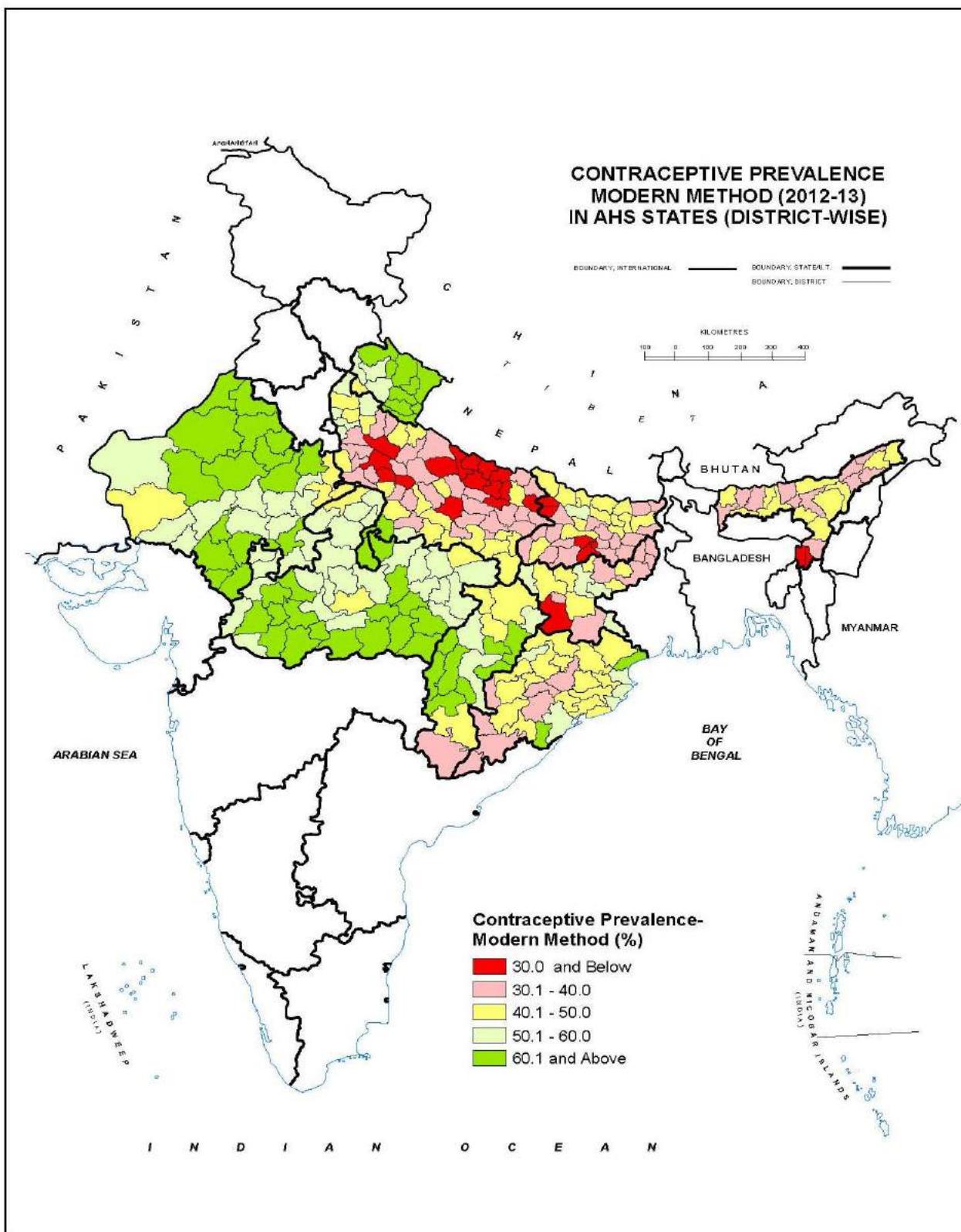
Dhaultpur (Rajasthan) at 56.5 per cent. Table 3.10 lists 100 districts with the highest unmet need for family planning in 2012-13 and Bihar again tops the chart with Siwan district (56.4 per cent). At 24.2 per cent, Haridwar is the only district from Uttarakhand in the list.

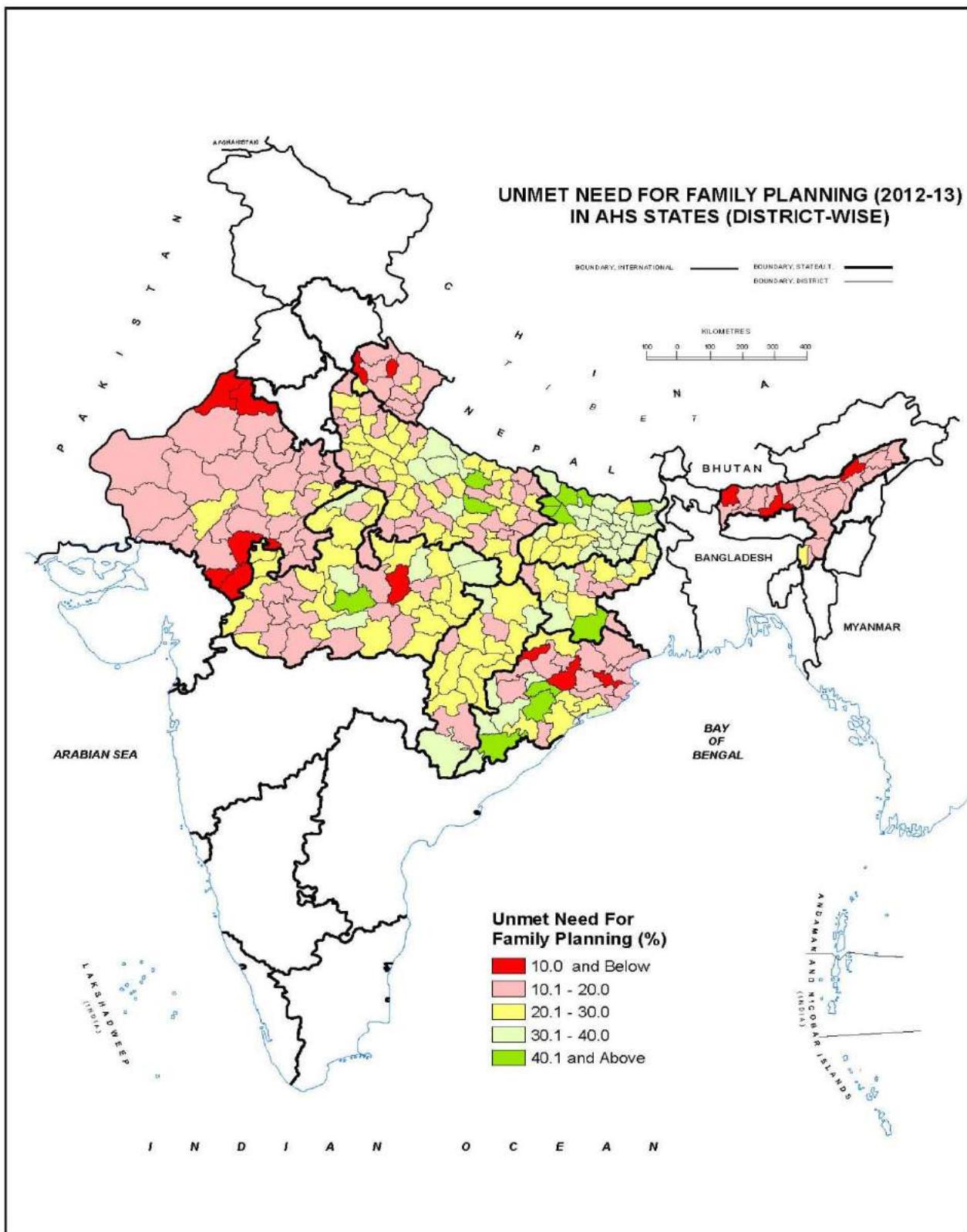
Table 3.10: List of 100 districts with lowest use of any method of Family Planning and highest unmet need for Family Planning, 2012-13

No.	Lowest use of any method (%)		Highest levels of unmet need (%)	
	State	District	State	District
1	Bihar	Siwan (27.9)	Bihar	Siwan (56.4)
2	Bihar	Gopalganj (32.4)	Bihar	Gopalganj (53.7)
3	Odisha	Baudh (32.5)	Odisha	Baudh (48.4)
4	Bihar	Nawada (32.7)	Bihar	Saran (45.3)
5	Odisha	Kandhamal (33.9)	Madhya Pradesh	Raisen (44.3)
6	Bihar	Nalanda (35)	Odisha	Koraput (44.1)
7	Odisha	Nuapada (36.2)	Uttar Pradesh	Sultanpur (44)
8	Bihar	Buxar (37.3)	Bihar	Araria (43.2)
9	Chhattisgarh	Dantewada (37.4)	Jharkhand	Pashchimi Singhbhum (41.2)
10	Bihar	Saran (37.6)	Bihar	Sitamarhi (40.6)
11	Bihar	Banka (38.5)	Uttar Pradesh	Gonda (40.6)
12	Bihar	Begusarai (38.8)	Odisha	Kandhamal (40.4)
13	Bihar	Sheikhpura (38.8)	Bihar	Purba Champaran (40.3)
14	Bihar	Lakhisarai (38.9)	Uttar Pradesh	Sitapur (39.4)
15	Bihar	Gaya (39.3)	Bihar	Katihar (39.2)
16	Jharkhand	Pashchimi Singhbhum (39.4)	Uttar Pradesh	Bahraich (39.2)
17	Bihar	Jamui (39.5)	Uttar Pradesh	Kheri (38.8)
18	Bihar	Kishanganj (39.5)	Bihar	Sheohar (38.7)
19	Bihar	Aurangabad (39.6)	Bihar	Kishanganj (38.7)
20	Bihar	Bhagalpur (39.8)	Bihar	Samastipur (38)
21	Bihar	Bhojpur (39.8)	Odisha	Malkangiri (37.1)
22	Uttar Pradesh	Sitapur (39.8)	Bihar	Purnia (36.9)
23	Odisha	Malkangiri (40.1)	Jharkhand	Pakaur (36.5)
24	Odisha	Nabarangapur (40.1)	Madhya Pradesh	Sidhi (36.3)
25	Odisha	Koraput (40.3)	Odisha	Sonapur (36.3)
26	Bihar	Katihar (41.2)	Bihar	Muzaffarpur (35.7)
27	Bihar	Jehanabad (41.3)	Madhya Pradesh	Rewa (35.3)
28	Uttar Pradesh	Balrampur (41.3)	Bihar	Vaishali (34.8)
29	Jharkhand	Gumla (42.1)	Bihar	Madhubani (34.8)
30	Bihar	Kaimur (Bhabua) (42.3)	Odisha	Kalahandi (34.8)
31	Bihar	Sitamarhi (42.4)	Uttar Pradesh	Rae Bareli (34.8)
32	Bihar	Munger (42.6)	Bihar	Madhepura (34.7)
33	Uttar Pradesh	Shrawasti (42.7)	Bihar	Saharsa (34.6)
34	Odisha	Kalahandi (42.9)	Bihar	Banka (34.4)
35	Bihar	Araria (43.1)	Bihar	Bhagalpur (34.1)
36	Odisha	Rayagada (43.1)	Bihar	Jamui (34)
37	Jharkhand	Sahibganj (44)	Jharkhand	Gumla (33.6)
38	Bihar	Rohtas (44.3)	Bihar	Buxar (33.5)
39	Uttar Pradesh	Kheri (44.9)	Bihar	Begusarai (33.3)
40	Uttar Pradesh	Siddharthnagar (45)	Jharkhand	Deoghar (33)
41	Bihar	Purnia (45.3)	Chhattisgarh	Koriya (32.6)
42	Uttar Pradesh	Bahraich (45.3)	Bihar	Nawada (32.5)
43	Jharkhand	Pakaur (45.6)	Madhya Pradesh	Vidisha (32.3)
44	Bihar	Sheohar (45.9)	Bihar	Khagaria (32.2)

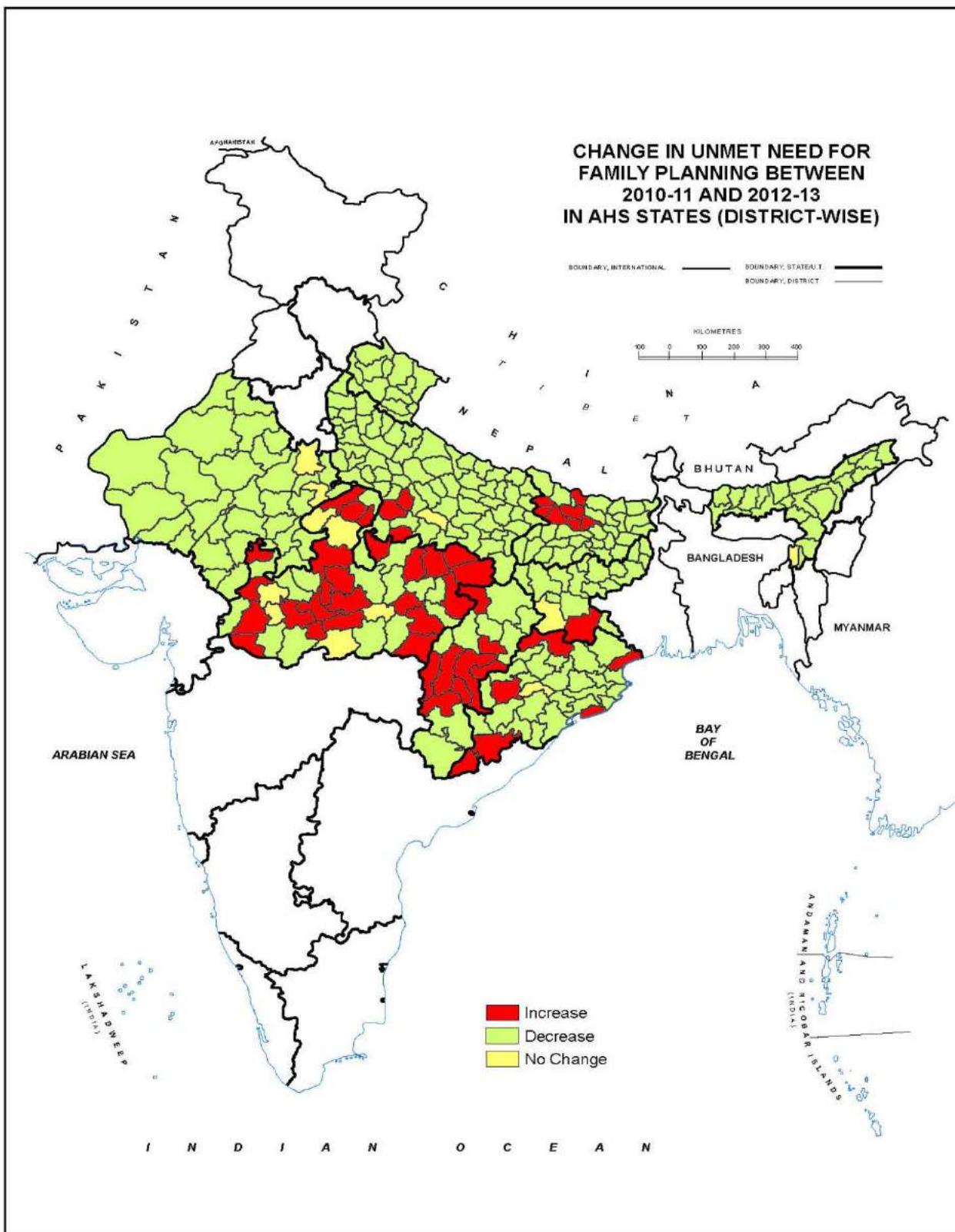
No.	Lowest use of any method (%)		Highest levels of unmet need (%)	
	State	District	State	District
45	Chhattisgarh	Koriya (45.9)	Bihar	Lakhisarai (32.1)
46	Bihar	Pashchim Champaran (46.4)	Bihar	Munger (31.9)
47	Jharkhand	Giridih (46.4)	Chhattisgarh	Jashpur (31.4)
48	Odisha	Sonapur (46.4)	Bihar	Pashchim Champaran (31.3)
49	Chhattisgarh	Surguja (46.5)	Bihar	Darbanga (31.2)
50	Jharkhand	Chatra (46.5)	Bihar	Sheikhpura (31.2)
51	Uttar Pradesh	Rae Bareli (46.5)	Chhattisgarh	Dantewada (30.9)
52	Uttar Pradesh	Sant Kabir Nagar (46.7)	Jharkhand	Sahibganj (30.9)
53	Uttar Pradesh	Deoria (46.9)	Madhya Pradesh	Panna (30.9)
54	Bihar	Madhubani (47)	Odisha	Nuapada (30.9)
55	Madhya Pradesh	Raisen (47)	Uttar Pradesh	Hardoi (30.9)
56	Bihar	Madhepura (47.1)	Odisha	Puri (30.7)
57	Uttar Pradesh	Kannauj (48.3)	Jharkhand	Chatra (30.4)
58	Bihar	Darbanga (48.4)	Madhya Pradesh	Morena (30.4)
59	Uttar Pradesh	Pratapgarh (48.4)	Odisha	Nabarangapur (30.4)
60	Uttar Pradesh	Gonda (48.7)	Madhya Pradesh	Hoshangabad (30.3)
61	Bihar	Purba Champaran (48.9)	Chhattisgarh	Bilaspur (29.7)
62	Uttar Pradesh	Rampur (49.2)	Bihar	Bhojpur (29.6)
63	Assam	Karimganj (49.4)	Uttar Pradesh	Unnao (29.6)
64	Assam	Dhubri (49.6)	Uttar Pradesh	Kannauj (29.6)
65	Jharkhand	Lohardaga (49.9)	Bihar	Nalanda (29.4)
66	Bihar	Samastipur (50.1)	Odisha	Nayagarh (29.4)
67	Uttar Pradesh	S R Nagar (Bhadoli) (50.4)	Jharkhand	Giridih (29.3)
68	Uttar Pradesh	Sultanpur (50.5)	Bihar	Kaimur (Bhabua) (29.1)
69	Bihar	Patna (50.6)	Madhya Pradesh	Jhabua (29.1)
70	Bihar	Saharsa (50.6)	Bihar	Gaya (29)
71	Madhya Pradesh	Sidhi (51)	Chhattisgarh	Rajnandgaon (28.7)
72	Jharkhand	Kodarma (51.6)	Madhya Pradesh	Shahdol (28.7)
73	Uttar Pradesh	Shahjahanpur (51.6)	Madhya Pradesh	Satna (28.7)
74	Uttar Pradesh	Basti (51.7)	Uttar Pradesh	Budaun (28.7)
75	Madhya Pradesh	Morena (51.9)	Bihar	Supaul (28.5)
76	Uttar Pradesh	Azamgarh (51.9)	Madhya Pradesh	Chhatarpur (28.1)
77	Jharkhand	Deoghar (52)	Assam	Karimganj (28)
78	Madhya Pradesh	Jhabua (52)	Bihar	Aurangabad (27.9)
79	Madhya Pradesh	Rewa (52.3)	Jharkhand	Godda (27.9)
80	Uttar Pradesh	Budaun (52.3)	Uttar Pradesh	Rampur (27.4)
81	Jharkhand	Godda (52.5)	Uttar Pradesh	Muzaffarnagar (27.3)
82	Bihar	Khagaria (52.8)	Madhya Pradesh	Sheopur (27.1)
83	Jharkhand	Dumka (54)	Madhya Pradesh	Harda (27.1)
84	Chhattisgarh	Korba (54.1)	Jharkhand	Kodarma (26.9)
85	Jharkhand	Palamu (54.1)	Chhattisgarh	Raipur (26.8)
86	Uttar Pradesh	Unnao (54.4)	Jharkhand	Lohardaga (26.8)
87	Uttar Pradesh	Hardoi (54.7)	Uttar Pradesh	Shrawasti (26.8)
88	Rajasthan	Tonk (54.8)	Uttar Pradesh	Pratapgarh (26.7)
89	Bihar	Muzaffarpur (55)	Chhattisgarh	Surguja (26.6)
90	Uttar Pradesh	Kanpur Dehat (55)	Bihar	Rohtas (26.5)
91	Chhattisgarh	Jashpur (55.1)	Madhya Pradesh	Shivpuri (26.5)
92	Uttar Pradesh	Kaushambi (55.3)	Uttar Pradesh	Kanpur Dehat (26.5)
93	Uttar Pradesh	Mirzapur (55.6)	Uttar Pradesh	Shahjahanpur (26.3)
94	Jharkhand	Ranchi (55.8)	Uttar Pradesh	Balrampur (26.2)
95	Madhya Pradesh	Sheopur (55.9)	Uttar Pradesh	Sant Kabir Nagar (26.2)
96	Uttar Pradesh	Muzaffarnagar (55.9)	Uttarakhand	Haridwar (26.2)
97	Bihar	Vaishali (56.1)	Bihar	Jehanabad (26)
98	Bihar	Supaul (56.3)	Uttar Pradesh	Siddharthnagar (26)
99	Assam	North Cachar Hills (56.5)	Madhya Pradesh	Tikamgarh (25.9)
100	Rajasthan	Dhaulpur (56.5)	Odisha	Rayagada (25.7)

Map 3.2: Contraceptive prevalence (2012-13) in AHS States (District-Wise)

Map 3.3: Contraceptive prevalence modern method (2012-13) in AHS States (District-Wise)

Map 3.4: Unmet need for family planning (2012-13) in AHS States (District-Wise)

Map 3.5: Change in unmet need for family planning between 2010-11 and 2012-13 in AHS states (district-wise)



3.3. Inter-District Disparities

3.20 Table 3.11 provides the co-efficient of variation depicting the magnitude of inter-district disparities in total fertility rates. However, only

marginal changes can be observed across States. Between 2010-11 and 2012-13, while a slight drop can be observed in Assam, Odisha and Uttarakhand, a marginal increase can be seen in Bihar, Jharkhand and Uttar Pradesh.

Table 3.11: Coefficient of Variation of District Level Total Fertility Rate in each State

State-wise comparison between the coefficient of variation of district level total fertility rate in 2010-11, 2011-12 and 2012-13

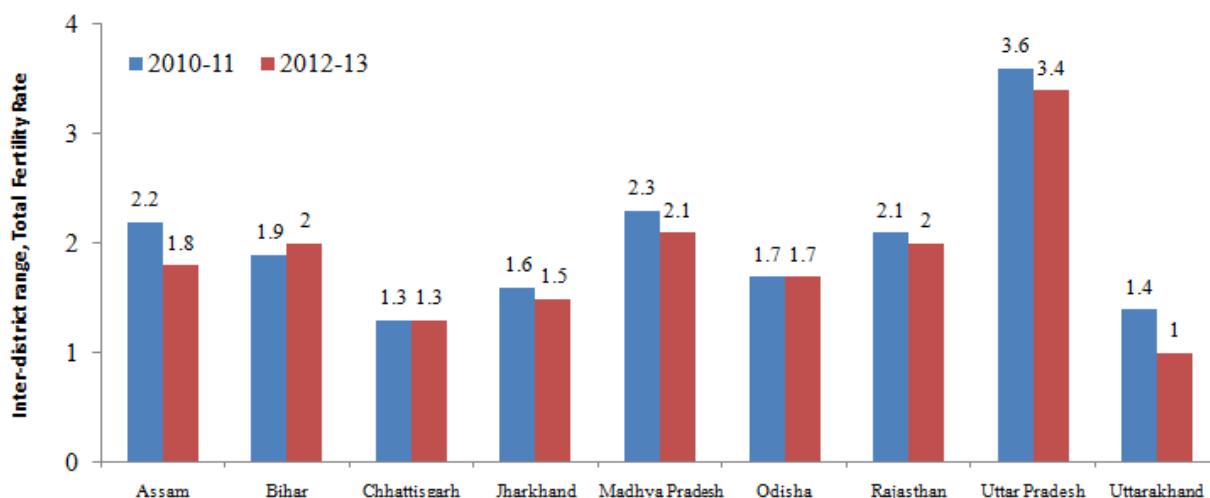
State	2010-11	2011-12	2012-13
Assam	0.19	0.18	0.17
Bihar	0.11	0.12	0.13
Chhattisgarh	0.12	0.12	0.12
Jharkhand	0.13	0.14	0.14
Madhya Pradesh	0.17	0.17	0.17
Odisha	0.17	0.15	0.16
Rajasthan	0.17	0.16	0.17
Uttar Pradesh	0.18	0.19	0.19
Uttarakhand	0.17	0.16	0.14

3.21 Figure 3.4 depicts the difference in TFR levels between the lowest and highest district-level TFR in each State. Over the two periods compared (2010-11 and 2012-13), the disparity levels have fallen in all States except Bihar (where it increased from 1.9 to 2) and

Chhattisgarh and Odisha (where the range remains unchanged). The highest level of inter-district disparity is observed in Uttar Pradesh (3.6 and 3.4) and the lowest in Uttarakhand (1.4 and 1). A low range indicates that the fall in fertility rates are even among the districts.

Figure 3.4: District level disparity in Total Fertility Rates

State-wise comparison between the inter-district range of total fertility rate in 2010-11 and 2012-13



3.22 Figure 3.5 shows the State-wise inter-district range with regard to methods of family planning for 2010-11 and 2012-13. The range for any method of family planning and unmet need of family planning varies across States. In 2010-11, Uttarakhand had the lowest inter-district range of 13 points and 12 points for any method and unmet need, while Uttar Pradesh had the

highest range of 52 points and 46 points for any method and unmet need. The tables further suggest that the inter-district range of any method of family planning has increased marginally in six States and decreased in three States, whereas with regard to unmet need for family planning, the inter-district disparity has increased in four States and decreased in five States.

Figure 3.5: District level disparity in use of any family planning method

State-wise comparison between the inter-district range of use of any family planning method in 2010-11 and 2012-13

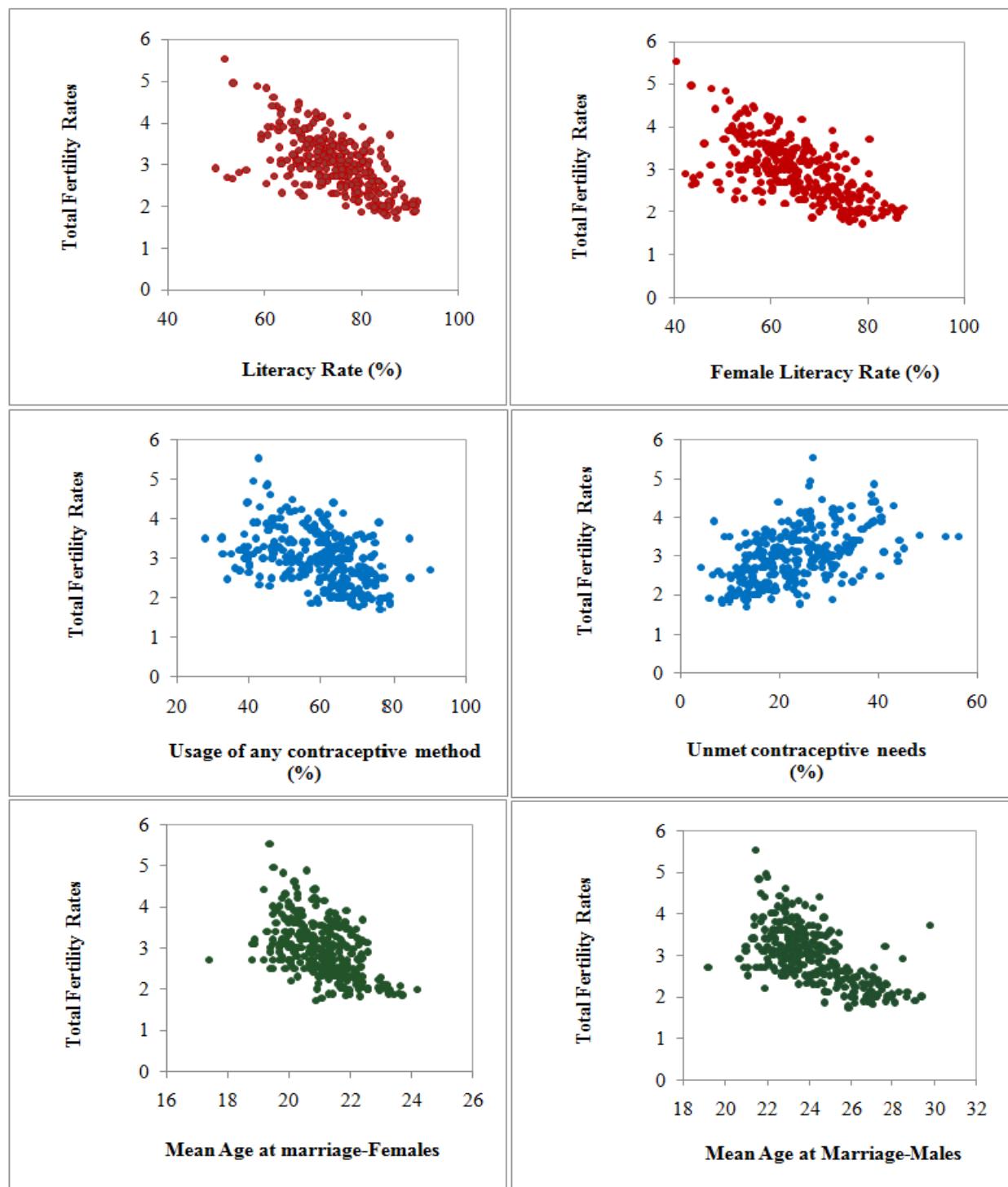


3.4. Association with Developmental Indicators

3.23 Figure 3.6 demonstrates the associations between district level total fertility rate (TFR) and literacy, use of contraceptives and mean age at marriage. It is evident that districts with higher literacy rates have lower fertility rates and vice-

versa. Awareness about the health hazards associated with higher fertility is increased with higher literacy levels. Similarly, districts with higher female literacy clearly have lower fertility rates. The variables are inversely related to each other. Thus improving literacy is a tool that enables reduction of fertility rates across the country.

Figure 3.6: Association of Total fertility rate with female literacy rate, literacy rate, usage of contraceptive methods and unmet needs, AHS 2012-13



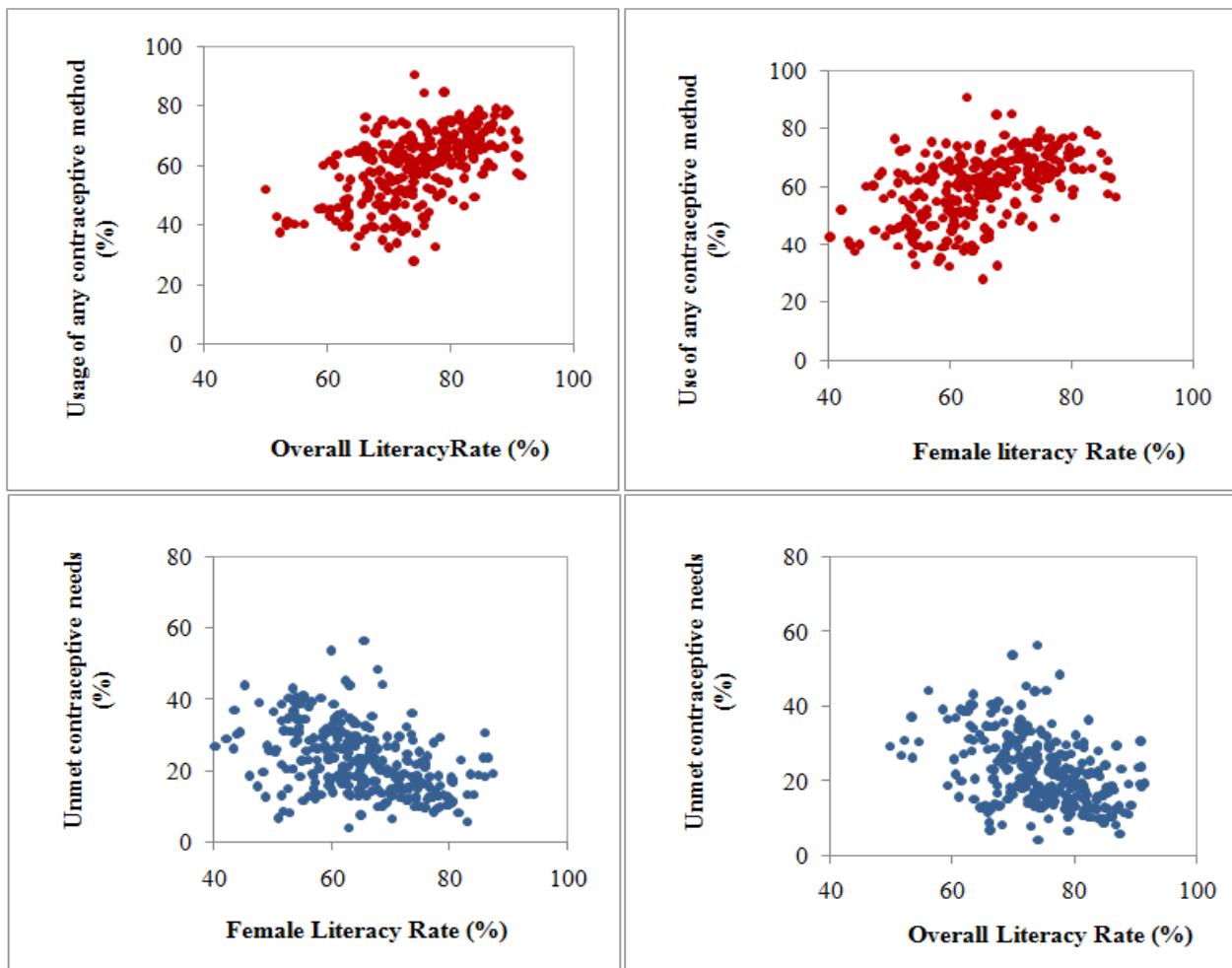
3.24 Figure 3.6 presents the association between the use of contraceptive measures and TFR across the AHS States. An inverse relation between the

two variables is observable. A majority of districts using contraceptives methods at rates as high as 65-80 per cent, have a TFR ranging

between 2 and 3, suggesting that districts with a higher prevalence of contraceptive usage have lower levels of total fertility. TFR and the levels of unmet contraceptive methods are positively associated, implying that districts with high levels of unmet contraceptive needs also have high levels of fertility. The association between mean age of marriage for women and total fertility rate is a steeply sloping downward curve, indicating a high degree of correlation. The districts with

lower mean age of marriage for women have the highest levels of fertility. The same relation is true for male mean age of marriage and total fertility rate, but the degree is lower than in the case of females. The results indicate that higher mean age of marriage among both males and females implies greater levels of literacy, ensuring lower TRF. Thus, literacy, mean age of marriage and TFR are closely inter-linked in a cause-and-effect relationship..

Figure 3.7: Association of contraceptive methods and unmet needs with overall literacy and female literacy, AHS 2012-13



3.25 Figure 3.7 illustrates association between literacy rates and the use of contraceptive methods and unmet contraceptive needs. The

figures reveal that contraceptive usage is high in districts with greater levels of literacy. Higher rates of literacy enhance awareness about the

need for contraceptive measures. The use of contraceptive measures is above 60 per cent in those districts where rate of literacy among females ranges between 75-90 per cent. However, with a majority of districts still having poorer literacy rates, directly implying lower use of

contraceptive measures, policy measures are required. The opposite holds true in the case of unmet contraceptive needs and literacy levels. Districts which have reported low levels of literacy have high levels of unmet contraceptive needs.

3.5. Key Findings

- Over the three periods of AHS surveys, a sizeable fall in total fertility rate was seen across States. Jharkhand recorded the highest fall in fertility level (an absolute change of 0.4) between 2010-11 and 2012-13. Besides a high fertility level of 3, the absolute change is low in the case of Madhya Pradesh, suggesting the possibility of greater pressure to bear children.
- Uttar Pradesh had the highest number of districts with average TFR of 4.1 and above in 2012-13, and there was a considerable shift in the number of districts from an average of 3.1-4 to 2.2-3 range in the assessed year. As many as 6 districts in Rajasthan and 4 in Odisha failed to record any reduction in fertility levels over the three AHS survey periods.
- Over the three AHS years, a considerable increment in the use of family planning methods was reported in most States. In 2012-13, Rajasthan recorded the highest use (70 per cent) of any method of family planning, while Bihar recorded the lowest (41.2 per cent). Uttarakhand was the only State that failed to demonstrate a positive change with the levels of family planning method usage in 2010-11 and 2012-13 remaining constant.
- All the 70 districts of Uttar Pradesh and 13 districts of Uttarakhand recorded a decrease in the proportion of currently married women reporting unmet needs. On the other hand, in Madhya Pradesh 24 districts showed an increase in the levels of unmet needs amongst currently married women.
- While female sterilisation remained the most predominantly used method, the use of pills, copper-T/ IUD and male sterilization recorded a marginal growth. Assam was the only State that recorded the highest use of copper-T/ IUD and pills as a measure for family planning. The magnitude of inter-district disparities in total fertility rates along with other parameters was high. The highest level of inter-district disparity is observed in Uttar Pradesh (3.4) and the lowest in Uttarakhand (1).
- Assessment of factors determining TFR reveals that districts with higher TFR have lower levels of literacy and lower contraceptive usage. Moreover, in areas with higher TFR, the mean age at marriage for women has also been significantly low. Usage and unmet contraceptive, key components for family planning, show an indirect relationship with literacy levels. It can be safely concluded that literacy levels come to have a great impact on various societal aspects.

MATERNAL HEALTH AND HEALTH CARE

4.1 Maternal health is the condition of women's health during pregnancy, childbirth and the postpartum period. The health of the mother being directly associated with the health of the new born, utmost care to the mother is essential during all the three phases. Motherhood comes to constitute a largely fulfilling experience for women but is unfortunately also a cause for suffering, ill-health or even death for many women. This chapter probes the care - including ante-natal care and post-natal care -administered to women at different stages. The place of delivery being essential determining factor for the equipment and health care available during childbirth, this chapter has also monitored the different places of delivery and the various aspects associated with them.

4.1. Definition of Indicators

4.2 **Antenatal care:** Antenatal care is the medical attention given to women during pregnancy. It comprises visiting the obstetrician, receiving supplementary nutrients required during pregnancy, detecting potential complications during delivery and assessing the health of the unborn child and expectant mother.

4.3 **Institutional and safe deliveries:** Deliveries can be categorised as safe delivery and institutional delivery. Institutional delivery means giving birth to a child in a medical institution, where not only more amenities are available to save the life of the mother and child but the delivery is also undertaken by trained and competent health personnel. Both institutional deliveries and home deliveries conducted by doctor/ nurse / auxiliary nurse mid-wife (ANM) / lady health visitor (LHV) can be categorized as safe deliveries.

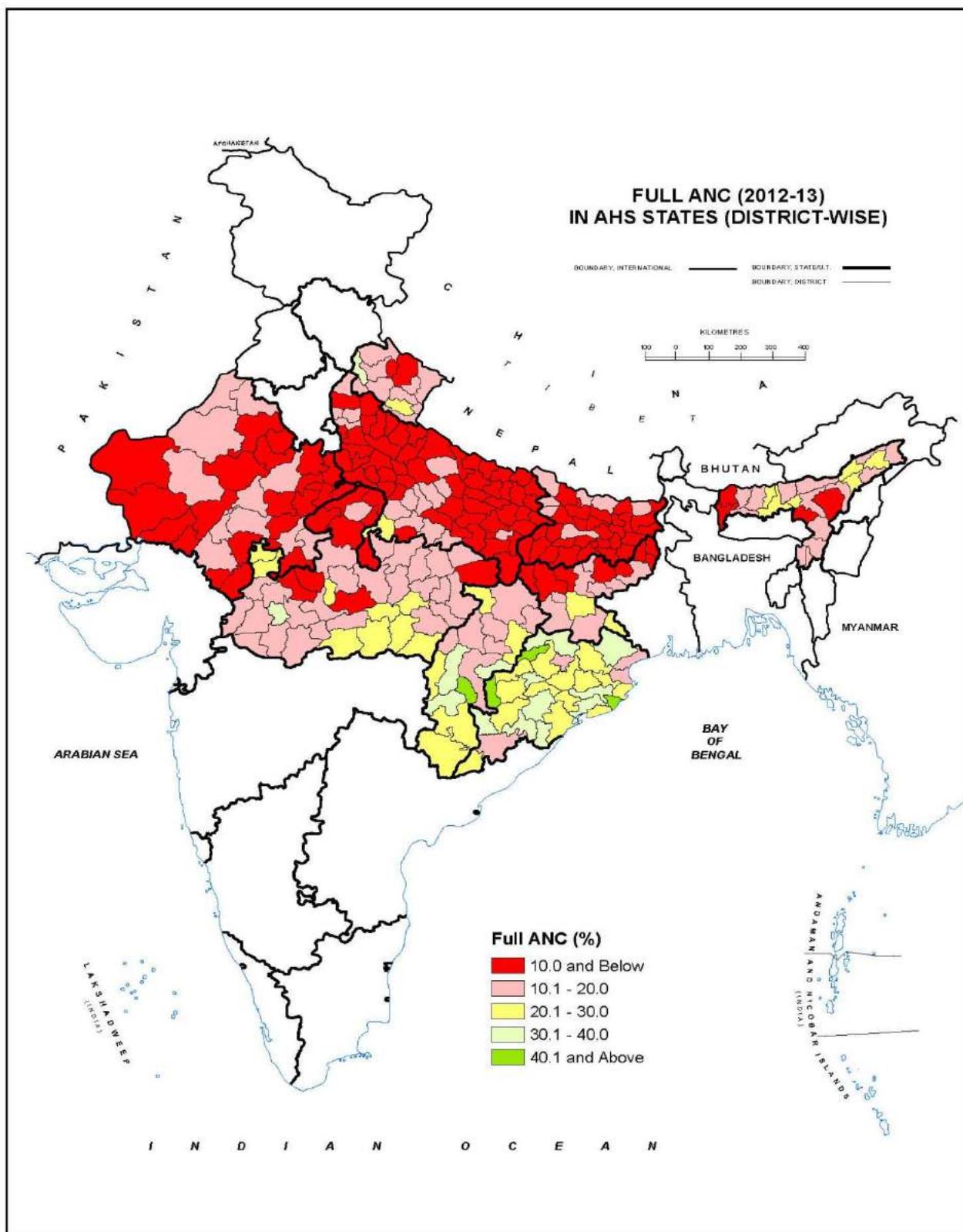
4.4 Postnatal care: Post-natal care can be defined as the care provided to mothers in the first six weeks after delivery. This is a critical period for assessing the health of the mother as well as treating any complications which may have occurred during delivery.

4.5 Janani Suraksha Yojana: Janani Suraksha Yojana (JSY) is a centrally sponsored scheme which aims to increase the coverage of institutional deliveries in the country. Under the scheme pregnant women receive cash assistance to give birth in a medical institution.

4.2. Levels and Trends

4.2.1. Antenatal care

4.6 Table 4.1 shows the levels of antenatal care across nine States in 2010-11, 2011-12 and 2012-13, and the districts that recorded the maximum and minimum levels. In 2010-11, Madhya Pradesh recorded the highest at 68.1 per cent, while Uttar Pradesh reported the lowest at 29.6 per cent. In 2011-12, the condition of all the States improved marginally, with Odisha recording the highest and Uttar Pradesh recording the lowest at 78.5 per cent and 32.5 per cent respectively. The coverage of 3 or more ANC checkups improved further in 2012-13 with Odisha showing the highest at 81.9 per cent, followed by Madhya Pradesh (71.7 per cent) and Bihar the lowest 36.7 per cent. Uttar Pradesh and Chhattisgarh made the highest and similar levels of progress of 8.2 per cent and 8.8 per cent respectively. There is a vast inter-district disparity across all the States. Shrawasti in Uttar Pradesh has the lowest level of 16.4 per cent, while Jharsuguda in Odisha has the highest levels of ANC checkups at 94.8 per cent.

Map 4.1: Levels of full antenatal care (2012-13) in AHS States (District-Wise)

4.7 The levels of full ANC check-ups, as compared to 3 or more ANC check-ups, are low in every State. The highest is just 19.5 per cent in Chhattisgarh and while Uttar Pradesh shows an abysmally low level of 3.9 per cent in 2010-11. The situation improved slightly over the years with Odisha again recording the highest in 2012-13 (27.8 per cent), and Uttar Pradesh the lowest at 6.8 per cent. Odisha made a remarkable

progress of 9.2 per cent in 2012-13 from 2010-11. Rajasthan and Jharkhand made a marginal progress of 1 and 0.5 per cent respectively. A stark inter-district divide can be witnessed across AHS districts in the case of full ANC check up with Balrampur, Badaun and Shravasti in Uttar Pradesh having recorded just 1 per cent, and Jagatsinghpur in Odisha having reported the highest at 54.6 per cent.

Table 4.1: Levels of Ante-natal Care (ANC) (%)

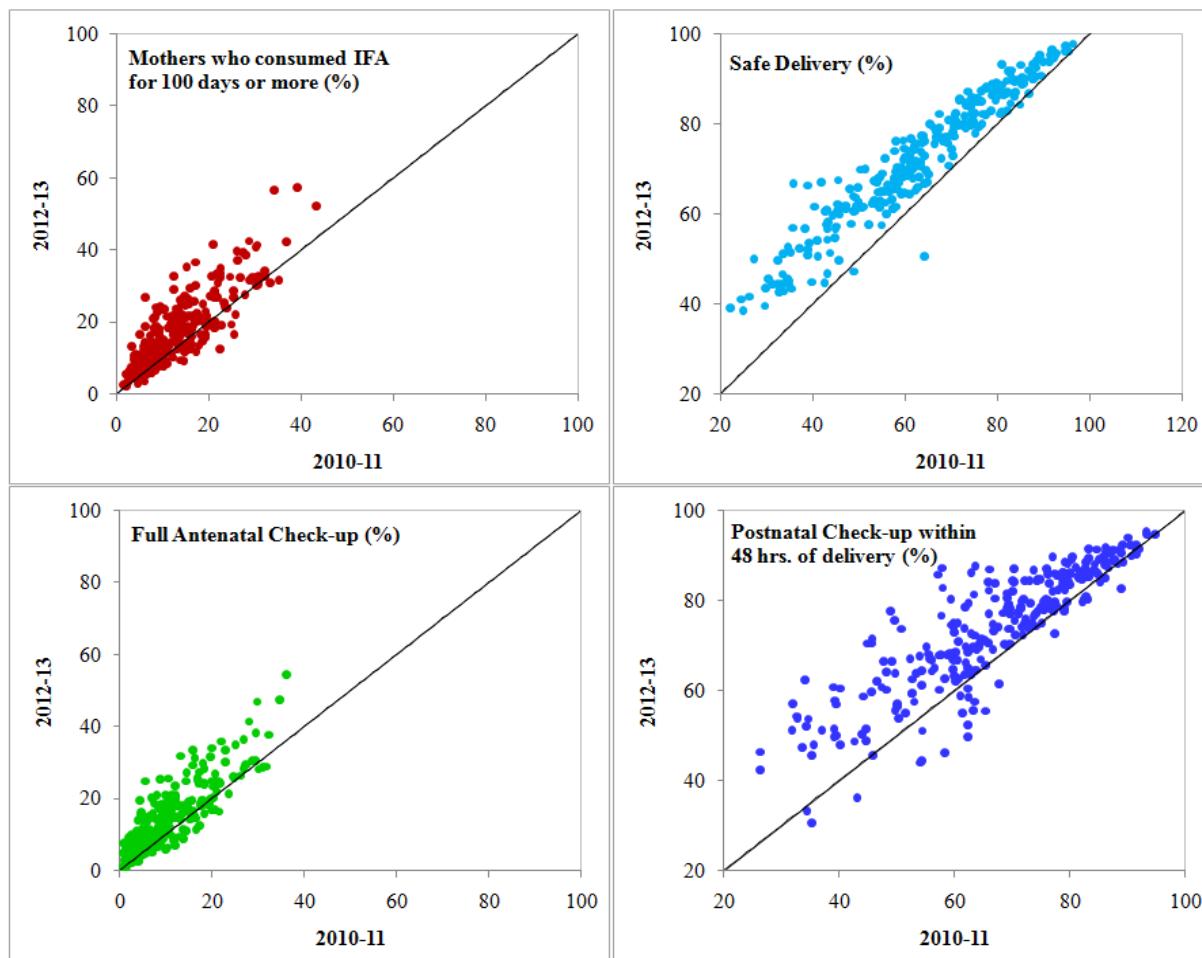
Percentage of pregnant women who have received three or more ANC check-ups and full ANC check-ups in 2010-11, 2011-12 and 2012-13, the absolute change in the levels in 2012-13 in comparison with 2010-11 and the lowest and highest percentages at the district level in 2012-13.

State	AHS 2010-11	AHS 2011-12	AHS 2012-13	Absolute Change	District Lowest	Highest
3 or more ANC						
Assam	61	60.2	66.2	5.2	Dhubri (39.7)	Dibrugarh (84.8)
Bihar	34	34.2	36.7	2.7	Sheohar (22.6)	Gopalganj (49.2)
Chhattisgarh	57.1	64.2	65.9	8.8	Surguja (43.1)	Dhamtari (81.2)
Jharkhand	56.3	59	60.2	3.9	Garhwa (34.9)	Purba Singhbhum (81.9)
Madhya Pradesh	68.1	70.7	71.7	3.6	Bhind (42.2)	Hoshangabad (92.4)
Odisha	76	78.5	81.9	5.9	Kalahandi (67)	Jharsuguda (94.8)
Rajasthan	47.5	51.5	55	7.5	Barmer (29.5)	Kota (80.6)
Uttar Pradesh	29.6	32.5	37.8	8.2	Shrawasti (16.4)	Lucknow (64.6)
Uttarakhand	52.3	56.6	58.9	6.6	Tehri Garhwal (39.5)	Dehradun (77.5)
Full ANC check up						
Assam	11.9	13.3	18.4	6.5	KarbiAnglong (7.2)	Kamrup (29.9)
Bihar	5.9	6.1	7.8	1.9	Samastipur (2.7)	Pashchim Champaran (15.3)
Chhattisgarh	19.5	20.2	22.5	3	Jashpur (14.2)	Dhamtari (47.4)
Jharkhand	13.1	14.4	13.6	0.5	Garhwa (5.1)	PurbaSinghbhum (28.9)
Madhya Pradesh	13.3	15.3	16.2	2.9	Morena (3.7)	Indore (30.6)
Odisha	18.6	22.7	27.8	9.2	Koraput (16.8)	Jagatsinghpur (54.6)
Rajasthan	8.5	9.2	9.5	1	Nagaur (3.2)	Jaipur (20)
Uttar Pradesh	3.9	5	6.8	2.9	Balrampur .Budaun. Shrawasti (1)	Jhansi (20.3)
Uttarakhand	11.1	16	17.1	6	Rudraprayag (4)	Dehradun (30.3)

4.8 Figure 4.1 plots the association between 2010-11 and 2012-13 statistics for selected maternal health indicators. Most of the scatter for each of the maternal health indicators lies above the diagonal, indicating improvements across the districts. However, much better levels of improvements are observed in case of safe

delivery care and increases in PNC check ups. Receipt of full ANC check up is at much lower levels and remains a concern. In fact, this is affected by very low proportion of pregnant women consuming IFA tablet. Clearly, quality improvements in antenatal care continue to be an important area for interventions.

Figure 4.1: State-wise distribution of 100 districts with lowest ANC and Safe Delivery in 2010-11 and 2012-13



4.9 Table 4.2 highlights the levels of ANC registration and check-ups across the AHS States during 2010-11 and 2012-13. ANC registrations have been highest in Assam (78.9 per cent) and lowest in Uttar Pradesh (57.7) in 2010-11. In all States, the number of registrations increased in 2012-13, except Bihar, where the numbers dropped from 63 per cent (2010-11) to 54.4 per cent (2012-13). Chhattisgarh had the highest percentage of pregnant women (83.9 per cent) who registered for ANC in 2012-13 while Uttar Pradesh had the lowest at 61.9 per cent. With regard to any ANC received by women, the AHS States have shown marginal improvement. Odisha recorded the highest levels of ANC (98

per cent), while Uttar Pradesh the lowest at 85.2 per cent in 2012-13.

4.10 The table also shows the percentage of women who received ANC in the first trimester of their pregnancy in 2010-11 and 2012-13. The figures across the States are low with Uttar Pradesh recording the lowest at 42.4 per cent and Madhya Pradesh reporting the highest at 66.5 per cent. Between 2010-11 and 2012-13, the levels have increased just marginally. For instance, in 2012-13, the highest ANC in the first trimester was recorded from Madhya Pradesh at 73.3 per cent, whereas the lowest was from Bihar at 49.9 per cent. The table also highlights ANC received

by women from government sources in 2010-11 and 2012-13. During the two AHS periods the highest levels for this were recorded from

Uttarakhand at 69.7 and 73.3 per cent respectively, while the lowest levels were from Bihar at 25.1 and 23.9 per cent respectively.

Table 4.2: Ante-natal Care related Indicators

Percentage of pregnant women who have registered for an ANC check-up, had any visit for an ANC check-up, received an ANC check-up during the first trimester and received ANC from a government source in 2010-11 and 2012-13

State	ANC Registration (%)		Any ANC visit (%)		ANC, 1 st Trimester (%)		ANC (Govt. Source) (%)	
	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13
Assam	78.9	78.2	91.1	94.8	54.4	54.8	69.4	71.8
Bihar	63	54.4	84.5	85.4	43.7	49.9	25.1	23.9
Chhattisgarh	74.9	83.9	90.1	91.8	65.7	73.6	42.4	42.8
Jharkhand	66.1	71.8	86.1	92.4	56.3	62.1	19.2	16.9
Madhya Pradesh	66.5	71.6	88.6	92.7	66.5	73.3	49.5	51
Odisha	68.7	79.8	95.6	98	63	71.4	57.7	55.9
Rajasthan	66.8	72.2	84.8	88.8	53.2	62.8	54.9	48.3
Uttar Pradesh	57.7	61.9	82.1	85.2	42.4	50.5	68.4	70.9
Uttarakhand	68.5	76.1	84.4	89.1	59.5	66.2	69.7	73.3

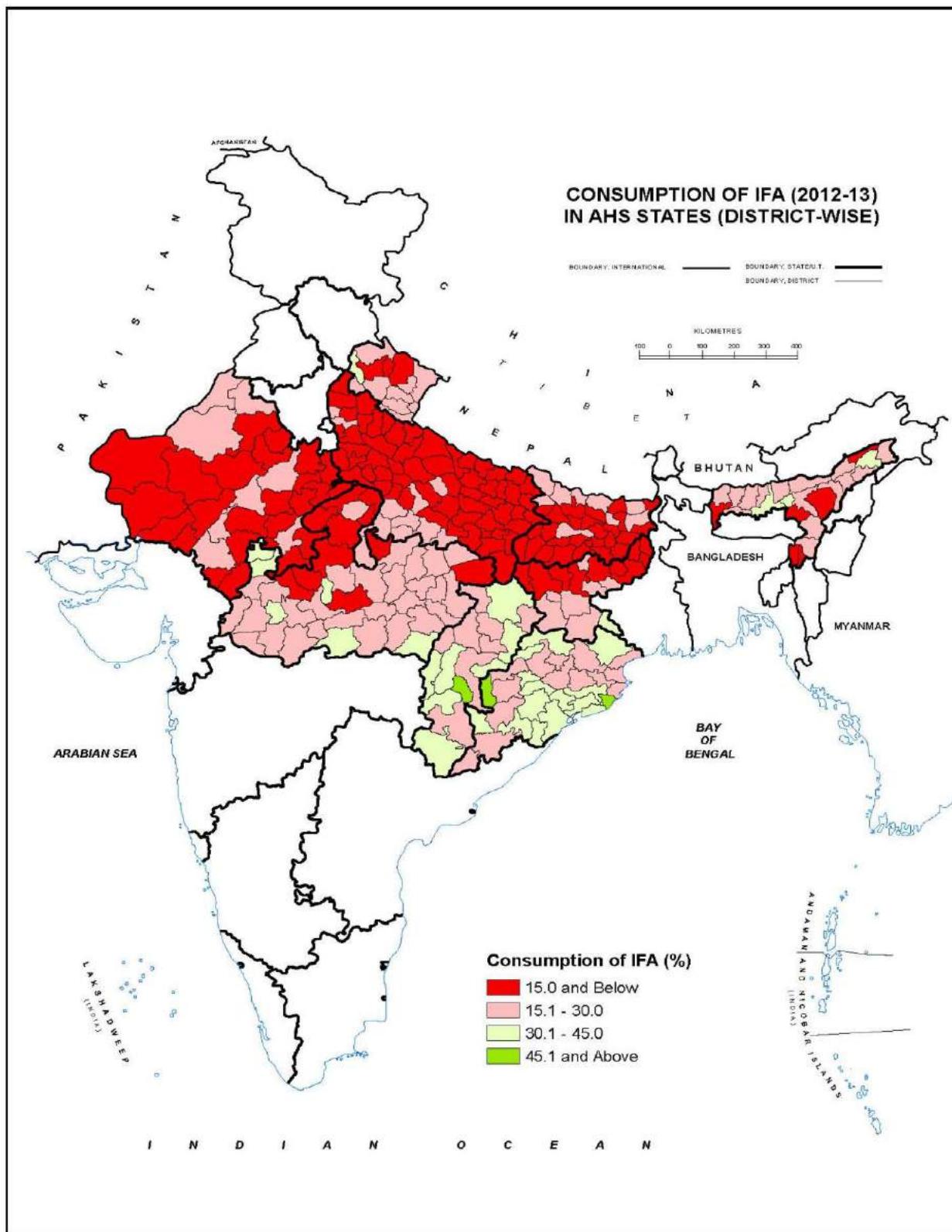
4.11 Table 4.3 presents data from 2010-11 and 2012-13 about the proportion of mothers who received at least one tetanus toxoid (TT) injection and who consumed iron-folic acid (IFA) for 100 days or more in the nine States. The number of mothers who received at least one TT injection is higher than those who consumed IFA tablets. Mothers receiving TT injections in Odisha increased from 95.1 in 2010-11 to 97.6 per cent in 2012-13. The lowest in 2010-11 was recorded

from Uttar Pradesh (80.9 per cent) which increased marginally in 2012-13 to 84.1 per cent. Mothers who consumed IFA for 100 days or more have been low with Uttar Pradesh recording the lowest at 6.5 per cent. In fact, in 2010-11 the highest level recorded was 23.8 per cent in Chhattisgarh. The rate of IFA consumption increased very marginally in 2012-13 with Odisha reporting the highest at 31.2 per cent and Uttar Pradesh continuing to record the lowest.

Table 4.3: Tetanus Toxoid Injection and Iron and Folic Acid Consumption

Percentage of mothers who have received atleast one tetanus toxoid injection and have consumed iron and folic acid tablets for atleast 100 days in 2010-11 and 2012-13

State	At least one TT injection (%)		IFA for 100 days or more (%)	
	2010-11	2012-13	2010-11	2012-13
Assam	91	94.5	15.3	23.1
Bihar	84.4	84.6	10	12.7
Chhattisgarh	90.1	90.8	23.8	28.1
Jharkhand	85.7	91.8	15.1	16.9
Madhya Pradesh	94.8	91.8	17.5	19.5
Odisha	95.1	97.6	21.6	31.2
Rajasthan	84.3	87.8	12.3	12.7
Uttar Pradesh	80.9	84.1	6.5	9.7
Uttarakhand	83.6	88	14.9	21.4

Map 4.2: Consumption of IFA (2012-13) in AHS States (district-wise)

4.2.2. Place of delivery

4.12 Table 4.4 highlights the levels of institutional and safe delivery in the nine States during 2010-11, 2011-12 and 2012-13, also focusing on the districts that recorded the highest and lowest figures of safe and institutional delivery. The highest number of institutional deliveries was reported from Madhya Pradesh in 2010-11, 2011-12 and 2012-13 at 76.1, 79.7 and 82.6 per cent respectively. The lowest level of

institutional delivery was reported from Chhattisgarh at 34.9 (2010-11), 40.4 (2011-12) and 39.5 (2012-13) per cent. However, Uttar Pradesh recorded an 11 per cent increase in institutional delivery over the three survey years. The inter-district disparity with regard to institutional delivery is very high. While Kawardha district in Chhattisgarh had the lowest levels of institutional delivery at 23.8 per cent, Jagatsinghapur district in Odisha recorded the highest at 95.9 per cent.

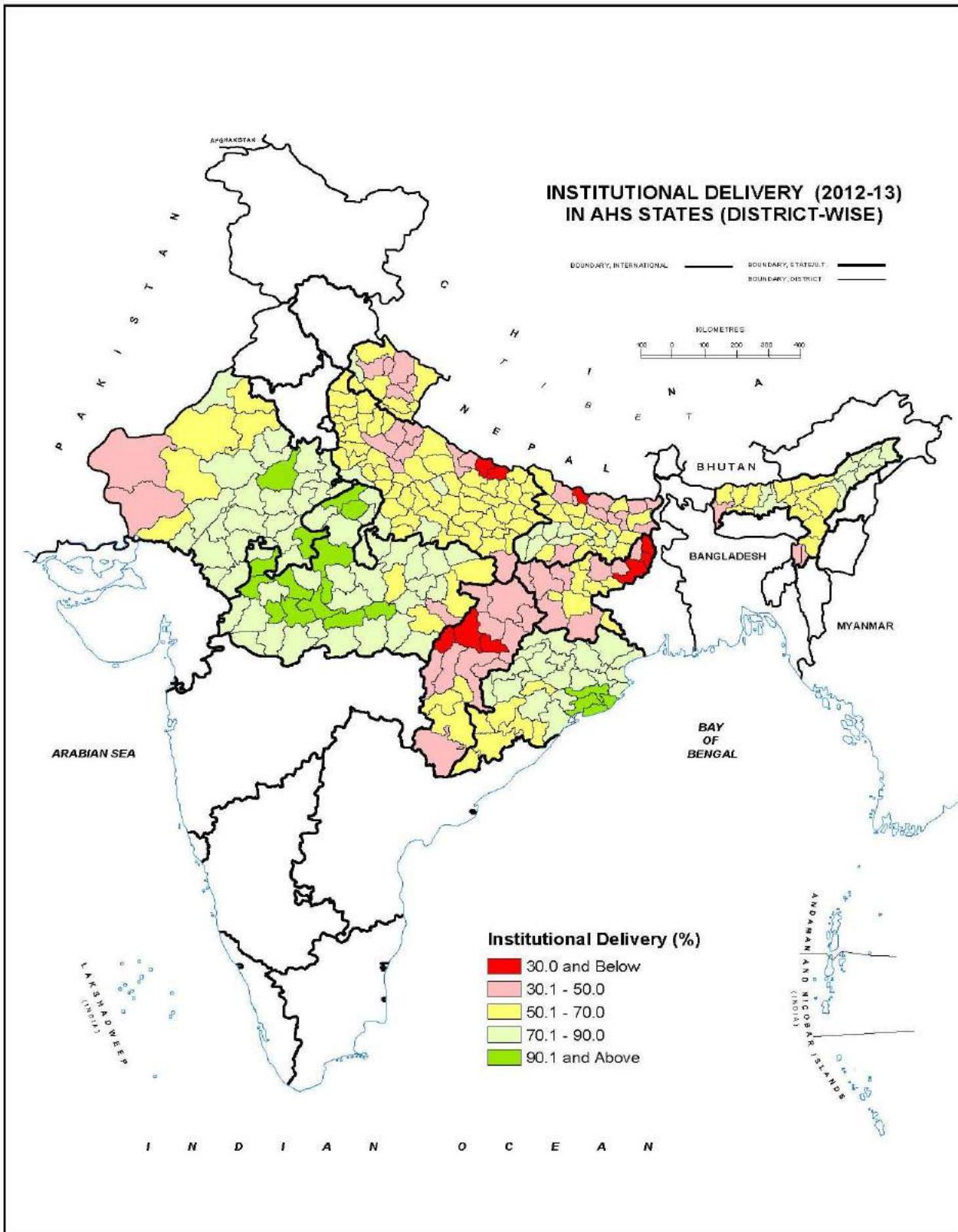
Table 4.4: Institutional and Safe Delivery (%)

State-wise percentage of institutional and safe delivery in 2010-11, 2011-12 and 2012-12, the absolute change in 2012-13 in comparison with 2010-11 and the lowest and highest percentage at the district level in 2012-13

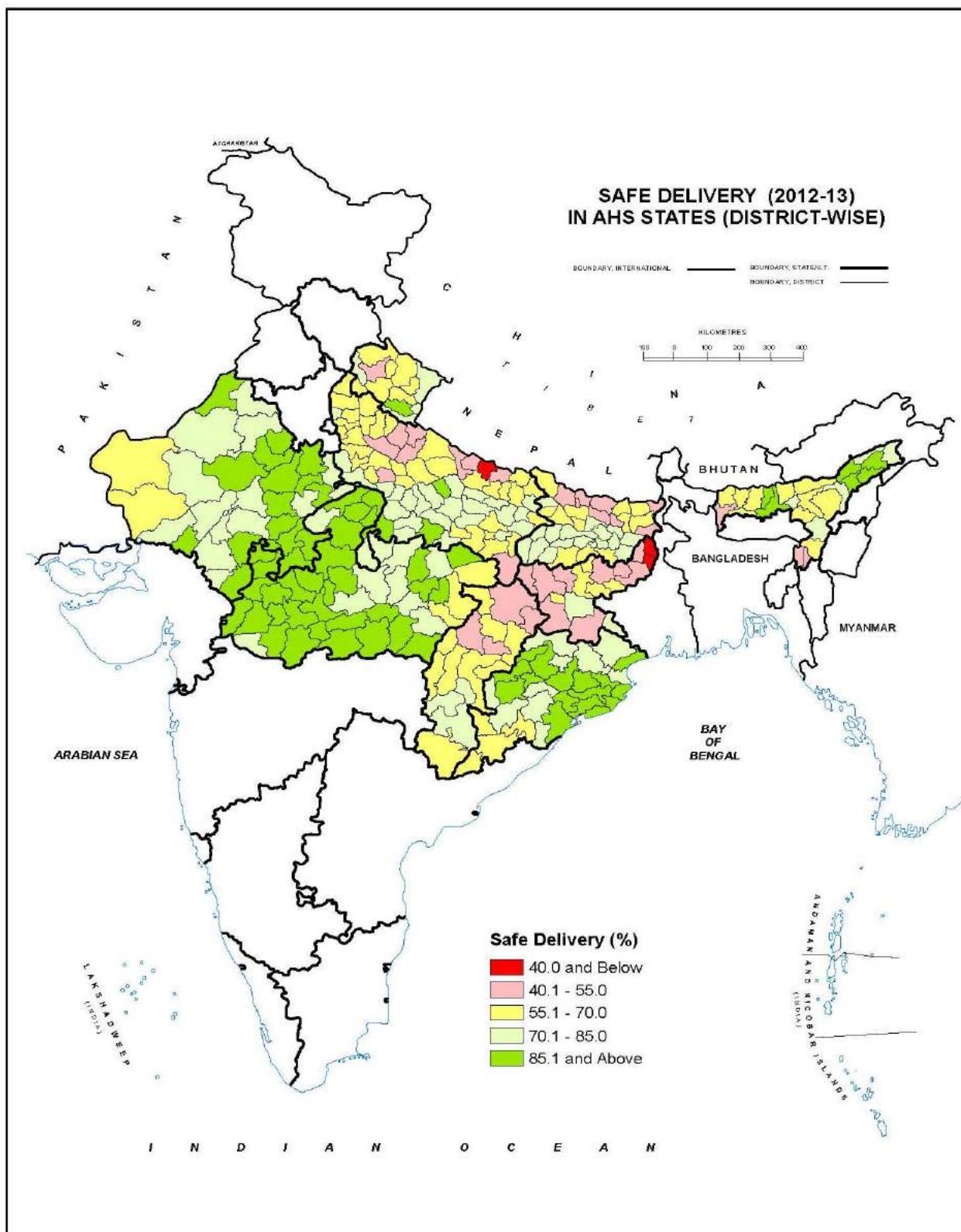
State	AHS	AHS	AHS	Absolute Change	District	
	2010-11	2011-12	2012-13		Lowest	Highest
Institutional Delivery						
Assam	57.7	60.8	65.9	8.2	Karimganj (38.2)	Nalbari (87.4)
Bihar	47.7	51.9	55.4	7.7	Sitamarhi (29.6)	Patna (78)
Chhattisgarh	34.9	40.4	39.5	4.6	Kawardha (23.8)	Kanker (68.4)
Jharkhand	37.6	41.2	46.2	8.6	Pakaur (27.7)	PurbaSinghbhum (70)
Madhya Pradesh	76.1	79.7	82.6	6.5	Dindori (49.8)	Indore (94.5)
Odisha	71.3	77.7	80.8	9.5	Malkangiri (52.6)	Jagatsinghapur (95.9)
Rajasthan	70.2	74.4	78	7.8	Jaisalmer (44.2)	Baran (93.2)
Uttar Pradesh	45.6	51.7	56.7	11.1	Balrampur, Siddharthnagar (30)	Jhansi (76.8)
Uttarakhand	50.5	54.6	58.3	7.8	Bageshwar, Chamoli (45)	Dehradun (73.2)
Safe Delivery						
Assam	70.1	68.1	71.6	1.5	Karimganj (44.1)	Sibsagar (90.5)
Bihar	53.5	59.9	64.5	11	Sitamarhi (42.9)	Patna (83.1)
Chhattisgarh	49.5	56.9	59.1	9.6	Surguja (42.8)	Kanker (80.9)
Jharkhand	47.1	51.8	56.2	9.1	Pakaur (38.5)	PurbaSinghbhum (75.8)
Madhya Pradesh	82.2	85.9	89.2	7	Dindori (61.9)	Indore (97.9)
Odisha	75.2	80.8	83.7	8.5	Malkangiri, Nabarangapur (57)	Jagatsinghapur (96.2)
Rajasthan	76.2	80	83.8	7.6	Jaisalmer (60.8)	Jaipur (94.8)
Uttar Pradesh	51.3	57.4	63.3	12	Balrampur (39.1)	Jhansi (90.8)
Uttarakhand	56.9	61	64.7	7.8	TehriGarhwal (54.3)	Nainital (85.4)

4.13 Madhya Pradesh had the highest levels of safe delivery in 2010-11, 2011-12 and 2012-13. While, the lowest levels of safe delivery were reported from Jharkhand. Wide inter district

disparities are observable with Balrampur district in Uttar Pradesh recording the lowest (39.1 per cent), and Indore district in Madhya Pradesh reporting the highest at 97.9 per cent.

Map 4.3: Institutional delivery (2012-13) in AHS States (district-wise)

Map 4.4: Safe delivery (2012-13) in AHS States (district-wise)



4.14 Table 4.5 presents the data from 2010-11 and 2012-13 of different facilities, i.e., government facility, private facility, home or with the assistance of a skilled birth attendant (SBA) where delivery cases in the nine States were attended to. Deliveries at government facilities have been high in Madhya Pradesh in 2010-11 and 2012-13 at 65.5 and 71.3 per cent

respectively. Jharkhand recorded the lowest number of deliveries in government facilities at 16 and 23.6 percent in 2010-11 and 2012-13, respectively. The increase in number of delivery cases at government facilities has been slow with only Assam recording a significant increase from 44.5 per cent (2010-11) to 54.6 per cent (2012-13).

Table 4.5: Facility-wise Distribution of Deliveries (%)

Percentage of deliveries which took place at a government facility, private facility, home and by skilled birth assistant at home in 2010-11 and 2012-13

State	Delivery at Govt. facility (%)		Delivery at Private facility (%)		Delivery at Home (%)		Delivery at home assisted by SBA (%)	
	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13
Assam	44.5	54.6	13.1	11	41.8	33.6	35.1	29.2
Bihar	32.9	39.5	14.8	15.7	52	42.1	18.4	30
Chhattisgarh	23.9	29.2	10.6	9.9	65	59.4	39.6	50.5
Jharkhand	16	23.6	20.8	21.4	62	53.4	24.7	27.4
Madhya Pradesh	65.5	71.3	10.5	11.2	23.5	17.1	26	38.3
Odisha	61.7	70.8	9.2	9.6	28.1	18.7	20.5	24.5
Rajasthan	55.2	59.1	14.6	18.7	29.5	21.5	32.3	42.6
Uttar Pradesh	27.7	39	17.7	17.6	53.8	42.1	21.8	28.9
Uttarakhand	29.9	37.8	20.3	19.6	49	40.9	32	33.2

4.15 AHS data reveals that delivery at a private facility has been the lowest across the States, with Odisha recording the lowest at 9.2 per cent in 2010-11 and 9.6 per cent in 2012-13. Jharkhand reported the highest number of delivery cases at a private facility both in 2010-11 and 2012-13 at 20.8 and 21.4 per cent respectively. Cases of deliveries at home reduced in all the States between 2010-11 and 2012-13: from 65 per cent to 59.4 per cent in Chhattisgarh, for instance. In this case, Madhya Pradesh recorded the lowest numbers at 23.5 and 17.1 per cent in 2010-11 and 2012-13 respectively. The prevalence of skilled birth attendants for home deliveries increased across States over the 2 periods, except in Assam where the rate fell from 35.1 per cent (2010-11) to 29.2 per cent (2012-13). The highest number of such cases in 2010-11 was reported from

Chhattisgarh at 39.6 per cent, while the lowest was from Bihar at 18.4 per cent. In 2012-13, the highest prevalence of SBA was again noted in Chhattisgarh at 50.5 per cent, and the lowest in Odisha at 24.5 per cent.

4.2.3. Postnatal care and JSY incentives

4.16 Table 4.6 present the levels from 2010-11, 2011-12 and 2012-13, of the percentage of mothers who received post-natal care within 48 hours of delivery and who availed financial assistance for delivery under the Janani Suraksha Yojana (JSY). The proportion of women who received PNC has increased over the years. While Odisha recorded the highest figures in 2012-13 at 82.8 per cent, Bihar recorded the lowest at 60.9 per cent. The table also shows the absolute

change in the rate of mothers receiving PNC, with Jharkhand reporting the highest at 9.3 per cent, and Bihar the lowest at 0.1 per cent. The highest prevalence can be seen in Shrawasti district of Uttar Pradesh (95.4 per cent) and the lowest in Sheohar district of Bihar (30.7 per cent), indicating wide inter-district disparity in prevalence of PNC across the AHS States.

4.17 With regard to mothers availing financial assistance under JSY, Odisha has been performing better than other AHS States with levels of 61.6, 67.7 and 70.3 per cent in the years 2010-11, 2011-12 and 2012-13 respectively. Jharkhand reported the least number of mothers availing the benefits of JSY at 14.6, 19.9 and 23.9 per cent in 2010-11, 2011-12 and 2012-13.

Table 4.6: Post Natal Care and Janani Suraksha Yojana (%)

Percentage of mothers who received post natal care within 48 hours of delivery and mothers who availed financial assistance for delivery under Janani Suraksha Yojana scheme in 2010-11, 2011-12 and 2012-13, the absolute change in 2010-13 in comparison with 2010-11 estimates and the lowest and highest level at district level in 2012-13.

State	AHS 2010-11	AHS 2011-12	AHS 2012-13	Absolute Change	District	
	Lowest	Highest				
Mothers who received PNC in 48 hours of delivery						
Assam	57	59.6	66.2	9.2	Karimganj (42.4)	Sibsagar (88.3)
Bihar	60.8	59.7	60.9	0.1	Sheohar (30.7)	Kishanganj (85.8)
Chhattisgarh	64.8	69.5	70.3	5.5	Surguja (45.6)	Dhamtari (86.3)
Jharkhand	59.1	64.6	68.4	9.3	Gumla (53.7)	Dhanbad (84.9)
Madhya Pradesh	74.2	77.8	80.5	6.3	Dindori (45.6)	Indore (94.7)
Odisha	74.5	80	82.8	8.3	Malkangiri (50.3)	Bargarh (94)
Rajasthan	73.3	76.6	79.6	6.3	Jaisalmer (51.6)	Baran (92.2)
Uttar Pradesh	68.4	71.4	77.6	9.2	Farrukhabad (48.1)	Shrawasti (95.4)
Uttarakhand	59.1	61.7	64.3	5.2	Chamoli (48.1)	Dehradun (79.8)
Mothers who availed financial assistance for delivery under JSY						
Assam	44.8	51.2	55.5	10.7	Karimganj (34)	Lakhimpur (78.5)
Bihar	30.4	35.2	40.9	10.5	Sheohar (23.2)	Khagaria (57.2)
Chhattisgarh	21.7	30.8	34	12.3	Janjgir-Champa (21.4)	Bastar (67.3)
Jharkhand	14.6	19.9	23.9	9.3	Bokaro (13.3)	Gumla (44.4)
Madhya Pradesh	61.1	69.3	72.9	11.8	Dindori (48.6)	Katni (88.1)
Odisha	61.6	67.7	70.3	8.7	Gajapati (47.4)	Kandhamal (81.3)
Rajasthan	53.9	57.7	59.5	5.6	Jaisalmer (35.3)	Baran (84.2)
Uttar Pradesh	15.8	31.1	36.4	20.6	G B Nagar (15.7)	Banda (70.4)
Uttarakhand	26.9	30.1	33.8	6.9	Haridwar (17.8)	Champawat (57.6)

4.2.4. Performance of districts

4.18 Table 4.7 shows the number of districts where an increase, no change or decrease was noted in case of mothers who received 3 or more ante-natal care, full ANC, institutional delivery,

safe delivery, PNC within 48 hours of delivery and those who availed financial assistance under the JSY scheme with 2010-11 data as baseline reference. In case of women who received 3 or more ANC, the highest increase can be seen in Uttar Pradesh with all 70 districts reporting an

increase. Similarly all districts in Uttarakhand and Assam also increased the coverage of 3 or more ANC. While, 15 districts of Madhya Pradesh and 10 districts of Bihar recorded a decrease in the rate of mothers receiving 3 or more PNC. With regard to mothers receiving full

ANC, Uttar Pradesh had the maximum districts (65) which recorded an increase. In Assam and Uttarakhand again, all districts showed an increase in the rate of women receiving full ANC. However, 9 districts from Rajasthan and 8 from Jharkhand showed a decline.

Table 4.7: District-wise trends in Ante-natal Care, Place of Delivery and Post-natal Care

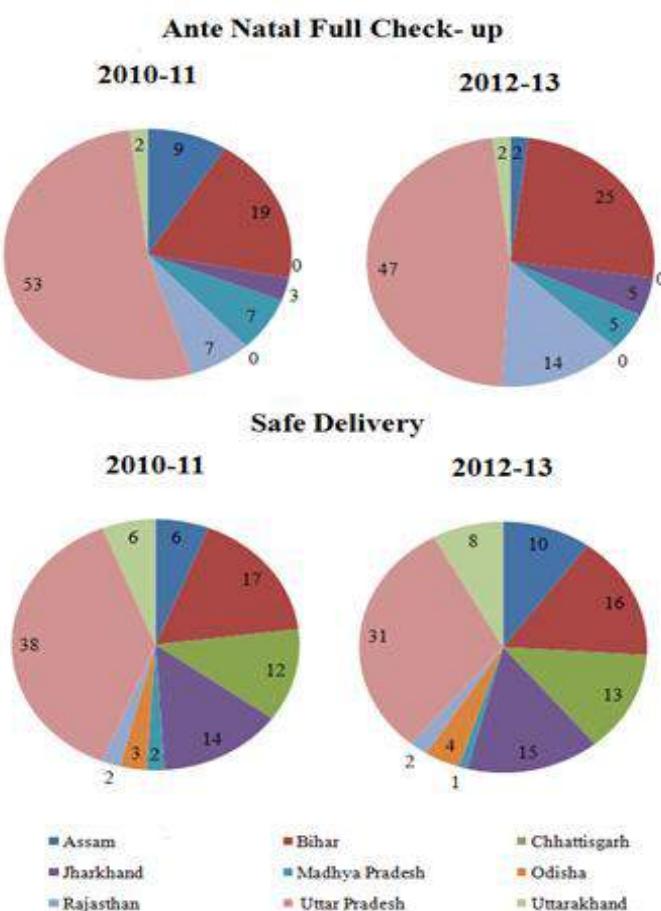
The number of districts in each State when the direction of change in levels of mothers having three or more ante-natal care, full ante-natal care, institutional delivery, safe delivery, post natal care within 48 hours of delivery and availed financial assistance under Janani Suraksha Yojana in 2012-13 when compared with 2010-11 estimates.

State	3 or more ANC			Full ANC		
	Increase	No change	Decrease	Increase	No change	Decrease
Assam	23	0	0	23	0	0
Bihar	27	0	10	29	2	6
Chhattisgarh	15	0	1	11	0	5
Jharkhand	15	0	3	10	0	8
Madhya Pradesh	29	1	15	38	0	7
Odisha	29	0	1	29	0	1
Rajasthan	30	0	2	23	0	9
Uttar Pradesh	70	0	0	65	1	4
Uttarakhand	13	0	0	13	0	0
State	Institutional Delivery			Safe Delivery		
	Increase	No change	Decrease	Increase	No change	Decrease
Assam	23	0	0	22	0	1
Bihar	37	0	0	37	0	0
Chhattisgarh	15	0	1	15	0	1
Jharkhand	18	0	0	18	0	0
Madhya Pradesh	44	0	1	45	0	0
Odisha	30	0	0	30	0	0
Rajasthan	30	0	2	30	1	1
Uttar Pradesh	69	0	1	70	0	0
Uttarakhand	13	0	0	13	0	0
State	PNC in 48 hours of delivery			Financial assistance under JSY		
	Increase	No change	Decrease	Increase	No change	Decrease
Assam	23	0	0	23	0	0
Bihar	20	0	17	37	0	0
Chhattisgarh	16	0	0	16	0	0
Jharkhand	16	0	2	17	0	1
Madhya Pradesh	41	0	4	45	0	0
Odisha	29	0	1	30	0	0
Rajasthan	29	0	3	28	0	4
Uttar Pradesh	65	0	5	70	0	0
Uttarakhand	13	0	0	13	0	0

4.19 A majority of the districts in all the States noted an increase in institutional and safe deliveries. In Rajasthan 2 districts and just 1 district each in Chhattisgarh, Madhya Pradesh and Uttar Pradesh registered a decline in institutional delivery. In case of safe deliveries too, 1 district each in Chhattisgarh, Assam and Rajasthan witnessed a reduction. The number of

districts where mothers received PNC within 48 hours of delivery increased in every State except Bihar, whose performance of Bihar was dismal with 17 of 37 districts showing a decline. Nevertheless, the coverage of JSY scheme improved considerably in every State as all districts, except 4 in Rajasthan and 1 in Jharkhand, registered an increase.

Figure 4.2: State-wise distribution of 100 districts with lowest ANC and Safe Delivery in 2010-11 and 2012-13



4.20 Figure 4.2 illustrates the State-wise distribution of 100 districts with lowest ANC and safe delivery in the years 2010-11 and 2012-13. In both 2010-11 and 2012-13, maximum districts with lowest ANC were reported from Uttar Pradesh at 53 and 47 respectively. Bihar, Rajasthan and Jharkhand have shown an increase

in the number of districts with low ANC from 2010-11 to 2012-13. No district from Madhya Pradesh and Chhattisgarh were among the 100 districts with lowest ANC in 2010-11 and 2012-13. In case of safe delivery too, Uttar Pradesh has the maximum number of districts: 38 in 2010-11 and 31 in 2012-13 among the lowest 100 districts

list. Districts from all the nine States featured among the 100 districts with lowest safe delivery. While in Assam, Chhattisgarh, Odisha and

Uttarakhand the number of districts have increased marginally, the number has reduced in Bihar and Madhya Pradesh.

Table 4.8: List of 100 districts with lowest % of ANC full check up, Safe delivery and financial assistance for delivery under JSY, 2012-13

No.	ANC full check up		Safe delivery		JSY incentive	
	State	District	State	District	State	District
1	Uttar Pradesh	Balrampur (1)	Jharkhand	Pakaur (38.5)	Jharkhand	Bokaro (13.3)
2	Uttar Pradesh	Shrawasti (1.2)	Uttar Pradesh	Balrampur (39.1)	Jharkhand	Dhanbad (14)
3	Uttar Pradesh	Budaun (1.2)	Jharkhand	Sahibganj (39.6)	Uttar Pradesh	G B Nagar (15.7)
4	Uttar Pradesh	Siddharthnagar (2.1)	Uttar Pradesh	Siddharthnagar (41.1)	Jharkhand	Giridih (16)
5	Uttar Pradesh	Etawah (2.3)	Uttar Pradesh	Shrawasti (41.7)	Jharkhand	Chatra (16.3)
6	Uttar Pradesh	J P Nagar (2.6)	Chhattisgarh	Surguja (42.8)	Uttar Pradesh	Ghaziabad (17.3)
7	Bihar	Samastipur (2.7)	Bihar	Sitamarhi (42.9)	Uttarakhand	Haridwar (17.8)
8	Uttar Pradesh	Aligarh (2.7)	Jharkhand	Chatra (43.4)	Jharkhand	Dumka (18.2)
9	Uttar Pradesh	Kannauj (2.8)	Jharkhand	Dumka (43.6)	Uttar Pradesh	Siddharthnagar (19)
10	Uttar Pradesh	Bareilly (3)	Assam	Karimganj (44.1)	Jharkhand	Kodarma (20.9)
11	Uttar Pradesh	Sonbhadra (3)	Bihar	Purba Champaran (44.4)	Uttar Pradesh	Balrampur (21.3)
12	Rajasthan	Nagaur (3.2)	Bihar	Darbhanga (44.5)	Jharkhand	Sahibganj (21.3)
13	Rajasthan	Karauli (3.5)	Uttar Pradesh	Sonbhadra (44.5)	Jharkhand	Pakaur (21.4)
14	Uttar Pradesh	Rampur (3.5)	Jharkhand	Godda (44.8)	Chhattisgarh	Janjgir-Champa (21.4)
15	Uttar Pradesh	Mainpuri (3.6)	Chhattisgarh	Bilaspur (44.9)	Uttar Pradesh	Meerut (21.7)
16	Uttar Pradesh	Basti (3.6)	Assam	Hailakandi (45.2)	Uttar Pradesh	Bareilly (22.9)
17	Madhya Pradesh	Morena (3.7)	Jharkhand	Pashchimi Singhbhum (45.6)	Bihar	Sheohar (23.2)
18	Rajasthan	Barmer (3.7)	Bihar	Sheohar (45.7)	Jharkhand	Godda (23.4)
19	Uttar Pradesh	Kushinagar (3.7)	Bihar	Katihar (46.7)	Uttar Pradesh	Farrukhabad (23.7)
20	Uttar Pradesh	Sant Kabir Nagar (3.8)	Jharkhand	Giridih (46.8)	Jharkhand	Deoghar (24.1)
21	Uttar Pradesh	Mirzapur (3.8)	Chhattisgarh	Janjgir-Champa (47.3)	Uttar Pradesh	Bijnor (24.6)
22	Uttarakhand	Rudraprayag (4)	Uttar Pradesh	Shahjahanpur (49.7)	Uttar Pradesh	Sonbhadra (24.6)
23	Uttar Pradesh	Maharajganj (4)	Bihar	Kishanganj (49.8)	Bihar	Darbhanga (24.7)
24	Uttar Pradesh	Ambedkar Nagar (4.1)	Uttar Pradesh	Bahraich (50)	Jharkhand	Palamu (24.7)
25	Bihar	Katihar (4.1)	Jharkhand	Garhwa (50.6)	Uttar Pradesh	Bulandshahar (25)
26	Rajasthan	Dhulpur (4.3)	Assam	Dhubri (50.7)	Chhattisgarh	Kawardha (25.3)
27	Uttar Pradesh	Firozabad (4.4)	Uttar Pradesh	Bareilly (50.9)	Uttar Pradesh	Bahraich (25.4)
28	Bihar	Jehanabad (4.5)	Uttar Pradesh	Pilibhit (51.3)	Chhattisgarh	Raipur (25.9)
29	Uttar Pradesh	Faizabad (4.5)	Jharkhand	Deoghar (51.4)	Jharkhand	Hazaribagh (26.1)
30	Uttar Pradesh	Allahabad (4.6)	Jharkhand	Gumla (51.5)	Uttar Pradesh	Moradabad (26.2)
31	Bihar	Sheikhpura (4.6)	Jharkhand	Palamu (52.2)	Uttar Pradesh	Muzaffarnagar (26.2)
32	Rajasthan	Jaisalmer (4.6)	Chhattisgarh	Jashpur (52.4)	Chhattisgarh	Bilaspur (26.3)
33	Uttar Pradesh	Bijnor (4.7)	Uttar Pradesh	Budaun (52.8)	Chhattisgarh	Surguja (26.5)
34	Bihar	Banka (4.7)	Bihar	Madhubani (53.6)	Uttar Pradesh	Shrawasti (27.1)
35	Bihar	Lakhisarai (4.8)	Uttar Pradesh	Mainpuri (54.2)	Jharkhand	Garhwa (27.2)
36	Uttar Pradesh	Mau (4.9)	Uttarakhand	Tehri Garhwal (54.3)	Uttar Pradesh	Rampur (27.4)
37	Uttarakhand	Chamoli (5)	Bihar	Saharsa (54.8)	Bihar	Madhubani (27.7)
38	Uttar Pradesh	Chandauli (5)	Chhattisgarh	Dantewada (56.7)	Jharkhand	Pashchimi Singhbhum (27.9)
39	Uttar Pradesh	Kaushambi (5)	Uttar Pradesh	Moradabad (56.8)	Jharkhand	Purba Singhbhum (28.1)
40	Uttar Pradesh	Etah (5)	Odisha	Malkangiri (56.9)	Uttar Pradesh	Varanasi (28.2)
41	Bihar	Nawada (5)	Odisha	Nabarangapur (57)	Bihar	Purba Champaran (28.7)
42	Bihar	Vaishali (5)	Uttarakhand	Bageshwar (57.3)	Uttar Pradesh	Baghpat (28.9)
43	Uttar Pradesh	Shahjahanpur (5.1)	Assam	Barpeta (57.6)	Uttar Pradesh	Kanpur Nagar (29.1)
44	Bihar	Jamui (5.1)	Bihar	Araria (57.7)	Uttarakhand	Tehri Garhwal (29.3)
45	Bihar	Supaul (5.1)	Chhattisgarh	Korba (57.8)	Uttar Pradesh	J P Nagar (30.6)

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No.	ANC full check up		Safe delivery		JSY incentive	
	State	District	State	District	State	District
46	Jharkhand	Garhwa (5.1)	Odisha	Koraput (57.9)	Bihar	Gaya (30.6)
47	Uttar Pradesh	Moradabad (5.1)	Chhattisgarh	Koriya (58.3)	Bihar	Sitamarhi (31)
48	Uttar Pradesh	Hardoi (5.1)	Jharkhand	Lohardaga (59.8)	Uttar Pradesh	Mathura (31.2)
49	Uttar Pradesh	Bahraich (5.1)	Uttarakhand	Rudraprayag (59.9)	Uttar Pradesh	Agra (31.3)
50	Uttar Pradesh	Deoria (5.2)	Bihar	Gaya (60)	Uttar Pradesh	Jaunpur (31.7)
51	Madhya Pradesh	Datia (5.2)	Uttar Pradesh	Maharajganj (60.6)	Uttar Pradesh	Ballia (32.1)
52	Uttar Pradesh	Agra (5.3)	Bihar	Madhepura (60.7)	Uttarakhand	Udham Singh Nagar (32.4)
53	Bihar	Bhagalpur (5.3)	Rajasthan	Jaisalmer (60.8)	Jharkhand	Ranchi (32.4)
54	Bihar	Nalanda (5.3)	Uttar Pradesh	Muzaffarnagar (60.8)	Uttar Pradesh	Gorakhpur (33.1)
55	Uttar Pradesh	Hathras (5.4)	Uttar Pradesh	Sant Kabir Nagar (60.9)	Chhattisgarh	Raigarh (33.1)
56	Bihar	Kaimur (Bhabua) (5.4)	Uttar Pradesh	Basti (61)	Chhattisgarh	Durg (33.1)
57	Jharkhand	Sahibganj (5.4)	Uttarakhand	Chamoli (61.2)	Uttar Pradesh	Aligarh (33.7)
58	Uttar Pradesh	Azamgarh (5.4)	Uttar Pradesh	Rampur (61.3)	Bihar	Katihar (33.9)
59	Uttar Pradesh	Pratapgarh (5.5)	Uttar Pradesh	Mirzapur (61.4)	Assam	Karimganj (34)
60	Uttar Pradesh	Kheri (5.5)	Uttar Pradesh	J P Nagar (61.5)	Uttar Pradesh	Allahabad (34.1)
61	Madhya Pradesh	Sheopur (5.5)	Bihar	Saran (61.6)	Chhattisgarh	Jashpur (34.2)
62	Bihar	Bhojpur (5.6)	Uttar Pradesh	Meerut (61.7)	Uttar Pradesh	Budaun (34.4)
63	Bihar	Buxar (5.6)	Bihar	Jamui (61.7)	Uttarakhand	Dehradun (34.4)
64	Bihar	Madhepura (5.6)	Uttar Pradesh	Etah (61.7)	Uttar Pradesh	Mau (34.6)
65	Uttar Pradesh	Jaunpur (5.6)	Chhattisgarh	Rajnandgaon (61.8)	Uttar Pradesh	Mainpuri (34.8)
66	Uttar Pradesh	Ghazipur (5.9)	Madhya Pradesh	Dindori (61.9)	Chhattisgarh	Korba (35.2)
67	Bihar	Gaya (5.9)	Uttar Pradesh	Bulandshahar (62)	Rajasthan	Jaisalmer (35.3)
68	Uttar Pradesh	Bulandshahar (5.9)	Uttar Pradesh	Kannauj (62.3)	Uttar Pradesh	Azamgarh (35.3)
69	Uttar Pradesh	Mathura (5.9)	Uttar Pradesh	Bijnor (62.4)	Uttar Pradesh	Pilibhit (35.8)
70	Uttar Pradesh	Ballia (6)	Uttarakhand	Haridwar (62.4)	Uttar Pradesh	Gonda (35.9)
71	Bihar	Kishanganj (6)	Uttarakhand	Uttarkashi (62.4)	Uttar Pradesh	Maharajganj (36)
72	Jharkhand	Godda (6)	Chhattisgarh	Durg (62.6)	Uttar Pradesh	Auraiya (36.1)
73	Madhya Pradesh	Shivpuri (6)	Chhattisgarh	Raipur (62.8)	Chhattisgarh	Koriya (36.4)
74	Bihar	Rohtas (6.1)	Bihar	Muzaffarpur (63.1)	Uttar Pradesh	Shahjahanpur (36.7)
75	Bihar	Sheohar (6.1)	Jharkhand	Bokaro (63.1)	Uttarakhand	Bageshwar (36.8)
76	Madhya Pradesh	Bhind (6.1)	Uttar Pradesh	G B Nagar (63.2)	Bihar	Muzaffarpur (36.8)
77	Rajasthan	Banswara (6.1)	Uttar Pradesh	Gorakhpur (63.3)	Uttarakhand	Nainital (37.6)
78	Uttar Pradesh	S R Nagar (Bhadohi) (6.2)	Uttar Pradesh	Gonda (63.7)	Uttar Pradesh	Mirzapur (37.7)
79	Rajasthan	Bharatpur (6.3)	Uttar Pradesh	Kushinagar (64)	Uttar Pradesh	Saharanpur (37.9)
80	Rajasthan	Dausa (6.3)	Uttarakhand	Almora (64.4)	Rajasthan	Barmer (38.1)
81	Uttar Pradesh	Gonda (6.3)	Jharkhand	Dhanbad (64.4)	Uttar Pradesh	S R Nagar (Bhadohi) (38.1)
82	Bihar	Darbhanga (6.4)	Odisha	Rayagada (64.8)	Uttar Pradesh	Chandauli (38.4)
83	Bihar	Muzaffarpur (6.5)	Rajasthan	Barmer (64.9)	Chhattisgarh	Rajnandgaon (38.6)
84	Jharkhand	Deoghar (6.5)	Assam	Bongaigaon (65)	Uttarakhand	Chamoli (38.8)
85	Bihar	Begusarai (6.6)	Chhattisgarh	Raigarh (65)	Bihar	Rohtas (39.1)
86	Rajasthan	Sawai Madhopur (6.6)	Uttar Pradesh	Jaunpur (65.1)	Uttar Pradesh	Etah (39.2)
87	Jharkhand	Chatra (6.7)	Chhattisgarh	Mahasamund (65.4)	Assam	Hailakandi (39.2)
88	Rajasthan	Jalor (6.7)	Jharkhand	Hazaribagh (65.5)	Jharkhand	Lohardaga (39.2)
89	Bihar	Purnia (7)	Uttarakhand	Pauri Garhwal (65.5)	Assam	Dhubri (39.3)
90	Rajasthan	Jhunjhunu (7)	Bihar	Purnia (65.7)	Uttarakhand	Almora (39.4)
91	Rajasthan	Sikar (7)	Bihar	Supaul (65.9)	Uttarakhand	Rudraprayag (39.5)
92	Uttar Pradesh	Gorakhpur (7)	Assam	Kokrajhar (66)	Uttarakhand	Pauri Garhwal (39.5)
93	Assam	Karbi Anglong (7.2)	Uttar Pradesh	Hardoi (66.4)	Uttar Pradesh	Kushinagar (39.6)
94	Rajasthan	Sirohi (7.2)	Uttar Pradesh	Ballia (66.5)	Bihar	Madhepura (39.7)
95	Uttar Pradesh	Auraiya (7.4)	Chhattisgarh	Kawardha (66.8)	Bihar	Saharsa (39.7)
96	Bihar	Purba Champaran (7.5)	Assam	Nagaon (66.9)	Uttar Pradesh	Sant Kabir Nagar (39.8)
97	Rajasthan	Alwar (7.5)	Assam	Sonitpur (67)	Uttar Pradesh	Hardoi (40)
98	Uttar Pradesh	Fatehpur (7.5)	Uttar Pradesh	Kheri (67.1)	Bihar	Jamui (40.1)
99	Uttar Pradesh	Sultanpur (7.6)	Assam	Darrang (67.1)	Chhattisgarh	Mahasamund (40.1)
100	Assam	Dhubri (7.6)	Assam	Goalpara (67.2)	Bihar	Araria (40.2)

4.3. Inter-District Disparities

4.21 Figure 4.3 shows the State-wise inter-district range with regard to ANC full check-up and safe delivery for 2010-11 and 2012-13. The inter-district range for ANC full check-up varies across States. A higher range suggests a higher amount of district level disparity in the indicator. In 2010-11, Bihar and Uttar Pradesh had the lowest inter-district range at 14 per cent, while Odisha had the highest at 31 per cent. In 2012-13, Bihar reported the lowest inter-district range for ANC full check-up at 13 per cent, while Odisha

reported the highest at 38 per cent. The figure further suggests that the inter-district range for full ANC check-up has increased marginally in five States and decreased in four States. With regard to safe delivery, inter-district range was high in Uttar Pradesh in 2010-11 at 67 per cent, followed by 57 per cent in Odisha and the lowest in Uttarakhand at 36 per cent. While the range in Uttar Pradesh reduced to 52 per cent and to 39 per cent in Odisha, in Uttarakhand it reduced to 31 per cent in 2012-13. We can notice a marginal reduction in the inter-district range with regard to safe delivery across all the nine AHS States.

Figure 4.3: District level Disparity in Ante-natal Care and Safe Delivery

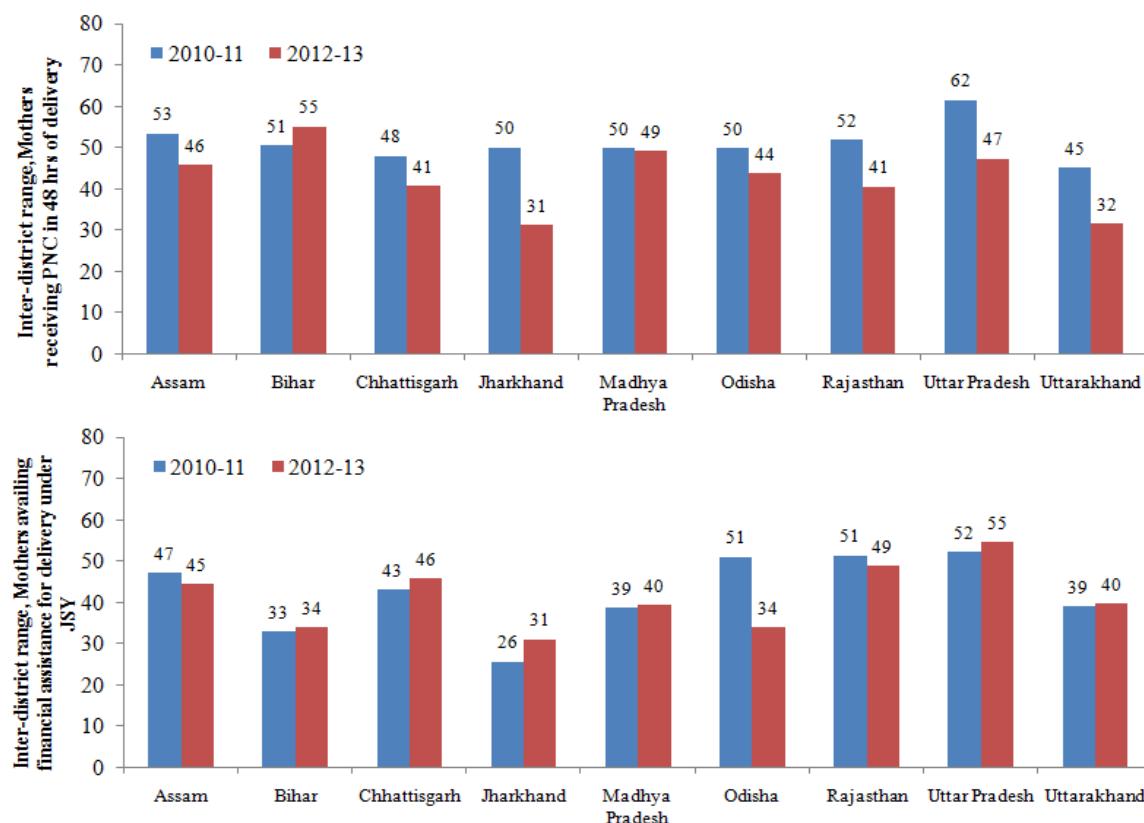
State-wise comparison between the inter-district range of mothers who had full ante-natal check-ups and safe delivery in 2010-11 and 2012-13



4.22 Figure 4.4 presents the inter-district range in the AHS States for PNC within 48 hours of delivery and financial assistance availed of for delivery under the Janani Suraksha Yojana. In 2010-11, inter-district range was the highest in Uttar Pradesh at 62 per cent, and lowest in Uttarakhand at 45 per cent. While the inter-district range for PNC within 48 hours of delivery has reduced in 8 States, it has increased in Bihar from 51 (2010-11) to 55 (2012-13) per cent, which was the highest inter-district range for

2012-13. Jharkhand recorded the lowest range for 2012-13 at 31 per cent. In case of mothers availing financial assistance for delivery under JSY, Uttar Pradesh showed the highest inter-district range in 2010-11 and 2012-13 at 52 and 55 per cent respectively while Jharkhand recorded the lowest inter-district range at 26 per cent in 2010-11 and 31 per cent in 2012-13. As many as 5 States showed an increase in the inter district range of women availing JSY, while the other four States showed a reduction.

Figure 4.4: District level Disparity in Post-natal Care and utilization of Janani Suraksha Yojana
State-wise comparison between the inter-district range of mothers who had a post-natal check-up within 48 hours of delivery and availed financial assistance for institutional delivery under Janani Suraksha Yojana in 2010-11 and 2012-13



4.4. Association with Developmental Indicators

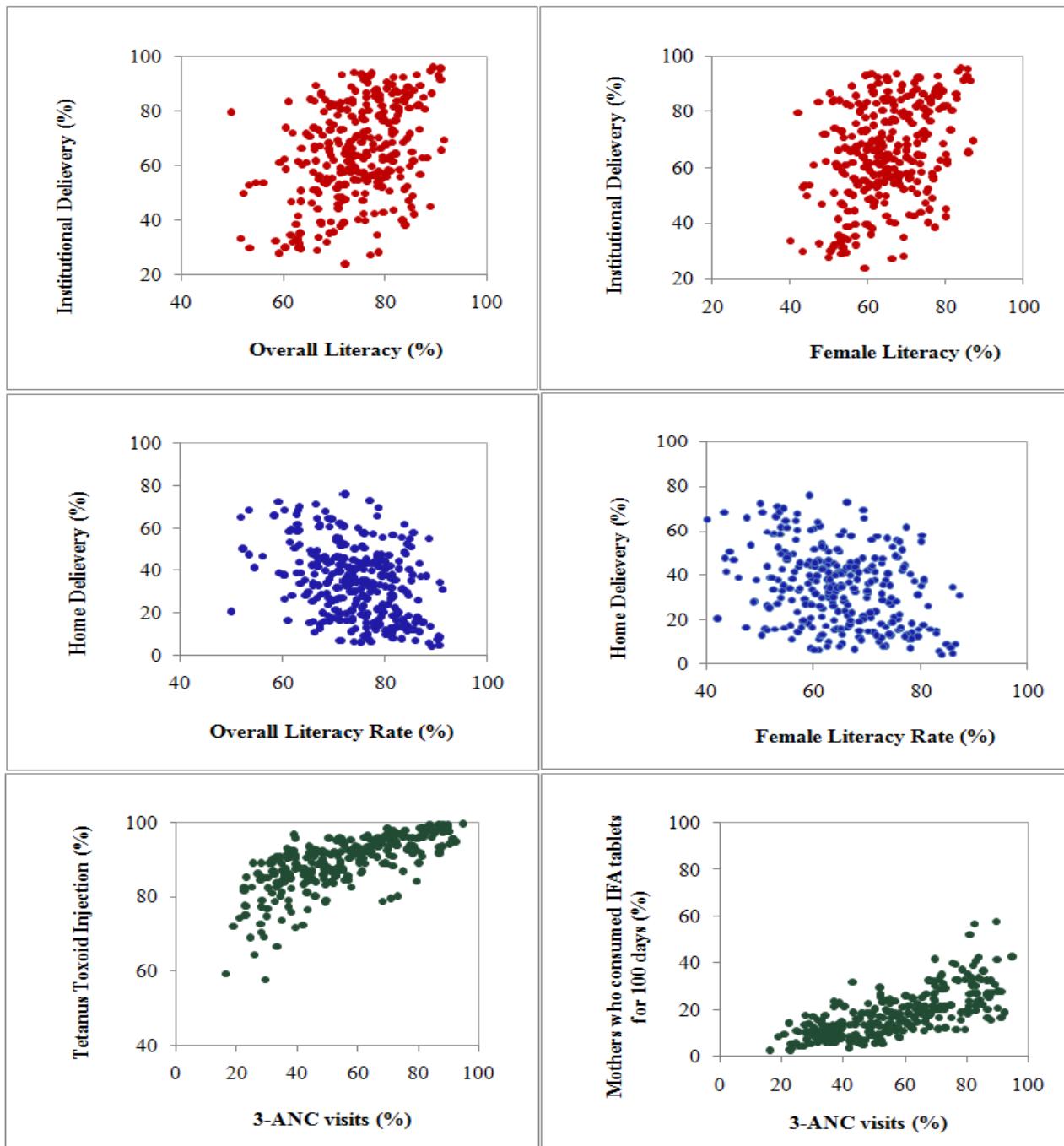
4.23 Figure 4.5 suggests that district-level institutional delivery levels are associated with

effective literacy rate, particularly female literacy levels in a district. High literacy levels in a district generate upward trends in institutional delivery. Literate women generally prefer institutional delivery because they possess a

higher awareness about the complications that can entail at the time of child birth-complications and risks that can be lowered in institutions that are equipped with necessary facilities. In fact, there is an inverse association between the levels of home births in a district and overall and female

literacy levels. Overall and female literacy levels are low in districts where home births constitute the most preferred option of child birth. On the contrary, higher female and overall literacy rates correspond with low levels of home deliveries at the district level.

Figure 4.5: Association of maternal health care indicators with literacy rate, AHS 2012-13



4.24 The figure 4.5 also shows a positive association between proportion of mothers having at least 3 ANC visits and the overall receipt of Tetanus Toxoid injection among pregnant women. Districts where a high percentage of women receive tetanus toxoid injections also have a high percentage receiving at least 3 ANC check-ups during their pregnancy. However, in certain districts, although women received at least 3

ANC check-up, they were not administered tetanus toxoid injections, suggesting that one could receive the injection even without 3 ANC visits. The relation between ANC visits and mothers who consumed IFA tablets for 100 days is negatively sloped, indicating that districts with higher levels of women receiving at least 3 ANC visits seem to have lower cases of mothers consuming IFA tablets.

4.5. Key Findings

- Medical attention administered to women during pregnancy is essential not just for expecting mothers but also has lasting effects also on the health of newborns. The levels of antenatal care (ANC) provided in the nine AHS States is low: women rarely received full ANC, and even women receiving 3 or more ANC was significantly low across several districts. Assessment of the three successive years confirms marginal improvement in ANC levels across States. While Uttar Pradesh recorded the lowest levels of care given to pregnant women at 37.8 per cent, Odisha showed figures of 81.9 per cent, the highest among all States.
- There is an evidently stark inter-district divide as Shrawasti district in Uttar Pradesh has the lowest levels of both full ANC (1 per cent) and 3 or more ANC (16.4 per cent). While Jagatsinghpur in Odisha reported the highest ANC levels at 54.6 per cent, Jharsuguda in Odisha displayed the finest levels of 3 or more ANC check-ups at 94.8 per cent. Balrampur and Budaun districts of Uttar Pradesh too recorded just 1 per cent each of full ANC levels, indicating a pressing need for intervention.
- Chhattisgarh had the maximum number of pregnant women (83.9 per cent) registering for ANC in 2012-13, while Uttar Pradesh dismally achieved just 61.9 per cent registration. While the numbers dropped by around 9 per cent in Bihar, they increased in other States.
- AHS data reveals that delivery at government facilities has been mostly accessed for institutional delivery, with Madhya Pradesh recording a high of 71.3 per cent. Cases of delivery at home have witnessed a moderate reduction in all the States between 2010-11 and 2012-13. On the contrary, the prevalence of skilled birth attendants has increased across the States from 2010-11 to 2012-13, Assam being the only exception witnessing a moderate fall.
- To encourage institutional deliveries, the government launched the Janani Suraksha Yojana (JSY), and an upward trend was observed in the number of women availing of its benefits. In fact, study of the three successive years suggests that the rate of women who received PNC has increased over the years. Odisha, demonstrating the finest levels of both PNC and JSY, has displayed improved levels of maternal health care.
- The existence of a district level association between literacy and maternal health is confirmed. Better conditions of maternal health occurred with higher levels of literacy. Districts with high rates of literacy also had higher institutional delivery and lower home delivery.

5.1 Regular monitoring of maternal mortality is necessary for assessing and designing of policies to ensure greater possibilities of mother and child survival with specific focus on poorest and marginalized social groups. This chapter presents the levels, trends, and patterns in maternal mortality ratio and maternal mortality rate in the eight EAG States and Assam.

5.1. Definition of Indicators

- The maternal mortality ratio (MMR) depicts the number of maternal deaths relative to the number of live births and is usually reported as the number of maternal deaths per 100,000 live births.
- The Maternal mortality rate is defined as the number of maternal deaths in a population divided by the number of women of reproductive age, usually expressed as the number of maternal deaths per 1,000 women.

5.2. Levels and Trends

5.2.1 Maternal mortality ratio and maternal mortality rate

5.2 Table 5.1 presents maternal mortality ratio and maternal mortality rate for all the nine AHS States and for the three AHS years 2010-11, 2011-12 and 2012-13. Maternal mortality ratio is a widely used indicator of maternal mortality. In 2010-11, Assam registered 381 maternal deaths per 100,000 live births and showed the highest maternal mortality ratio of 301 maternal deaths per 100,000 live births in 2012-13. Uttarakhand had the lowest maternal mortality ratio of 165 maternal deaths per 100,000 live births in 2012-13 as compared to 188 maternal deaths per

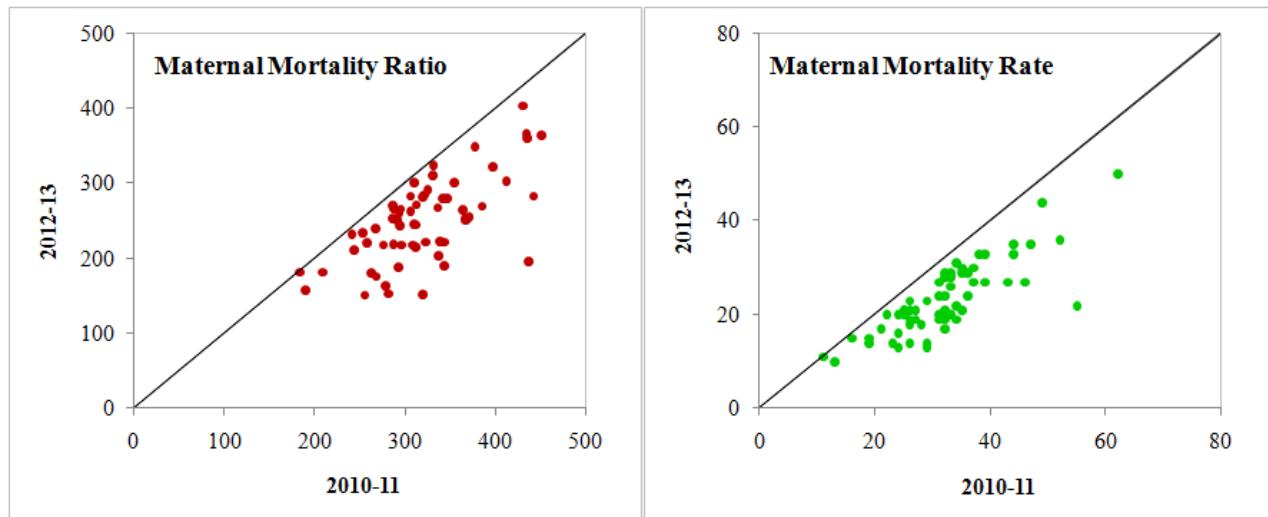
100,000 live births in 2010-11. A continuous decline in maternal mortality ratio over the period 2010-11 to 2012-13 can be observed from the table, except in Uttarakhand where maternal mortality ratio increased over the same period from 162 to 165 maternal deaths per 100,000 live births. But, the decline in level of maternal mortality ratio has been quite slow and the level of maternal mortality ratio except for Uttarakhand has been higher than 200 maternal deaths per 100,000 live births.

5.3 Table 5.1 also presents maternal mortality rate for all the nine AHS States for the three AHS years 2010-11, 2011-12 and 2012-13. In 2012-13, Bihar had the highest maternal mortality rate of 30 per 1,000 women followed by Uttar Pradesh (25) whereas Uttarakhand has the lowest maternal mortality rate of 10 per 1,000 women. On the other hand, in 2010-11, Uttar Pradesh had the highest maternal mortality rate of 36 followed by Bihar (35) and Uttarakhand has the lowest maternal mortality rate of 12. The maternal mortality rate in Odisha is quite low as well: 19 in 2010-11 and 15 in 2012-13. A continuous decline in maternal mortality rate over the period 2010-11 to 2012-13 can be observed from the table. But, it should be noted that there are significant inter-division disparities across States and the pace of decline across States varies considerably too.

5.4 Figure 5.1 shows that most of the scatter for the maternal mortality ratio across State-wise administrative divisions is noted over the range 200-500 and lies below the diagonal, indicating a major decrease in maternal mortality ratio during 2010-11 to 2012-13. A decrease in maternal mortality rate across all the divisions can also be observed from figure 5.1.

Table 5.1: Maternal Mortality Ratio and Maternal Mortality Rate (2010-11, 2011-12 and 2012-13)

State	AHS 2010-11	AHS 2011-12	AHS 2012-13
Maternal mortality ratio			
Assam	381	347	301
Bihar	305	294	274
Chhattisgarh	275	263	244
Jharkhand	278	267	245
Madhya Pradesh	310	277	227
Odisha	277	237	230
Rajasthan	331	264	208
Uttar Pradesh	345	300	258
Uttarakhand	188	162	165
Maternal mortality rate			
Assam	31	27	23
Bihar	35	32	30
Chhattisgarh	23	23	20
Jharkhand	27	24	22
Madhya Pradesh	29	25	20
Odisha	19	16	15
Rajasthan	33	25	20
Uttar Pradesh	36	29	25
Uttarakhand	12	10	10

Figure 5.1: Maternal mortality ratio and maternal mortality rate, 2010-11 and 2012-13

5.5 Table 5.2 shows the frequency distribution of maternal mortality ratio and maternal mortality rate in terms of number of divisions in each State in 2012-13 and 2010-11. As regards maternal

mortality ratio and maternal mortality rate, highest number of AHS divisions fall under the maternal mortality ratio range of 200-300 maternal deaths per 100,000 live births and

maternal mortality rate range of 20-30. In case of maternal mortality ratio, there is a clear shift in concentration of divisions from the high range of 300-400 maternal deaths per 100,000 live births in 2010-11 to a lower range of 200-300 maternal deaths per 100,000 live births in 2012-13. Since 2010-11 there has also been a considerable

reduction in the number of divisions in the highest range of maternal mortality rate. The number of divisions in lowest range of both maternal mortality ratio of 100-200 maternal deaths per 100,000 live births and maternal mortality rate of 20-30 has both also increased from 2010-11 to 2012-13.

Table 5.2: Frequency Distribution of Mortality Ratio and Mortality Rate

The number of districts in each State classified under a particular range of maternal mortality ratio and maternal mortality rate in 2012-13 and 2010-11

Maternal mortality ratio				
Range (per 100,000 live births)	100 to 200	200 to 300	300 to 400	400 to 500
Assam	0 (0)	3 (0)	0 (0)	1 (1)
Bihar	0 (0)	7 (4)	2 (3)	0 (0)
Chhattisgarh	0 (0)	4 (3)	0 (5)	0 (0)
Jharkhand	1 (0)	3 (3)	1 (1)	0 (0)
Madhya Pradesh	3 (0)	5 (5)	2 (2)	0 (1)
Odisha	0 (0)	3 (2)	0 (4)	0 (0)
Rajasthan	3 (0)	4 (1)	0 (1)	0 (0)
Uttar Pradesh	3 (0)	10 (4)	5 (6)	0 (5)
Uttarakhand	2 (2)	0 (0)	0 (9)	0 (0)
Maternal mortality rate				
Range (per 1,000 women)	10 to 20	20 to 30	30 to 40	40 & above
Assam	1 (0)	3 (1)	0 (3)	0 (0)
Bihar	0 (0)	4 (1)	4 (7)	1 (1)
Chhattisgarh	1 (0)	3 (4)	0 (0)	0 (0)
Jharkhand	1 (1)	4 (2)	0 (2)	0 (0)
Madhya Pradesh	6 (0)	2 (6)	2 (2)	0 (2)
Odisha	3 (2)	0 (1)	0 (0)	0 (0)
Rajasthan	3 (0)	4 (1)	0 (6)	0 (0)
Uttar Pradesh	3 (0)	11 (4)	3 (8)	1 (6)
Uttarakhand	2 (2)	0 (0)	0 (0)	0 (0)

5.6 Uttar Pradesh has shown considerable progress in reducing maternal mortality ratio below 300 maternal deaths per 100,000 live births. While in 2010-11, only four divisions of Uttar Pradesh were in the 200-300 maternal mortality ratio range, in 2012-13 about ten divisions have maternal mortality ratio levels below 300 maternal deaths per 100,000 live births. Bihar too showed considerable progress in

reducing maternal mortality ratio below 300 maternal deaths per 100,000 live births. While only four divisions of Bihar were in the 200-300 maternal mortality ratio range in 2010-11, whereas as many as seven divisions in 2012-13 had maternal mortality ratio levels below 300 maternal deaths per 100,000 live births. Reductions in maternal mortality ratio from 2010-11 to 2012-13 can be clearly observed

across divisions of all the AHS States, with Uttar Pradesh and Bihar at the forefront.

5.7 Table 5.3 presents absolute and relative reduction in maternal mortality ratio and maternal mortality rate for all the nine AHS States and for the three AHS years 2010-11, 2011-12 and 2012-13. From 2010-11 to 2012-2013, maternal mortality ratio reduced in all 9 States but the pace of reduction in varies considerably. The highest absolute decrease in maternal mortality ratio was observed in the case of Rajasthan (123), Uttar Pradesh (87), Madhya Pradesh (83) and Assam (80). On the other hand, the decrease was the

lowest in case of Uttarakhand (23), Bihar (31) and Chhattisgarh (31). The maternal mortality ratio in States like Uttarakhand is already lower and a further reduction calls for additional efforts. The slow pace of reduction in case of Bihar also merits attention as maternal mortality ratio was already higher here. The highest relative decrease in maternal mortality ratio has been observed in the case of Rajasthan (37.2 per cent), Madhya Pradesh (26.8 per cent), Uttar Pradesh (25.2 per cent) and Assam (21 per cent). On the other hand, the relative decrease has been the lowest in case of Bihar (10.2 per cent), Chhattisgarh (11.3 per cent) and Jharkhand (11.9 per cent).

Table 5.3: Trends in Maternal Mortality Ratio and Maternal Mortality Rate

The absolute and percentage reduction in State level maternal mortality ratio and maternal mortality rates in 2012-13 with reference to 2010-11

State	Change in 2012-13 from 2010-11	
	Absolute reduction	Relative reduction (%)
Assam	80	21.0
Bihar	31	10.2
Chhattisgarh	31	11.3
Jharkhand	33	11.9
Madhya Pradesh	83	26.8
Odisha	47	17.0
Rajasthan	123	37.2
Uttar Pradesh	87	25.2
Uttarakhand	23	12.2
Maternal mortality rate	Absolute reduction	
	Relative reduction (%)	
Assam	8	25.8
Bihar	5	14.3
Chhattisgarh	3	13.0
Jharkhand	5	18.5
Madhya Pradesh	9	31.0
Odisha	4	21.1
Rajasthan	13	39.4
Uttar Pradesh	11	30.6
Uttarakhand	2	16.7

5.8 From 2010-11 to 2012-2013, maternal mortality rate too reduced in all 9 States but at a varied pace. The highest absolute decrease in

maternal mortality rate has been observed in Rajasthan (13) and the lowest absolute decrease in Uttarakhand (2). The highest relative decrease

in maternal mortality rate has been observed in Rajasthan (39.4 per cent), Madhya Pradesh (31 per cent) and Uttar Pradesh (30.6 per cent) and the lowest relative decrease in Chhattisgarh (13 per cent) and Bihar (14.3 per cent).

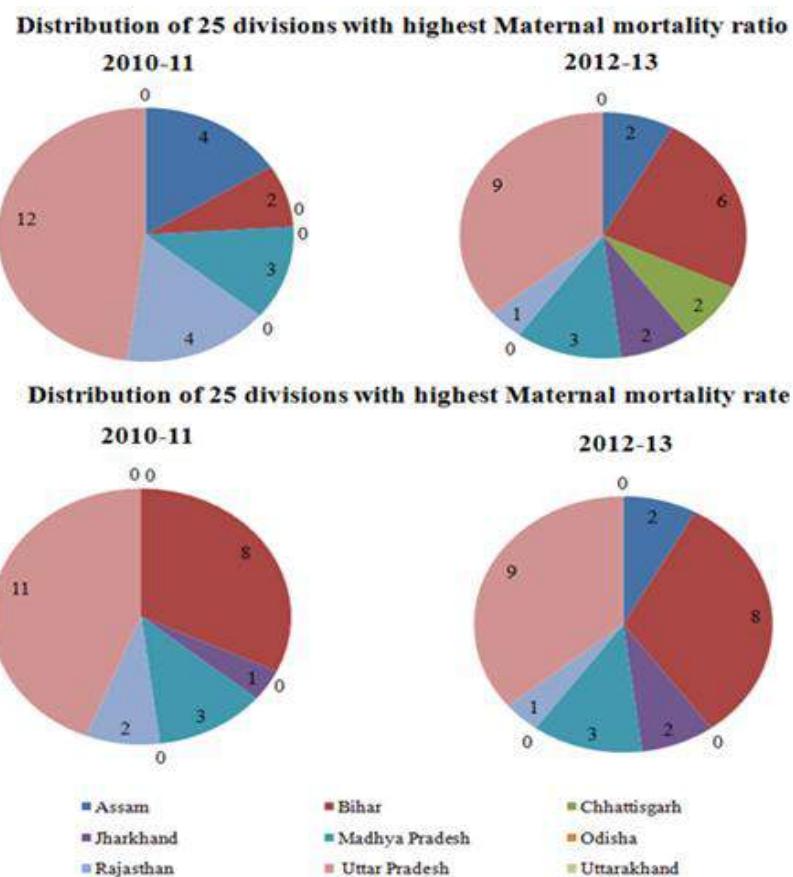
5.9 Table 5.4 lists the names of the divisions with highest and lowest maternal mortality ratio and maternal mortality rate during 2012-13. Upper Assam division (Assam) has the highest maternal mortality ratio of 404 maternal deaths per 100,000 live births whereas Meerut Mandal division in Uttar Pradesh has the lowest maternal mortality ratio of 151 maternal deaths per 100,000 live births. Likewise, Devi Patan Mandal division of Uttar Pradesh is estimated to have the highest maternal mortality rate of 50 and Garhwal Headquarters of Uttarakhand the lowest at 10.

5.10 For 2010-11, Faizabad Mandal division in Uttar Pradesh has the highest maternal mortality ratio of 451 while Kumaon Headquarters (Uttarakhand) has the lowest maternal mortality ratio of 183 maternal deaths per 100,000 live births. Faizabad Mandal division of Uttar Pradesh is estimated to have the highest maternal mortality rate of 62 and Kumaon Headquarters (Uttarakhand) the lowest maternal mortality rate of 11. In 2012-13, Devi Patan Mandal division in Uttar Pradesh has the highest maternal mortality ratio of 437 maternal deaths per 100,000 live births while Garhwal Headquarters (Uttarakhand) has the lowest maternal mortality ratio of 158 maternal deaths per 100,000 live births. Devi Patan Mandal division of Uttar Pradesh have the highest maternal mortality rate of 50 and Garhwal division (Uttarakhand) the lowest at 10.

Table 5.4: Division-wise disparity in maternal mortality ratio and maternal mortality rate
Divisions with the highest and lowest maternal mortality ratio and maternal mortality rate in each State
during 2010-11 and 2012-13

State	2010-11		2012-13	
	Highest	Lowest	Highest	Lowest
Maternal mortality ratio				
Assam	Uppar Assam (430)	Hills And Barak (342)	Valley	Uppar Assam (404)
Bihar	Purnia (377)	Patna (258)		Purnia (349)
Chhattisgarh	Bastar (312)	Raipur (243)	Bastar (272)	Raipur (211)
Jharkhand	Santhal Paragana (325)	UttariChota Nagpur (208)	Palamu (302)	UttariChota Nagpur (182)
Madhya Pradesh	Shahdol (435)	Gwalior (262)	Shahdol (361)	Indore (164)
Odisha	Southern Division (311)	Northern Division (253)	Southern Division (245)	Central Division (218)
Rajasthan	Udaipur (364)	Bharatpur (292)	Udaipur (265)	Jaipur (152)
Uttar Pradesh	Faizabad Mandal (451)	Jhansi Mandal (241)	DeviPatan Mandal (366)	Meerut Mandal (151)
Uttarakhand	Garhwal Hq (190)	Kumaon Hq (183)	Kumaon Hq (182)	Garhwal Hq (158)
Maternal mortality rate				
Assam	Uppar Assam (32)	Lower Assam (28)	Uppar Assam (28)	Lower Assam (18)
Bihar	Purnia (49)	Patna (26)	Purnia (44)	Patna (21)
Chhattisgarh	Surguja (26)	Raipur (21)	Surguja (23)	Raipur (17)
Jharkhand	Santhal Paragana (33)	UttariChota Nagpur (19)	Santhal Paragana (28)	UttariChota Nagpur (15)
Madhya Pradesh	Sagar (47)	Ujjain (23)	Shahdol, Sagar (35)	Ujjain (14)
Odisha	Southern Division (26)	Northern Division (16)	Southern Division (19)	Central Division (14)
Rajasthan	Udaipur (39)	Jaipur (29)	Udaipur (27)	Jaipur (13)
Uttar Pradesh	Faizabad Mandal (62)	Jhansi Mandal (22)	DeviPatan Mandal (50)	Meerut Mandal (13)
Uttarakhand	Garhwal Hq (13)	Kumaon Hq (11)	Kumaon Hq (11)	Garhwal Hq (10)

Figure 5.2: State-wise distribution of 25 divisions with highest mortality rates, 2010-11 and 2012-13



5.11 Figure 5.2 presents the State-wise distribution of 25 divisions with highest maternal mortality ratio and maternal mortality rate during 2010-11 and 2012-13. It is observed that Uttar Pradesh accounts for 9 divisions in this list in terms of both maternal mortality ratio and maternal mortality rate during 2012-13. Bihar too has a significant number of divisions in it with very high maternal mortality ratio (6) and maternal mortality rate (8) in 2012-13. Thus in 2012-13, in maternal mortality ratio and maternal mortality rate respectively, Uttar Pradesh and Bihar jointly account for 15 and 17 of the total 25 worst performing divisions., while none of the divisions from Uttarakhand and Odisha featured in the list. In fact, no division from Chhattisgarh is identified in the list in terms of maternal mortality rate. A comparative assessment of

divisions suggests that between 2010-11 and 2012-13, share of Uttar Pradesh in 25 highest maternal mortality ratio divisions has decreased from 12 to 9 divisions. While, Bihar witnessed an increase in share from 2 to 6 divisions.

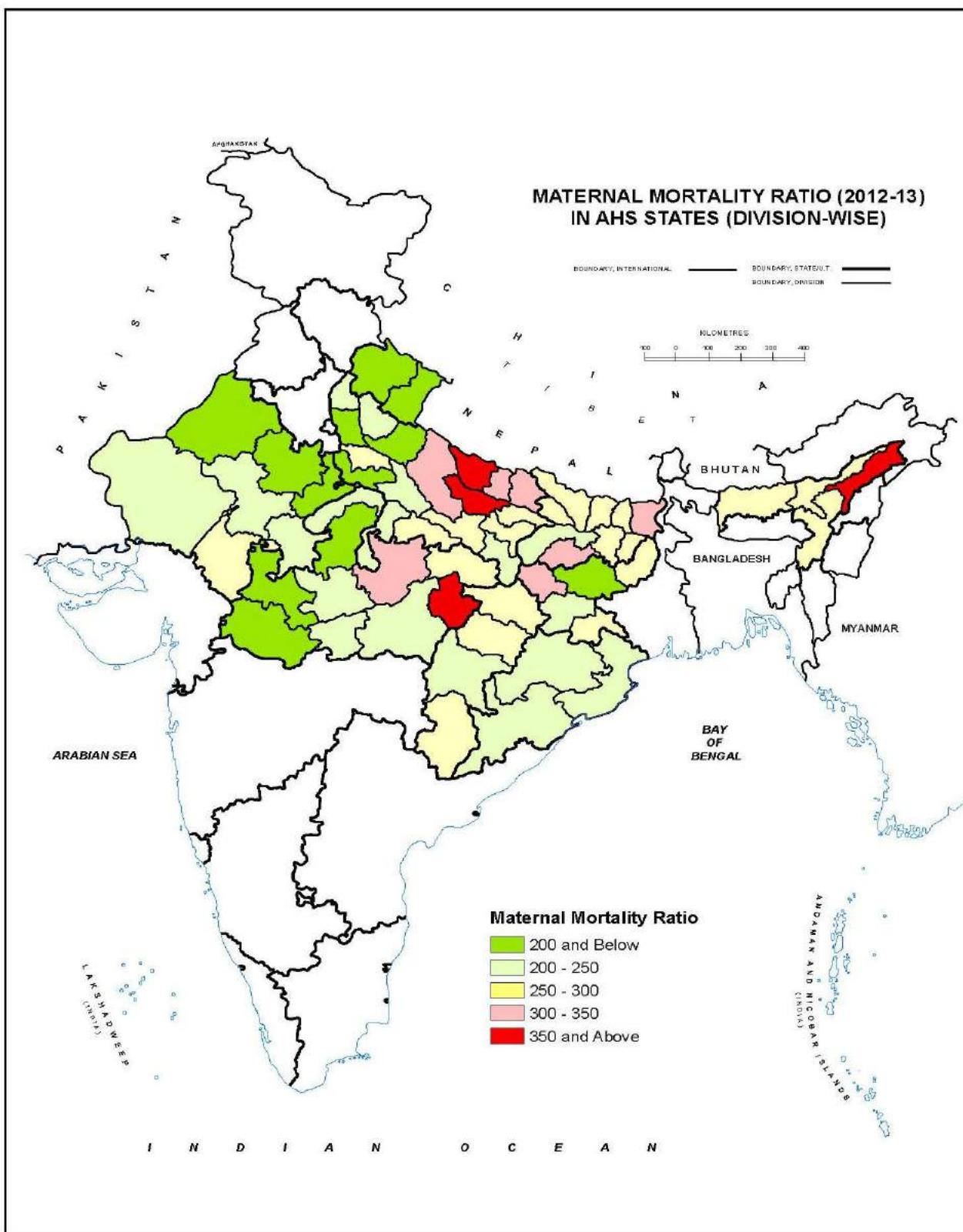
5.12 Table 5.5 presents the State-wise distribution of 25 divisions with highest maternal mortality ratio and maternal mortality rate during 2012-13. Although Uttar Pradesh had the maximum number of divisions with high maternal mortality ratio, Upper Assam division showed the highest maternal mortality rate at 404 maternal deaths per 100,000 live births followed by Devi Patan Mandal (366) and Faizabad Mandal (364) divisions of Uttar Pradesh. Devi Patan Mandal (50) of Uttar Pradesh recorded the high maternal mortality rate.

Table 5.5: 25 divisions with highest maternal mortality ratio and maternal mortality rate, 2012-13

No.	Highest Maternal mortality ratio		Highest Maternal mortality rate	
	State	Division	State	Division
1	Assam	Uppar Assam (404)	Uttar Pradesh	Devi Patan Mandal (50)
2	Uttar Pradesh	Devi Patan Mandal (366)	Bihar	Purnia (44)
3	Uttar Pradesh	Faizabad Mandal (364)	Uttar Pradesh	Basti Mandal (36)
4	Madhya Pradesh	Shahdol (361)	Madhya Pradesh	Sagar (35)
5	Bihar	Purnia (349)	Madhya Pradesh	Shahdol (35)
6	Bihar	Magadh (324)	Bihar	Kosi (33)
7	Madhya Pradesh	Sagar (322)	Bihar	Tirhut (33)
8	Uttar Pradesh	Lucknow Mandal (311)	Uttar Pradesh	Faizabad Mandal (33)
9	Uttar Pradesh	Basti Mandal (304)	Bihar	Magadh (31)
10	Jharkhand	Palamu (302)	Bihar	Bhagalpur (30)
11	Uttar Pradesh	Gorakhpur Mandal (302)	Uttar Pradesh	Chitrakoot Dham Mandal (30)
12	Jharkhand	Santhal Paragana (292)	Bihar	Dharbhanga (29)
13	Bihar	Bhagalpur (285)	Bihar	Munger (29)
14	Uttar Pradesh	Allahabad Mandal (283)	Uttar Pradesh	Lucknow Mandal (29)
15	Uttar Pradesh	Chitrakoot Dham Mandal (283)	Uttar Pradesh	Gorakhpur Mandal (29)
16	Bihar	Tirhut (282)	Assam	Uppar Assam (28)
17	Assam	Hills And Barak Valley (281)	Jharkhand	Santhal Paragana (28)
18	Uttar Pradesh	Varansi Mandal (281)	Jharkhand	Palamu (27)
19	Chhattisgarh	Bastar (272)	Madhya Pradesh	Rewa (27)
20	Chhattisgarh	Surguja (271)	Rajasthan	Udaipur (27)
21	Uttar Pradesh	Azamgarh Mandal (270)	Uttar Pradesh	Aligarh Mandal (27)
22	Madhya Pradesh	Rewa (268)	Uttar Pradesh	Allahabad Mandal (27)
23	Bihar	Munger (266)	Bihar	Saran (26)
24	Bihar	Dharbhanga (266)	Assam	Hills And Barak Valley (24)
25	Rajasthan	Udaipur (265)	Uttar Pradesh	Azamgarh Mandal (24)

5.13 Table 5.6 presents the figures of absolute and relative reduction in mortality rates vis-à-vis the base level of the indicator across the divisions of AHS States. Achieving faster reductions or sustaining the pace of reduction constitutes an important policy concern. Therefore, with improvements in the base level of the phenomenon it is important to assess if any pattern of reduction is observed across the AHS districts. The statistics suggests that all the mortality indicators across States display similar patterns of reduction across varying base levels.

5.14 A larger reduction in mortality rate is mostly experienced when divisions are at higher levels of the indicator whereas the magnitude of reductions is smaller and also increasingly divergent at lower levels of the indicator. For example, higher positive reductions are observed when maternal mortality ratio levels are greater than 300 maternal deaths per 100,000 live births and lesser reductions in districts with maternal mortality ratio levels around 250-270 maternal deaths per 100,000 live birth. Similar patterns are observed in case of maternal mortality rate.

Map 5.1: Maternal mortality ratio (2012-13) in AHS States (division-wise)

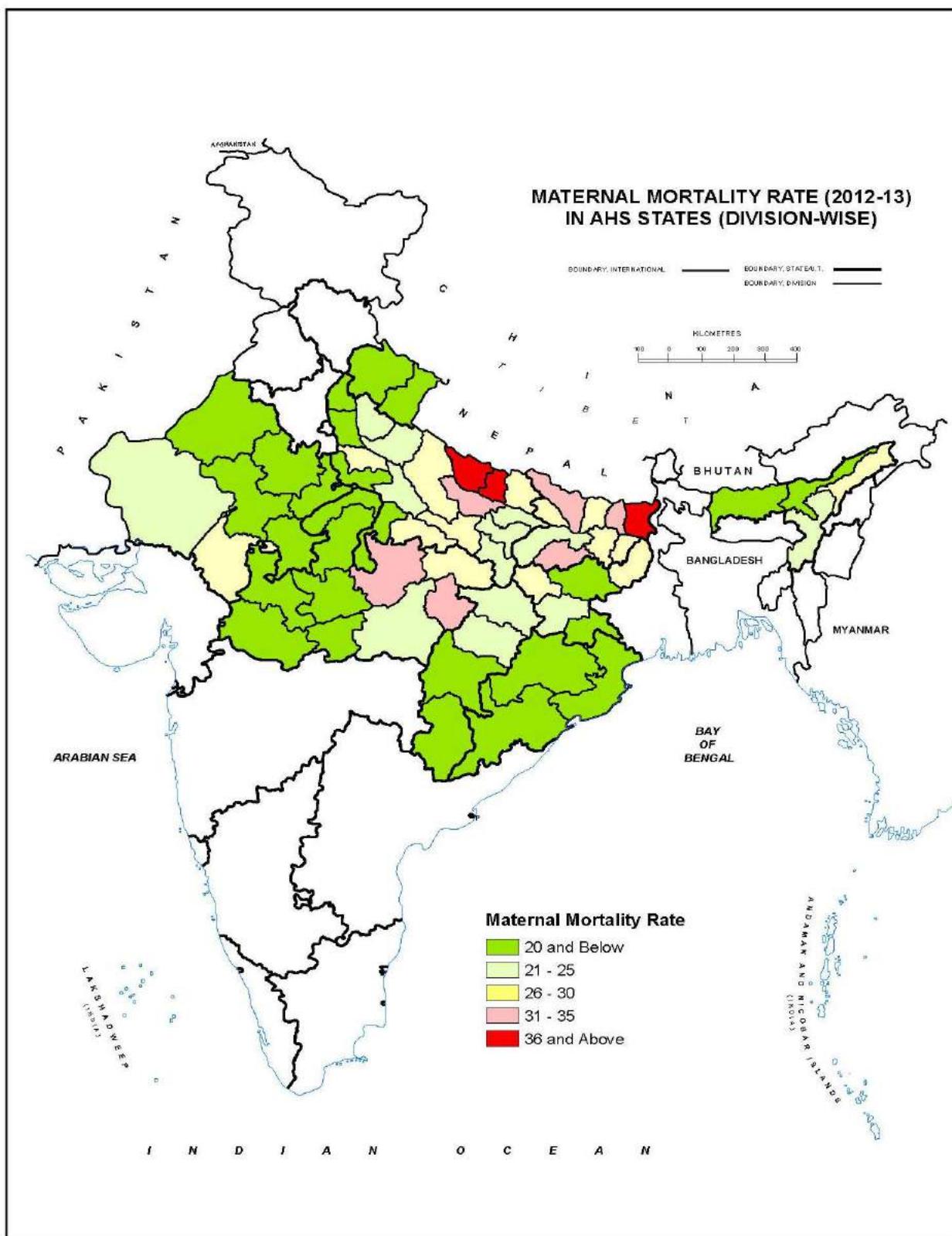
Map 5.2: Maternal mortality rate (2012-13) in AHS States (division-wise)

Table 5.6: Absolute and relative reductions in mortality rates in 2010-11 and 2012-13

No.	Division	Maternal mortality ratio				Maternal mortality rate			
		2010-11	2012-13	Absolute change	Relative decrease (%)	2010-11	2012-13	Absolute change	Relative decrease (%)
1	Hills And Barak Valley	342	281	61	17.8	31	24	7	22.6
2	Lower Assam	366	254	112	30.6	28	18	10	35.7
3	North Assam	367	251	116	31.6	32	20	12	37.5
4	Uppar Assam	430	404	26	6	32	28	4	12.5
5	Tirhut	319	282	37	11.6	39	33	6	15.4
6	Purnia	377	349	28	7.4	49	44	5	10.2
7	Kosi	286	254	32	11.2	38	33	5	13.2
8	Dharbhanga	288	266	22	7.6	33	29	4	12.1
9	Saran	306	263	43	14.1	33	26	7	21.2
10	Bhagalpur	321	285	36	11.2	37	30	7	18.9
11	Munger	295	266	29	9.8	35	29	6	17.1
12	Patna	258	221	37	14.3	26	21	5	19.2
13	Magadh	331	324	7	2.1	34	31	3	8.8
14	Surguja	286	271	15	5.2	26	23	3	11.5
15	Bilaspur	293	261	32	10.9	25	21	4	16
16	Raipur	243	211	32	13.2	21	17	4	19
17	Bastar	312	272	40	12.8	24	20	4	16.7
18	Dakshini Chota Nagpur	294	244	50	17	29	23	6	20.7
19	Santhal Paragana	325	292	33	10.2	33	28	5	15.2
20	Kolhan	291	252	39	13.4	25	20	5	20
21	Uttari Chota Nagpur	208	182	26	12.5	19	15	4	21.1
22	Palamu	310	302	8	2.6	31	27	4	12.9
23	Chambal	311	215	96	30.9	31	19	12	38.7
24	Gwalior	262	181	81	30.9	24	16	8	33.3
25	Sagar	397	322	75	18.9	47	35	12	25.5
26	Rewa	336	268	68	20.2	37	27	10	27
27	Shahdol	435	361	74	17	44	35	9	20.5
28	Ujjain	268	176	92	34.3	23	14	9	39.1
29	Indore	278	164	114	41	26	14	12	46.2
30	Bhopal	287	219	68	23.7	27	19	8	29.6
31	Narmadapuram	296	218	78	26.4	26	18	8	30.8

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No.	Division	Maternal mortality ratio				Maternal mortality rate			
		2010-11	2012-13	Absolute change	Relative decrease (%)	2010-11	2012-13	Absolute change	Relative decrease (%)
32	Jabalpur	310	246	64	20.6	27	21	6	22.2
33	Northern Division	253	234	19	7.5	16	15	1	6.3
34	Central Division	276	218	58	21	19	14	5	26.3
35	Southern Division	311	245	66	21.2	26	19	7	26.9
36	Bikaner	343	191	152	44.3	32	17	15	46.9
37	Jaipur	319	152	167	52.4	29	13	16	55.2
38	Bharatpur	292	189	103	35.3	33	20	13	39.4
39	Ajmer	338	223	115	34	31	20	11	35.5
40	Jodhpur	322	222	100	31.1	34	22	12	35.3
41	Kota	343	222	121	35.3	32	19	13	40.6
42	Udaipur	364	265	99	27.2	39	27	12	30.8
43	Saharanpur Mandal	337	204	133	39.5	34	19	15	44.1
44	Moradabad Mandal	339	222	117	34.5	35	21	14	40
45	Meerut Mandal	255	151	104	40.8	24	13	11	45.8
46	Aligarh Mandal	371	256	115	31	43	27	16	37.2
47	Agra Mandal	281	153	128	45.6	29	14	15	51.7
48	Bareilly Mandal	437	196	241	55.1	55	22	33	60
49	Lucknow Mandal	330	311	19	5.8	32	29	3	9.4
50	Kanpur Mandal	267	240	27	10.1	25	21	4	16
51	Jhansi Mandal	241	233	8	3.3	22	20	2	9.1
52	Chitrakoot Dham Mandal	306	283	23	7.5	35	30	5	14.3
53	Allahabad Mandal	442	283	159	36	46	27	19	41.3
54	Faizabad Mandal	451	364	87	19.3	44	33	11	25
55	Devi Patan Mandal	434	366	68	15.7	62	50	12	19.4
56	Basti Mandal	412	304	108	26.2	52	36	16	30.8
57	Gorakhpur Mandal	354	302	52	14.7	36	29	7	19.4
58	Azamgarh Mandal	385	270	115	29.9	36	24	12	33.3
59	Varansi Mandal	346	281	65	18.8	32	24	8	25
60	Mirzapur Mandal	308	218	90	29.2	32	21	11	34.4
61	Garhwal Hq	190	158	32	16.8	13	10	3	23.1
62	Kumaon Hq	183	182	1	0.5	11	11	0	0

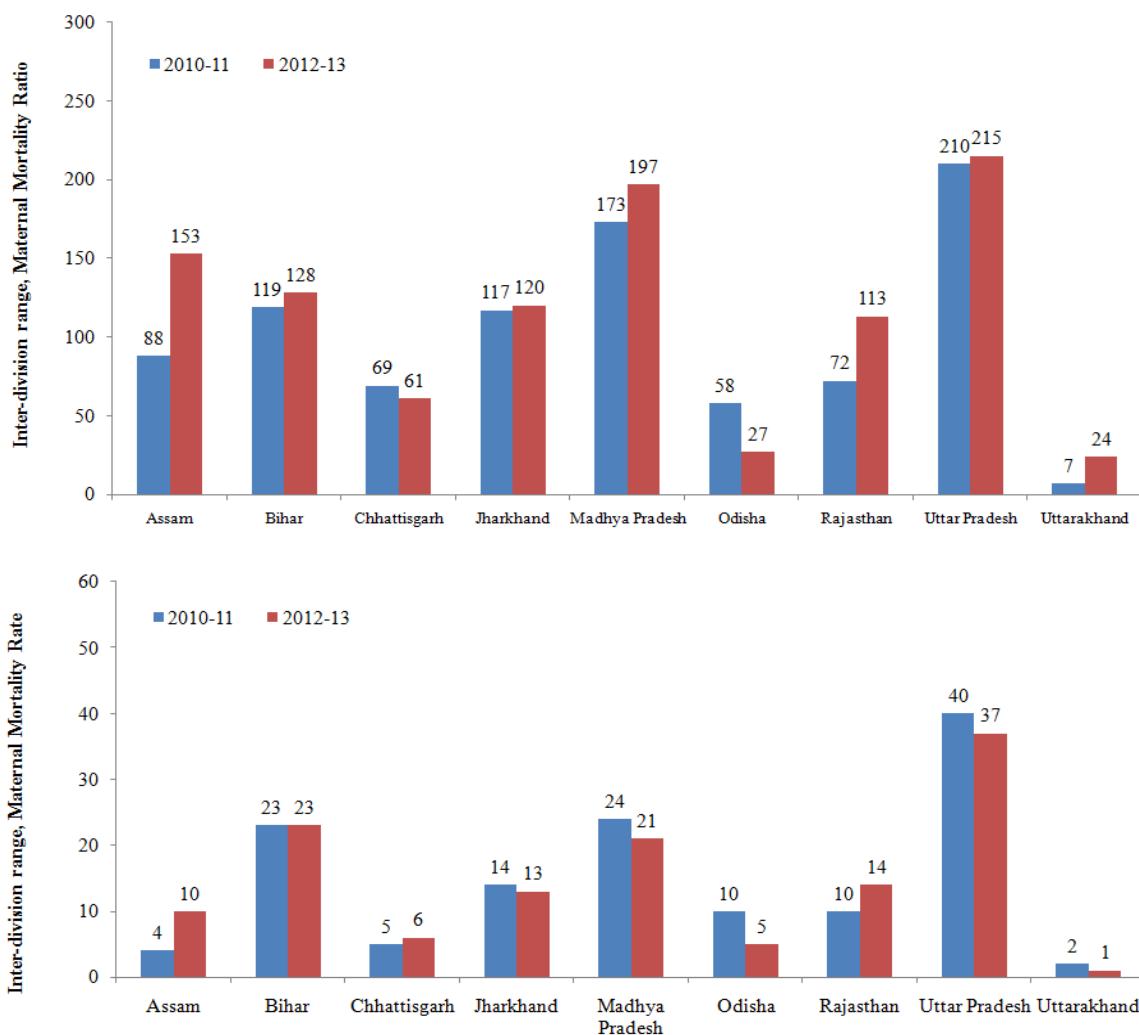
5.3. Inter-Division Disparities

5.15 Figure 5.3 presents the State-wise inter-division range in maternal mortality ratio and maternal mortality rate for the years 2010-11 and 2012-13. The inter-division range in, maternal mortality ratio and maternal mortality rate varies considerably across States. In 2010-11, Uttarakhand had the lowest inter-division range of 7 points and 2 points for maternal mortality ratio and maternal mortality rate, respectively. Whereas, Uttar Pradesh had the highest inter-

division range of 210 points and 40 points for maternal mortality ratio and maternal mortality rate, respectively. AHS 2012-13 finds that the inter-division range in case of maternal mortality ratio has marginally increased in seven States and decreased in two States. However, in case of maternal mortality rate about five States have registered a reduction in inter-division range between 2010-11 and 2012-13. Assam, Chhattisgarh and Rajasthan are estimated to have a small increase in maternal mortality rate inter-division range.

Figure 5.3: Division level disparity in Maternal Mortality Rate and Maternal Mortality Ratio

State-wise comparison between the inter-division range of maternal mortality rate and maternal mortality ratio in 2010-11 and 2012-13



5.16 Table 5.7 reports the coefficient of variation (CV) for division maternal mortality ratio and maternal mortality rate by State and survey year 2010-11, 2011-12 and 2012-13. The CV considers the distance of each division from the overall average and is a simple indicator whereby higher values of CV reveals higher regional disparity and vice versa. The CV values for 2010-11 suggest that Uttar Pradesh has highest inter-divisional variations in maternal mortality ratio (CV 0.19), while in 2012-13 Madhya Pradesh is the State with highest CV value (CV

0.27). Nevertheless, it may be noted that the magnitude of inter-division variation in all the States as revealed by CV has registered an increase since the baseline, except for Odisha. Uttarakhand is noted to have the lowest CV for division level variations in MMR. Inter-divisional variations in maternal mortality rate are observed to be lowest in Uttarakhand. Overall, the States show a mixed pattern of reduction and increase in inter-divisional variations though Madhya Pradesh is particularly noted for relatively greater increase in the magnitude of CV.

Table 5.7: State-wise coefficient of variation of division level maternal mortality ratio and maternal mortality rate

State	Maternal Mortality Ratio		Maternal Mortality Rate	
	2010-11	2012-13	2010-11	2012-13
Assam	0.10	0.24	0.06	0.20
Bihar	0.11	0.14	0.17	0.20
Chhattisgarh	0.10	0.11	0.09	0.12
Jharkhand	0.16	0.19	0.20	0.24
Madhya Pradesh	0.18	0.27	0.27	0.36
Odisha	0.10	0.06	0.25	0.17
Rajasthan	0.07	0.17	0.10	0.22
Uttar Pradesh	0.19	0.24	0.29	0.34
Uttarakhand	0.03	0.10	0.12	0.07

5.4. Association with Developmental Indicators

5.17 A number of determinants affect maternal health. This section analyzes the association of maternal mortality indicators with some key health measures such as female literacy rates, full ANC check up, institutional delivery, safe delivery and Total Fertility Rate. State-level estimations for all the AHS years have been used to plot the associations, giving 27 points for each indicator. Female literacy is a significant determinant of maternal mortality. In particular, female literacy has a critical role to help mothers make informed choices about personal hygiene,

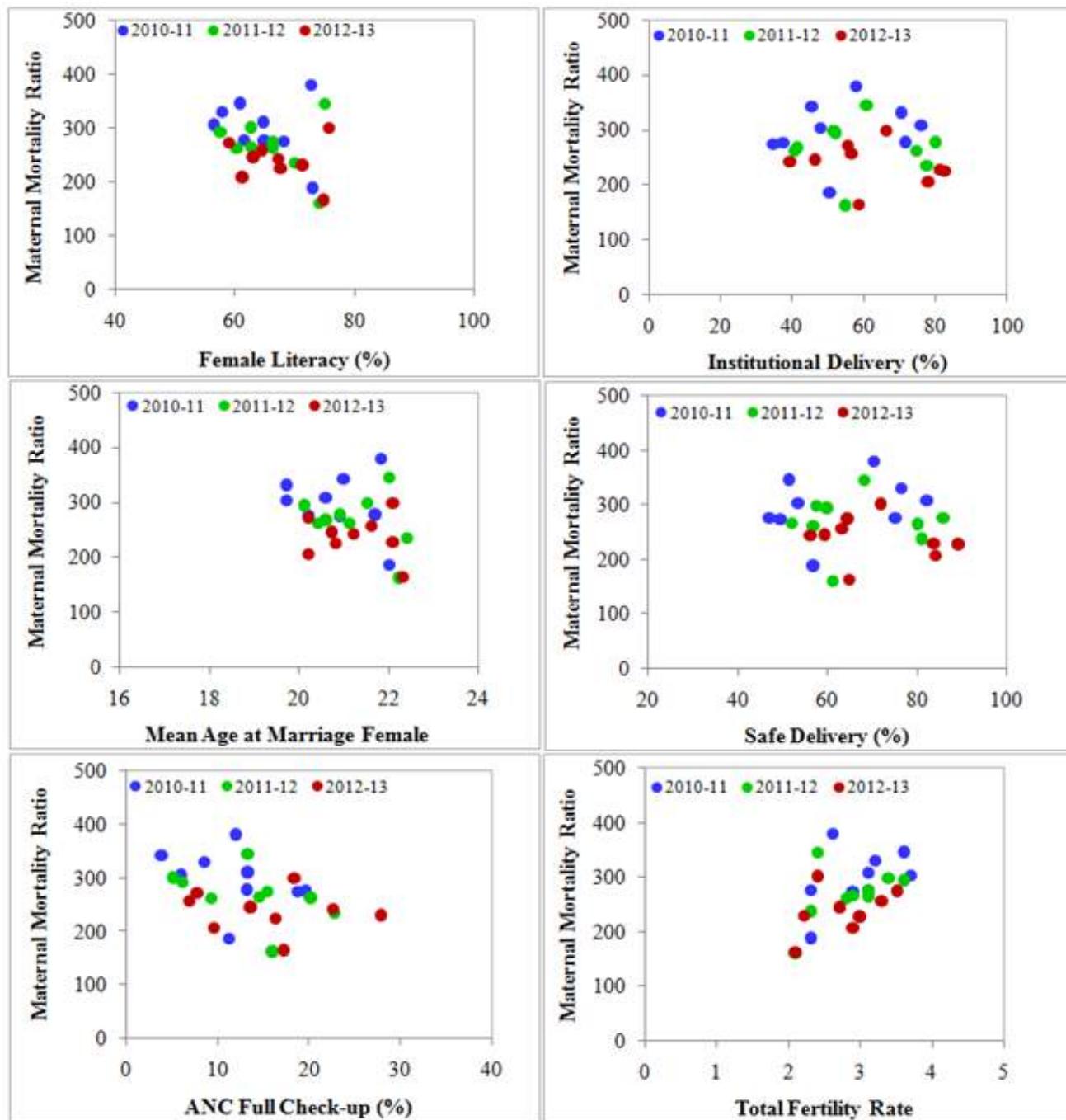
immunisation, birth spacing, maternal skills, breast-feeding and overall health. Educated mothers are also more likely to access health facilities for services such as ante-natal care, post natal care and immunization and to earn higher incomes and enjoy better living conditions, better food and better health services.

5.18 Figure 5.4 presents the association between State level maternal mortality ratios and corresponding levels of literacy rate. The scatter plot with literacy rate shows that there is an overall negative relationship between State level female literacy and maternal mortality ratio. A negative relationship between full ANC check-up

and maternal mortality ratio can also be observed, implying that availing health services before pregnancy can reduce the rate of maternal deaths. A negative relationship between Safe delivery and institutional delivery and maternal mortality ratio can be observed as well, implying that

mothers who deliver at a health facility or in the presence of doctor, nurse or any other health professional have greater survival chances during child birth. Also, positive relationship between Total Fertility Rate and maternal mortality ratio is observed.

Figure 5.4: Association of State-level maternal mortality ratio with selected indicators



5.5. Key Findings

- A continuous decline in maternal mortality rate over the period 2010-11 to 2012-13 can be observed though the pace of decline across the States has not been uniform. The highest relative decrease in maternal mortality ratio has been observed in Rajasthan (37.2 per cent), and the lowest relative decrease in Bihar (10.2 per cent).
- As regards maternal mortality ratio and maternal mortality rate, the highest number of AHS divisions fall under the maternal mortality ratio range of 200-300 maternal deaths per 100,000 live births and maternal mortality rate range of 20-30 respectively. In case of maternal mortality ratio there is a clear shift in concentration of divisions from the high range of 300-400 maternal deaths per 100,000 live births in 2010-11 to a lower range of 200-300 maternal deaths per 100,000 live births in 2012-13. Since 2010-11 there has also been a considerable reduction in number of divisions in highest range of maternal mortality rate.
- Since 2010-11 most of the districts show favourable reductions in MMR but many AHS divisions continue to have unusually high MMR exceeding 300 maternal deaths per 100,000 live births. As of 2012-13, divisions such as Uppar Assam (404) in Assam, Devi Patan Mandal (366) and Faizabad Mandal (364) in Uttar Pradesh display very high levels of MMR and require greater policy attention to reduce such stark intra-State disparities.
- The estimates based on the three successive AHS suggest that the pace of reduction in MMR is slow and the divisions are unable to sustain a consistent pace of reduction in maternal mortality rate. Besides, huge inter-State and inter-divisional disparities in maternal mortality rate emerge as a fundamental developmental concern.
- An assessment of absolute and relative reduction in maternal mortality rates informs that larger reduction in maternal mortality rate is mostly experienced when divisions are at higher levels whereas small and increasingly divergent reductions are observed at lower levels. This finding presents the challenge of sustaining improvements and achieving faster reductions in maternal mortality.
- Uttar Pradesh accounts for 9 divisions in 25 worst performing divisions in terms of both maternal mortality ratio and maternal mortality rate during 2012-13. Bihar too has a significant number of divisions with very high maternal mortality ratio (6) and maternal mortality rate (8) in 2012-13. Thus in 2012-13, in maternal mortality ratio and maternal mortality rate respectively, Uttar Pradesh and Bihar jointly account for 15 and 17 of the total 25 worst performing divisions.
- State level maternal mortality and female literacy rates share an inverse association. Also, MMR is negatively correlated with institutional delivery and ANC check up. Availing health services and facilities can be a critical step towards reducing maternal deaths and health among backward districts across EAG States and Assam.

This chapter provides district-level information on various indicators of child health such as immunization levels, supplementary nutrients, child feeding practices and childhood diseases and undertakes a comparative analysis of child health over the period of 2010-11, 2011-12 and 2012-13. It enables a better understanding of child health in highlighting the relationship between child health indicators and other developmental indicators.

6.1. Definition of Indicators

- Immunization is a process by which resistance to a particular disease is developed through vaccination. Fully immunized child refers to infants who receive within 11-23 months BCG (Bacillus Calmette-Guérin) vaccination against tuberculosis, three doses of DPT (Diphtheria, Poliomyelitis and Tetanus,), minimum three doses of polio vaccine and one dose of measles vaccine.
- Birth weight refers to an infant's weight measured immediately at the childbirth. Low birth weight is defined as children whose birth weight is less than 2.5 Kg.
- Vitamin A is administered through oral doses every six months to children aged between 9 months and 5 years to avoid its deficiency.
- Iron and folic acid (IFA) is a supplementary nutrient administered as syrups or tablets to children beyond the age of six months.
- Child feeding practices: these indicator studies two aspects, namely, breastfeeding within an hour of birth and exclusive breast feeding for six months.

- Childhood diseases: An indicator that analyzes the prevalence of fever, diarrhoea and acute respiratory infection.

6.2 Immunization and birth weight

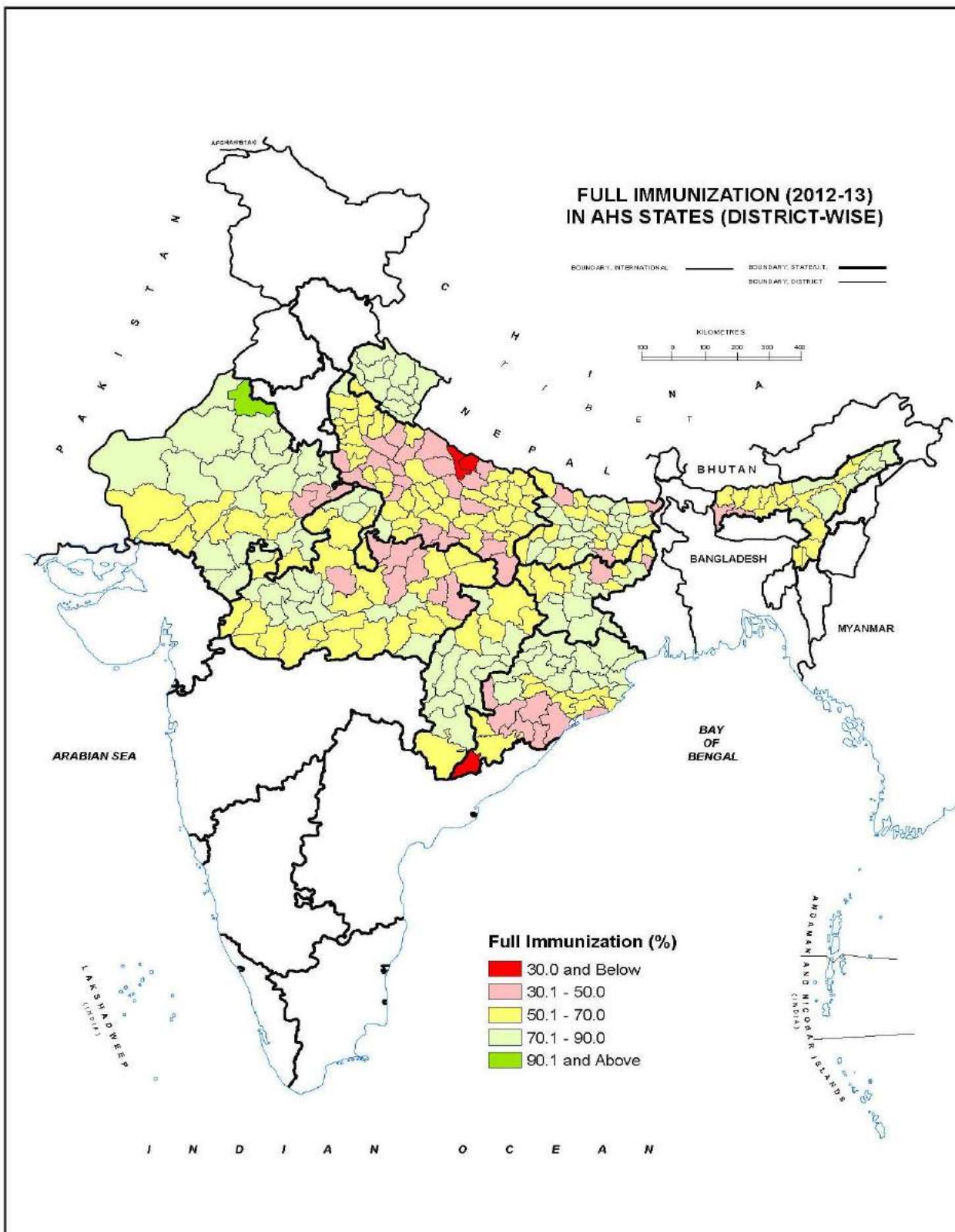
6.2.1 Levels and Trends

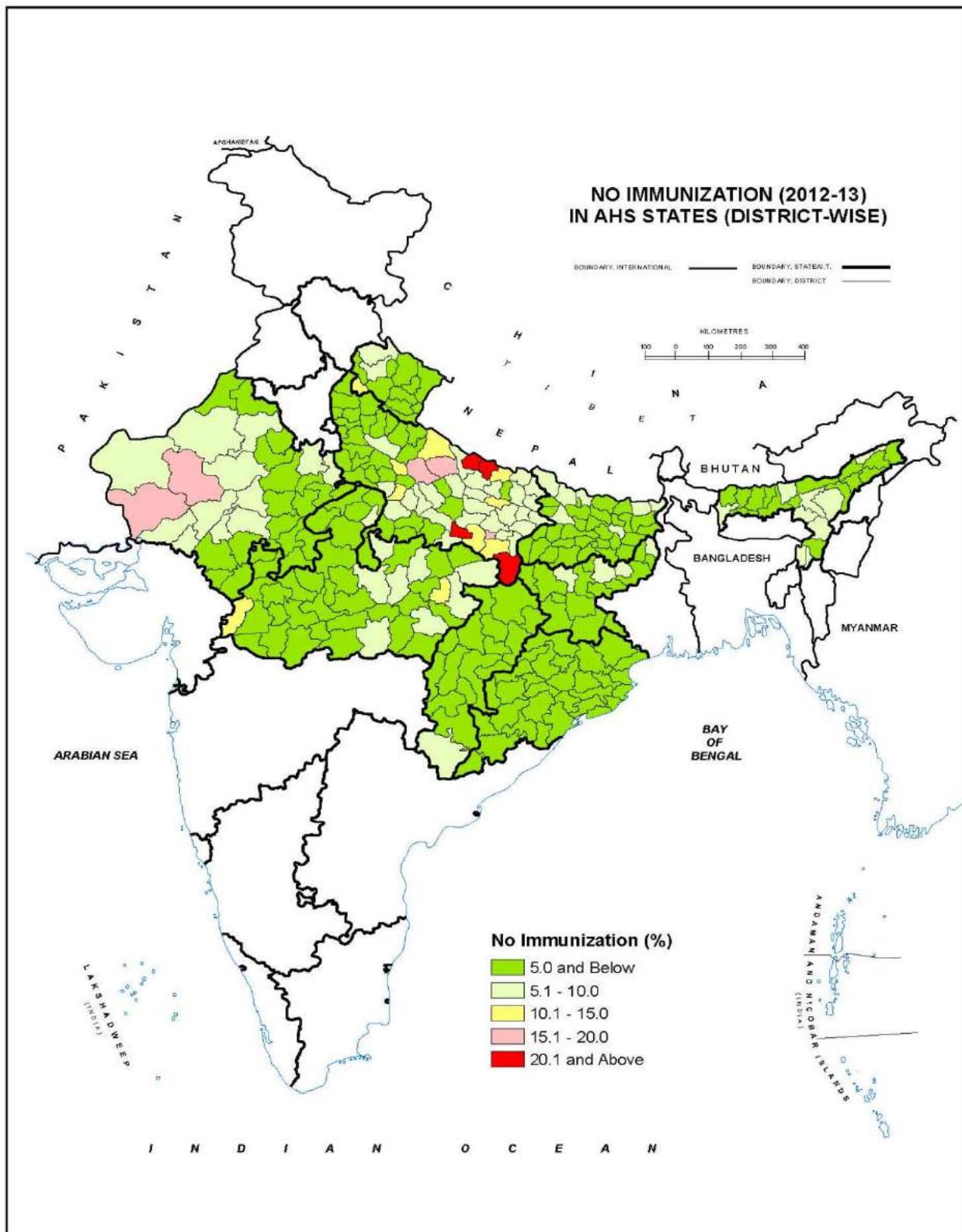
6.1 Table 6.1 shows the changes in immunization levels and birth weight levels over the three Annual Health Surveys. Full immunization includes vaccinations against six diseases: tuberculosis, diphtheria, whooping cough (Pertussis), tetanus, polio and measles. The highest level of full immunization is observed in Uttarakhand (79.6 per cent). Though Chhattisgarh has a high level of full immunization (74.9 per cent), the absolute change recorded therein is a mere 0.8 per cent. Uttar Pradesh shows the lowest level of full immunization, (52.7 per cent). Shrawasti district of Uttar Pradesh and Malkangiri district of Odisha have abysmally low levels of full immunization: 24.9 per cent and 29.6 per cent. Correspondingly Uttar Pradesh has the highest levels of no immunization at 7.6 per cent, followed by Rajasthan (5.8 per cent). However, Assam, Bihar and Chhattisgarh have seen a marginal increase in no immunization, indicating deterioration over the years. Shrawasti district of Uttar Pradesh, in having 30 per cent children without any immunization, recorded a much higher percentage as compared to all other districts. In case of children with birth weight less than 2.5 kg, the highest level is noted in Rajasthan (36.3 per cent) and the lowest in Chhattisgarh (15.1 per cent). At the district level, Karauli in Odisha shows the highest percentage (54.7 per cent) in case of this indicator while Bastar district in Chhattisgarh shows the lowest at 5.6 per cent.

Table 6.1: Trends in Immunization and Birth Weight (%)

Percentage of children who have received full immunization, no immunization and with birth weight less than 2.5kg in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and the lowest and highest percentage at the district-level in 2012-13.

State	AHS	AHS	AHS	Absolute Change	District (2012-13)	
	2010-11	2011-12	2012-13		Lowest	Highest
Full Immunization (%)						
Assam	59.0	61.4	64.4	5.4	Goalpara (46.6)	Sibsagar (83.5)
Bihar	64.5	65.6	69.9	5.4	Kishanganj (32.2)	Madhubani (87.8)
Chhattisgarh	74.1	74.1	74.9	0.8	Surguja (59.1)	Kanker (90)
Jharkhand	63.7	69.1	69.9	6.2	Giridih (46)	Lohardaga (88.1)
Madhya Pradesh	54.9	59.7	66.4	11.5	Tikamgarh (31.5)	Indore (85.5)
Odisha	55.0	62.3	68.8	13.8	Malkangiri (29.6)	Kendrapara 87.4)
Rajasthan	70.8	69.2	74.2	3.4	Karauli (39.8)	Hanumangarh (92.1)
Uttar Pradesh	45.3	48.1	52.7	7.4	Shrawasti (24.9)	Saharanpur (77.4)
Uttarakhand	75.4	77.9	79.6	4.1	Haridwar (60.8)	Pithoragarh (88.7)
No Immunization (%)						
Assam	3.3	3.4	3.6	0.3	Sibsagar (0.8)	Dhubri (7.8)
Bihar	2.9	4.5	3.7	0.8	Munger (1)	Purba Champaran (9.9)
Chhattisgarh	2.3	2.5	2.9	0.6	Janjgir-Champa Kanker (2.1)	Jashpur Dantewada (6.5)
Jharkhand	3.9	3.6	3.1	-0.8	Purba Singhbhum(0.7)	Giridih (9.4)
Madhya Pradesh	4.3	4.3	3.6	-0.7	West Nimar (0.8)	Jhabua (10.9)
Odisha	0.9	1.0	0.8	0.0	Jagatsinghpur,Kendrapara (0.2)	Gajapati (2.9)
Rajasthan	5.9	5.4	5.8	-0.1	Kota (1.2)	Barmer (18.3)
Uttar Pradesh	8.6	9.5	7.6	-1.0	Saharanpur (0.9)	Shrawasti (30.7)
Uttarakhand	5.8	5.3	4.9	-1.0	Chamoli (1.1)	Haridwar (14.1)
Children with birth weight less than 2.5 Kg. (%)						
Assam	26.1	24.4	23.3	-2.8	Lakhimpur (12)	Dibrugarh (31.6)
Bihar	22.4	22.8	21.9	-0.5	Sitamarhi (6.8)	Sheohar (43.9)
Chhattisgarh	15.8	15.1	13.2	-2.5	Bastar (5.6)	Dantewada (18.6)
Jharkhand	36.3	33.1	28.1	-8.2	Chatra (20.4)	Lohardaga (38)
Madhya Pradesh	28.6	28.1	26.5	-2.1	Bhopal (11.6)	Dindori (49.9)
Odisha	22.3	21.6	21.6	-0.7	Dhenkanal (14.2)	Koraput (33)
Rajasthan	38.7	38.2	36.3	-2.4	Ganganagar (20)	Karauli (54.7)
Uttar Pradesh	28.2	26.5	24.8	-3.4	Jhansi (9.8)	Firozabad (43.4)
Uttarakhand	24.1	25.2	24.6	0.5	Chamoli (16.1)	Haridwar (31.9)

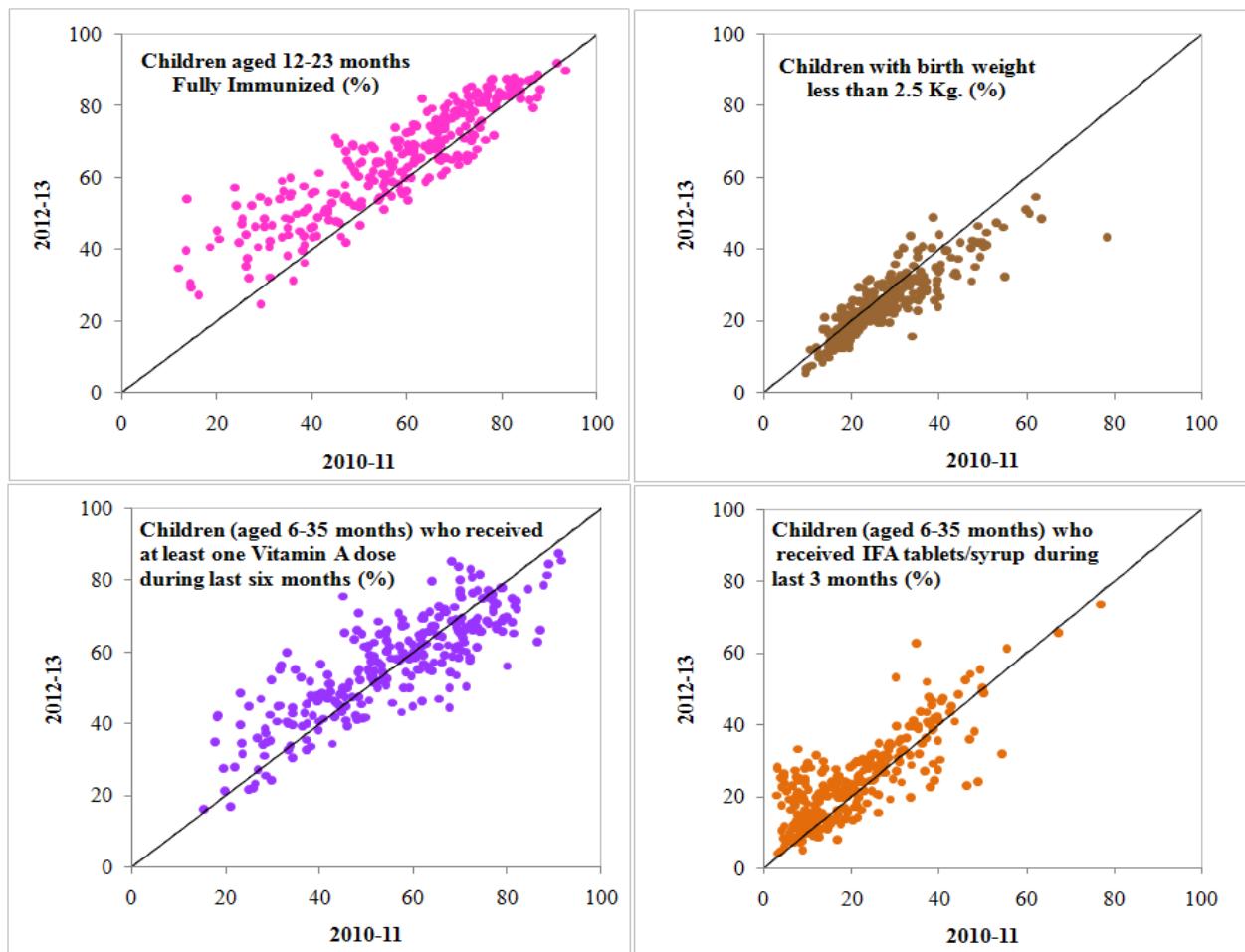
Map 6.1: Full immunization (2012-13) in AHS States (district-wise)

Map 6.2: No immunization (2012-13) in AHS States (district-wise)

6.2 Figure 6.1 shows that over the period 2010-11 and 2012-13, there has been a major increase in the percentage of children aged 12-23 months who are being fully immunized and are receiving IFA tablets and syrups since the last 3 months. However, a number of districts have shown decline in full immunization levels. High degree

of variation in district performance is observed in case of receipt of Vitamin A dose as well as IFA syrup among children. The percentage of children weighing less than 2.5 kg is observed to be fluctuating across districts as the proportion has increased in several districts between 2010-11 and 2012-13.

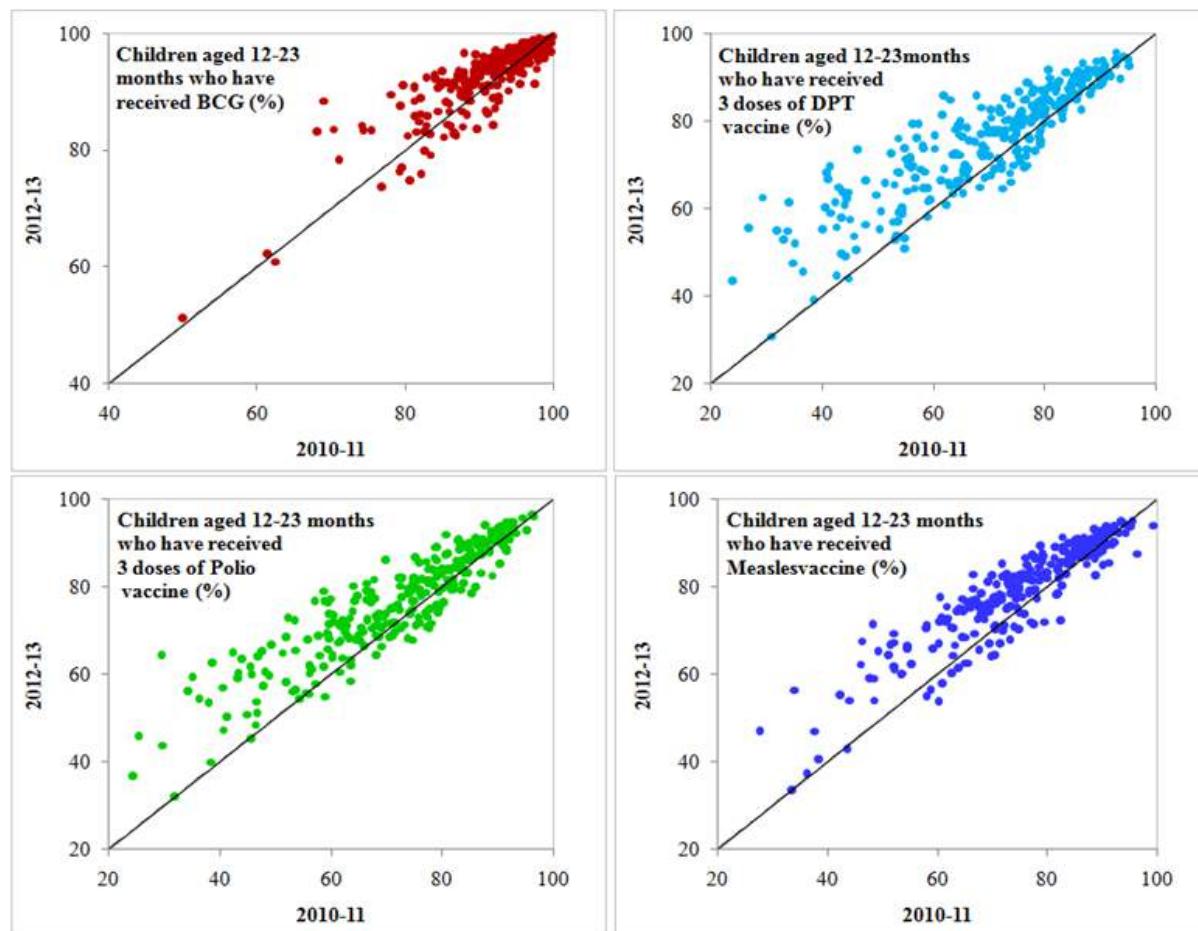
Figure 6.1: Indicators of child health: Full immunization, Birth weight, Intake of Vitamin A and IFA tablets, 2010-11 and 2012-13



6.3 In figure 6.2, most of the scatter for all the constituents lies above the diagonal, indicating that over the period 2010-11 and 2012-13, there has been a major increase in the percentage of children aged 12-23 months who are receiving vaccination for BCG, DPT, polio and measles. It is worth noting that BCG vaccines are received

by a high proportion of children whereas there is considerable inter-district variation in delivery of DPT, Polio and measles vaccines. However, it is clear that further efforts are required to increase the vaccine coverage in most of the poor performing districts across these nine States with particular focus on ensuring full immunization.

Figure 6.2: Constituents of full immunization: BCG, 3 doses of Polio, DPT and Measles, 2010-11 and 2012-13



6.4 Table 6.2 shows that in 2012-13, Uttar Pradesh has the highest number of districts in the 50-70 per cent range while Bihar, Chhattisgarh, Odisha, Rajasthan, Madhya Pradesh and Uttarakhand have more districts in the 70-90 per cent category. Uttar Pradesh has the highest share in the 0-30 per cent and 30-50 per cent categories. Between 2010-11 and 2012-13, most changes were recorded in the form of falls in the 30-50 per cent category, increasing the number of districts in the 50-70 per cent and 70-90 per cent categories. Madhya Pradesh showed a considerable decrease in the 30-50 per cent category and increase in the 70-90 per cent category. Improvements in full immunization in

other States have however pushed their districts up only into the 50-70 per cent category. There has hardly been any increase in the number of districts in the 90 per cent and above category.

6.5 In case of no vaccination, the highest number of districts for each State featured in the 0-5 per cent category, with only a marginal increase over AHS3 and AHS1. The number of districts of Assam, Bihar, Chhattisgarh and Rajasthan in the 5-10 per cent category increased indicating that AHS 3 saw more districts with 5-10 per cent children who received no vaccination. Uttar Pradesh is the only State with districts having 20 per cent and more children who received no

vaccination. Rajasthan has the highest number of districts which recorded 45-60 per cent children having birth weight less than 2.5 kg which reduced in 2010-11 and then increased to 30-44

per cent in 2012-13. Assam, Bihar and Jharkhand saw more districts in the 15-30 category in AHS 3 than in AHS 1. Districts of Uttar Pradesh and Chhattisgarh progressed to the 0-15 category.

Table 6.2: Frequency distribution of districts by level of immunization and low birth weight

The number of districts in each State classified under a particular range of full immunization, no immunization and birth weight lower than 2.5kg in 2012-13 and 2010-11

Full Immunization	0-30%	30-50%	50-70%	70-90%	90% & above
Assam	0 (1)	2 (4)	15 (14)	6 (4)	0 (0)
Bihar	0 (1)	2 (2)	16 (23)	19 (11)	0 (0)
Chhattisgarh	0 (0)	0 (0)	5 (6)	10 (9)	1 (1)
Jharkhand	0 (1)	2 (4)	8 (7)	8 (6)	0 (0)
Madhya Pradesh	0 (2)	7 (14)	23 (24)	15 (5)	0 (0)
Odisha	1 (8)	7 (7)	8 (6)	14 (9)	0 (0)
Rajasthan	0 (0)	3 (4)	9 (10)	19 (17)	1 (1)
Uttar Pradesh	2 (11)	21 (31)	43 (20)	4 (8)	0 (0)
Uttarakhand	0 (0)	0 (0)	1 (2)	12 (11)	0 (0)
No Vaccination	0-5%	5-10%	10-15%	15-20%	20% & above
Assam	15 (16)	8 (7)	0 (0)	0 (0)	0 (0)
Bihar	30 (32)	7 (4)	0 (0)	0 (1)	0 (0)
Chhattisgarh	15 (15)	1 (0)	0 (1)	0 (0)	0 (0)
Jharkhand	14 (10)	4 (4)	0 (4)	0 (0)	0 (0)
Madhya Pradesh	34 (29)	9 (13)	2 (3)	0 (0)	0 (0)
Odisha	30 (30)	0 (0)	0 (0)	0 (0)	0 (0)
Rajasthan	18 (16)	12 (11)	0 (4)	2 (1)	(0)
Uttar Pradesh	30 (25)	26 (27)	7 (8)	3 (4)	4 (6)
Uttarakhand	10 (10)	2 (2)	1 (1)	0 (0)	0 (0)
Children with birth weight less than 2.5 Kg	0-15%	15-30%	30-45%	45-60%	60% & above
Assam	2 (2)	20 (15)	1 (6)	0 (0)	0 (0)
Bihar	3 (3)	31 (29)	3 (5)	0 (0)	0 (0)
Chhattisgarh	11 (6)	5 (10)	0 (0)	0 (0)	0 (0)
Jharkhand	0 (0)	12 (9)	6 (7)	0 (2)	0 (0)
Madhya Pradesh	3 (1)	24 (24)	17 (20)	1 (0)	0 (0)
Odisha	1 (0)	27 (28)	2 (2)	0 (0)	0 (0)
Rajasthan	0 (1)	8 (8)	17 (9)	7 (11)	0 (3)
Uttar Pradesh	12 (4)	38 (42)	20 (21)	0 (2)	0 (1)
Uttarakhand	0 (1)	11 (9)	2 (3)	0 (0)	0 (0)

6.6 Table 6.3 shows the number of districts which have recorded increases, decreases or stagnation in full immunization, no immunization and low birth weight. In Uttar Pradesh, 47 districts increased the immunization coverage while 23 districts saw a decrease. One-third of districts in Rajasthan too fell back in immunization coverage. Only Uttarakhand and

Odisha had no districts recording a decrease in full immunization. The districts with no immunization coverage have increased or districts where instances of zero vaccinations administered have increased in all States at varying rates. Madhya Pradesh and Uttarakhand made substantial improvements. In Uttarakhand, 11 districts registered a decrease while only 1

district has increased no immunization levels. In Bihar, instances of no immunization increased in 27 districts and decreased only in 10 districts, giving a dismal picture therefore. The number of districts recording low birth weight decreased in all States. Uttar Pradesh witnessed substantial

improvements as figures of low birth weight decreased in 55 districts and increased in 14 districts. Other States except Uttarakhand, Chhattisgarh and Jharkhand witnessed similar levels of increase but a lower extent of decline when compared to Uttar Pradesh.

Table 6.3: District-wise trends in immunization and birth weight

The number of districts in each State when the direction of change in full immunization, no immunization and low birth weight is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates

State	Full Immunization			No Immunization			Low Birth weight		
	Increase	No change	Decrease	Increase	No change	Decrease	Increase	No change	Decrease
Assam	19	0	4	10	0	13	8	0	15
Bihar	35	1	1	27	0	10	16	1	20
Chhattisgarh	12	0	4	10	0	6	0	0	16
Jharkhand	16	0	2	2	1	15	3	0	15
Madhya Pradesh	44	0	1	17	0	28	18	0	27
Odisha	30	0	0	17	1	12	10	1	19
Rajasthan	22	0	10	10	2	20	12	0	20
Uttar Pradesh	47	0	23	23	3	44	14	1	55
Uttarakhand	13	0	0	1	1	11	4	0	9

Table 6.4: Constituents and coverage of Full Immunization (%)

Percentage of BCG, three doses of polio, three doses of DPT and measles vaccination in 2010-11 and 2012-13

State	BCG (%)		3 doses of Polio (%)		3 doses of DPT (%)		Measles (%)	
	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13	2010-11	2012-13
Assam	93.3	94.1	75.5	78.1	72.2	77.6	77.3	80.9
Bihar	93.9	94.7	79.9	82.7	78.7	81.6	75.7	80.3
Chhattisgarh	96.8	96.6	82.3	83.3	81.6	81.8	87.9	90.0
Jharkhand	91.8	94.8	77.5	80.0	71.8	80.0	79.0	82.9
Madhya Pradesh	94.2	95.7	69.4	77.1	66.6	76.3	80.7	85.4
Odisha	97.5	98.2	74.7	82.0	72.9	82.8	86.7	89.2
Rajasthan	90.6	91.5	78.1	80.8	77.0	79.6	81.8	83.5
Uttar Pradesh	83.4	86.3	58.5	64.1	55.9	63.2	60.5	65.8
Uttarakhand	91.9	93.3	83.2	85.8	83.0	85.2	82.6	85.2

6.7 Table 6.4 shows that BCG is the most administered vaccine in every State, its highest level being 98.2 per cent in Odisha and the lowest being 86.3 per cent in Uttar Pradesh. The highest level of children who received 3 doses of polio was noted in Uttarakhand at 85.8 per cent, while the lowest was in Uttar Pradesh at 64.1 per cent. Madhya Pradesh also had low levels of children who received 3 doses of polio drops. Uttarakhand

has the highest percentage of DPT vaccination at 85.2 per cent and Uttar Pradesh the lowest at 63.2 per cent. Chhattisgarh has the highest coverage of measles vaccination at 90 per cent and Uttar Pradesh the lowest at 65.8 per cent.

6.8 Figure 6.3 shows that while levels were low in 2010-11; absolute increase in immunization was high during 2010-11 to 2012-13. At higher

levels such as 80 per cent the increase is marginal, zero or even negative. A few districts recorded a low absolute increase (30-50 per cent) even with low immunization levels. However a few districts registered a low vaccination coverage as well as absolute decrease in

coverage. A high level of absolute decrease over 2010-11 and 2012-13 is observed in districts which have high percentages of children with birth weight less than 2.5kg. The changes in birth weight are very low, zero or negative when the percentage ranges from 20 to 30.

Figure 6.3: Trends in Immunization Rate, No Vaccination and Low Birth Weight

Absolute increase in full immunization and absolute decrease in no vaccination and low birth weight in 2012-13 in comparison with 2010-11 estimates

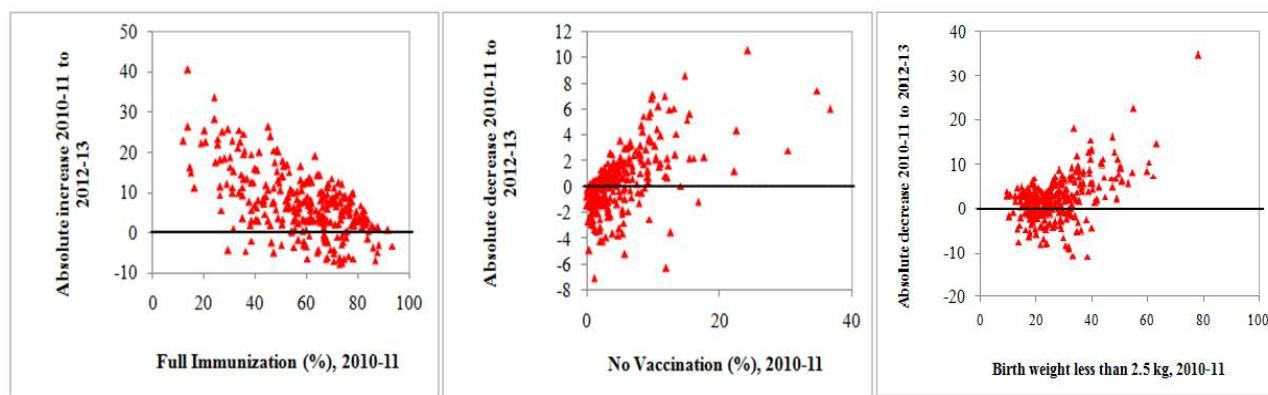
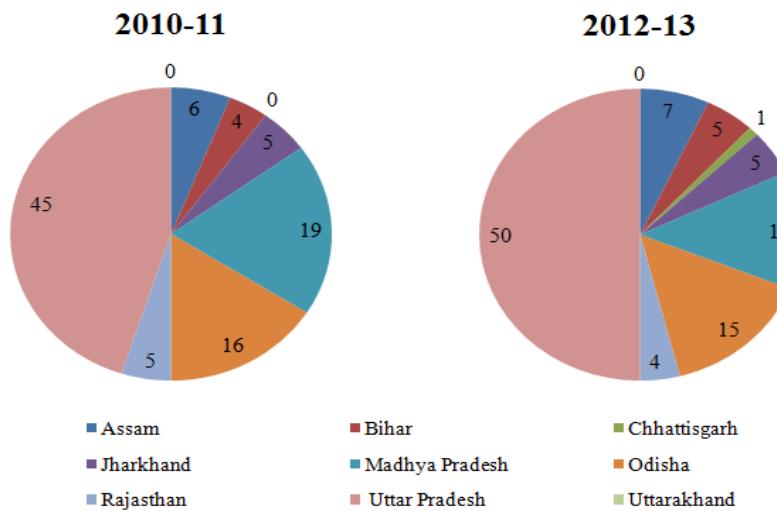


Figure 6.4: State-wise distribution of 100 districts with lowest full immunization rates, 2010-11 and 2012-13



6.9 Figure 6.4 shows the distribution of 100 districts with lowest full immunization levels over 2010-11 and 2012-13. Uttar Pradesh has the highest share in this list, its share increased from 45 to 50 over 2010-11 and 2012-13. In 2010-11,

Madhya Pradesh had the second largest share of 19 districts, which fell to 13 in 2012-13. No district from both Uttarakhand and Chhattisgarh features among the worst 100 districts, while one district from Chhattisgarh is present in 2012-13.

Table 6.5: List of 100 districts with Lowest Full Immunization rates, 2012-13

No.	State	District	No.	State	District
1	Uttar Pradesh	Shrawasti (24.9)	51	Uttar Pradesh	Mainpuri (50.6)
2	Uttar Pradesh	Bahraich (27.5)	52	Madhya Pradesh	Mandla (51.3)
3	Odisha	Malkangiri (29.6)	53	Uttar Pradesh	Siddharthnagar (51.4)
4	Uttar Pradesh	Budaun (30.7)	54	Uttar Pradesh	Fatehpur (51.5)
5	Madhya Pradesh	Tikamgarh (31.5)	55	Odisha	Koraput (51.6)
6	Bihar	Kishanganj (32.2)	56	Uttar Pradesh	Hardoi (51.8)
7	Uttar Pradesh	Sonbhadra (32.4)	57	Uttar Pradesh	Bulandshahar (52.4)
8	Odisha	Rayagada (34.9)	58	Uttar Pradesh	Moradabad (52.4)
9	Uttar Pradesh	Sitapur (35.4)	59	Assam	Bongaigaon (52.4)
10	Uttar Pradesh	Balrampur (36.4)	60	Assam	Nagaon (52.5)
11	Uttar Pradesh	Kheri (37.8)	61	Madhya Pradesh	Raisen (53.2)
12	Madhya Pradesh	Panna (38.4)	62	Uttar Pradesh	Muzaffarnagar (53.5)
13	Rajasthan	Karauli (39.8)	63	Uttar Pradesh	Aligarh (53.6)
14	Uttar Pradesh	Etah (40)	64	Rajasthan	Tonk (53.7)
15	Madhya Pradesh	Umaria (40.8)	65	Uttar Pradesh	Mau (53.8)
16	Odisha	Kandhamal (40.8)	66	Bihar	Pashchim Champaran (53.9)
17	Uttar Pradesh	Shahjahanpur (40.9)	67	Uttar Pradesh	Lalitpur (54.2)
18	Uttar Pradesh	Bareilly (41.4)	68	Uttar Pradesh	Jalaun (54.3)
19	Odisha	Kalahandi (42.1)	69	Odisha	Baudh (54.3)
20	Uttar Pradesh	S R Nagar (Bhadohi) (42.2)	70	Madhya Pradesh	Satna (54.7)
21	Madhya Pradesh	Damoh (42.4)	71	Uttar Pradesh	Rae Bareli (54.8)
22	Odisha	Ganjam (43.1)	72	Odisha	Nayagarh (54.8)
23	Madhya Pradesh	Chhatarpur (43.5)	73	Uttar Pradesh	Allahabad (54.9)
24	Uttar Pradesh	Banda (43.6)	74	Madhya Pradesh	Sagar (55)
25	Uttar Pradesh	Mirzapur (43.7)	75	Uttar Pradesh	Pilibhit (55.6)
26	Uttar Pradesh	Barabanki (43.9)	76	Uttar Pradesh	Hathras (55.7)
27	Bihar	Purba Champaran (44)	77	Uttar Pradesh	Ghazipur (55.8)
28	Uttar Pradesh	Farrukhabad (44.1)	78	Uttar Pradesh	Firozabad (55.9)
29	Uttar Pradesh	Agra (44.3)	79	Jharkhand	Godda (55.9)
30	Rajasthan	Dhaulpur (45.2)	80	Assam	North Cachar Hills (56.2)
31	Uttar Pradesh	Mathura (45.5)	81	Jharkhand	Deoghar (56.3)
32	Odisha	Nuapada (46.1)	82	Assam	Darrang (56.4)
33	Uttar Pradesh	Auraiya (46.2)	83	Uttar Pradesh	J P Nagar (56.4)
34	Uttar Pradesh	Kannauj (46.4)	84	Uttar Pradesh	Azamgarh (56.7)
35	Jharkhand	Giridih (46.5)	85	Madhya Pradesh	Jhabua (57.4)
36	Assam	Goalpara (46.6)	86	Uttar Pradesh	Meerut (57.8)
37	Odisha	Puri (46.8)	87	Jharkhand	Sahibganj (57.9)
38	Uttar Pradesh	Kaushambi (46.9)	88	Uttar Pradesh	Etawah (58)
39	Uttar Pradesh	Sultanpur (47.2)	89	Odisha	Jagatsinghpur (58.1)
40	Jharkhand	Pakaur (47.6)	90	Uttar Pradesh	Sant Kabir Nagar (58.5)
41	Uttar Pradesh	Chitrakoot (48)	91	Uttar Pradesh	Maharajganj (58.9)
42	Madhya Pradesh	Shahdol (48.3)	92	Chhattisgarh	Surguja (59.1)
43	Uttar Pradesh	Gonda (48.6)	93	Uttar Pradesh	Ghaziabad (59.1)
44	Odisha	Gajapati (48.6)	94	Assam	Kokrajhar (59.2)
45	Assam	Dhubri (48.7)	95	Uttar Pradesh	Kanpur Nagar (59.2)
46	Madhya Pradesh	Vidisha (48.9)	96	Bihar	Araria (59.9)
47	Rajasthan	Sawai Madhopur (49)	97	Odisha	Cuttack (60)
48	Bihar	Jamui (50)	98	Uttar Pradesh	Jaunpur (60.1)
49	Odisha	Nabarangapur (50.4)	99	Odisha	Khordha (60.1)
50	Uttar Pradesh	Hamirpur (50.6)	100	Madhya Pradesh	Sidhi (60.1)

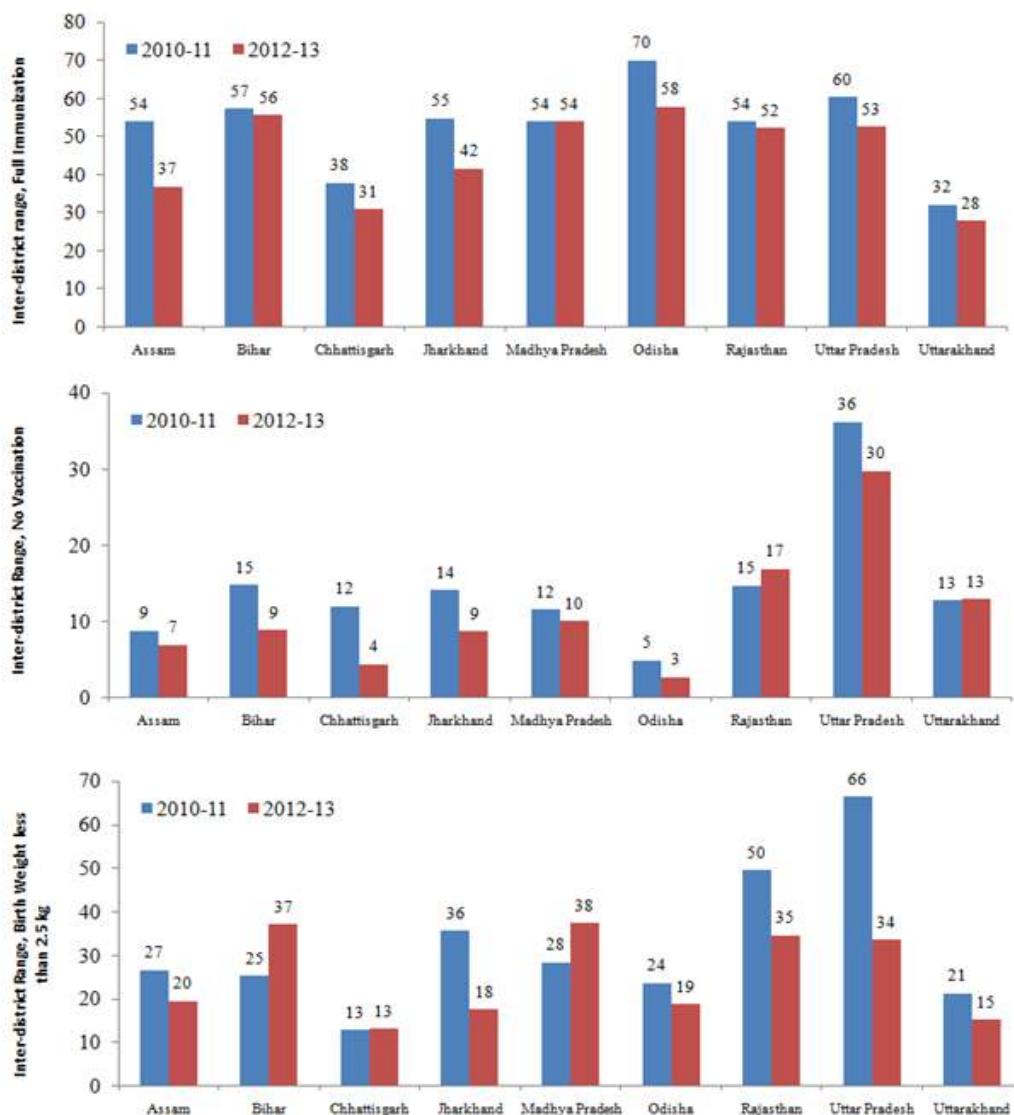
6.2.2. Inter-District Disparities

6.10 Figure 6.5 presents the inter-district ranges and inter-district disparity for each State for the indicators of full immunization, no vaccination and low birth weight over the years 2010-11 and 2012-13. Odisha shows the highest inter-district

gap at 70 per cent and 58 per cent during 2010-11 and 2012-13. On the other hand, Uttarakhand shows the lowest district-level disparities at 32 per cent and 28 per cent over the same period. The disparity levels have decreased in all States during 2012-13 while in Madhya Pradesh the inter-district range has remained the same.

Figure 6.5: District level disparity in full immunization, no vaccination and low birth weight

State-wise comparison between the inter-district range of full immunization, no vaccination and birth weight lesser than 2.5kg in 2010-11 and 2012-13



6.11 Uttar Pradesh recorded a considerably high level of inter-district disparity in case of no

immunization or vaccination. The range was 36 in 2010-11, falling to 30 in 2012-13. The

disparity level in case of no immunization is lowest in Odisha (5 and 3). The disparity level has decreased in all States except Rajasthan, where it increased from 15 in 2010-11 to 17 in 2012-13. In case of inter-district disparity in birth weight lower than 2.5 kg, Uttar Pradesh has the highest range (66 and 34), followed by Rajasthan (50 and 35). In Bihar and Madhya Pradesh the range has increased over the two periods studied, whereas in other States it has decreased. The lowest range is observed in Chhattisgarh at 13 for both the AHS.

6.3. Consumption of Vitamin-A and IFA among children (aged 6-35 months)

6.12 Table 6.6 shows the levels and increments in consumption of Vitamin A and IFA tablets among children aged 6-35 months. The highest prevalence of Vitamin A consumption is in Rajasthan (74.2 per cent) while the lowest level is observed in Uttar Pradesh at 40.8 per cent. Cautionary trends of decrease in Vitamin A consumption are observed in Assam, with a decrease of 8.8 per cent being recorded in AHS-3 over AHS-1. Bihar, Chhattisgarh and Jharkhand also recorded falls in Vitamin A coverage. Rajasthan is the only State which made substantial improvements of 14.8 per cent. In Shrawasti district of Uttar Pradesh only 16 per cent children received at least one Vitamin A dose during the last six months.

Table 6.6: Consumption of Vitamin A and Iron and Folic Acid syrup among children (aged 6-35 months)

Percentage of children who have received at least one dose of Vitamin A during last six months and IFA syrup during the last 3 months in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 when compared with 2010-11 estimates and the lowest and highest percentage at the district-level in 2012-13

State	AHS	AHS	AHS	Absolute Change	District (2012-13)	
	2010-11	2011-12	2012-13		Lowest	Highest
Children (aged 6-35 months) who received at least one Vitamin A dose during last six months (%)						
Assam	72.0	70.7	63.2	-8.8	Darrang (44.6)	Tinsukia (78)
Bihar	61.9	58.8	56.2	-5.7	Jamui (40.7)	Saharsa (69.8)
Chhattisgarh	71.7	68.6	68.3	-3.4	Kawardha (56.9)	Kanker (78.8)
Jharkhand	60.1	61.9	58.6	-1.5	Giridih (40.7)	Lohardaga (85.6)
Madhya Pradesh	54.5	56.6	58.1	3.6	Tikamgarh (31.7)	Indore (79.9)
Odisha	63.4	71.3	68.6	5.2	Nabarangapur (43.3)	Baleshwar (84)
Rajasthan	59.4	66.1	74.2	14.8	Jaisalmer (42.3)	Banswara (87.5)
Uttar Pradesh	37.2	39.2	40.8	3.6	Shrawasti (16.1)	Lucknow (61.7)
Uttarakhand	55.0	57.3	57.1	2.1	Bageshwar (40.1)	Dehradun (69.4)
Children (aged 6-35 months) who received IFA tablets/syrup during last 3 months (%)						
Assam	27.7	26.3	25.1	-2.6	Tinsukia (12.1)	Goalpara (41)
Bihar	29	31.3	33.8	4.8	Gaya (19.3)	Madhubani (61.4)
Chhattisgarh	37.7	38.7	42.7	5	Kawardha (29.9)	Kanker (73.7)
Jharkhand	14.2	16.9	15.9	1.7	Bokaro (7.5)	Kodarma (29.7)
Madhya Pradesh	24.8	24.7	29.1	4.3	Sheopur (13.9)	Betul (52.5)
Odisha	23.3	24	25.3	2	Jajapur,Kendrapara (11)	Rayagada (62.9)
Rajasthan	9.4	10.9	11.6	2.2	Barmer (4.2)	Jaisalmer (24.4)
Uttar Pradesh	10.6	13.2	13.5	2.9	Budaun (7.3)	Sultanpur (34.7)
Uttarakhand	14.3	15.5	17.2	2.9	Bageshwar (10.3)	Uttarkashi (21)

6.13 Table 6.6 further shows that Chhattisgarh has the highest percentage of children aged 6-35

months receiving IFA tables/syrup during last 3 months. This figure increased from 37.7 per cent

in AHS-1 (2010-11) to 42.7 per cent in AHS-3 (2012-13). In this case, Bihar showed a good performance with the second highest reported level of 33.8 per cent. Contrary to the trends observed in Vitamin-consumption, Rajasthan in this case had the lowest level of 11.6 per cent.

Kanker district of Chhattisgarh had IFA consumption of 73.7 per cent while its Kawardha district recorded the lowest level at 29.9 per cent. Barmer of Rajasthan reported the lowest coverage (a mere 4.2 per cent) amongst all the districts studied here.

Table 6.7: District-wise trends in Vitamin A and IFA consumption

The number of districts in each State when the direction of change in percentage of children who received at least one Vitamin A dose during last six months and percentage of children who received IFA syrup during last 3 months is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates.

State	Increase	No change	Decrease
Children (aged 6-35 months) who received at least one Vitamin A dose during last six months (%)			
Assam	3	0	20
Bihar	15	0	22
Chhattisgarh	5	0	11
Jharkhand	12	0	6
Madhya Pradesh	25	0	20
Odisha	22	0	8
Rajasthan	24	0	8
Uttar Pradesh	43	0	27
Uttarakhand	7	0	6
Children (aged 6-35 months) who received IFA tablets/syrup during last 3 months (%)			
Assam	10	0	13
Bihar	36	0	1
Chhattisgarh	13	0	3
Jharkhand	12	0	6
Madhya Pradesh	39	0	6
Odisha	17	0	13
Rajasthan	24	0	8
Uttar Pradesh	53	1	16
Uttarakhand	8	0	5

6.14 Table 6.7 shows the number of districts where the consumption of Vitamin A and IFA tablets/syrups have increased or decreased. Jharkhand, Rajasthan, Odisha and Uttar Pradesh have double the number of districts where coverage has increased rather than decreased, whereas a decrease has been noted in majority of the districts in Assam and Chhattisgarh. For instance only 3 districts in Assam have had an increase in Vitamin A consumption and as many as 20 witnessed a decrease in the same. Chhattisgarh saw 5 districts making progress and 11 decelerating.

6.15 Different patterns are observed in case of IFA tablets/syrup consumption. Bihar made remarkable progress with IFA consumption increasing in 36 districts and decreasing in just 1 district. Majority of the districts in Chhattisgarh, Jharkhand, Madhya Pradesh and Uttar Pradesh increased the coverage of IFA consumption among children. In Odisha, 17 districts progressed in IFA consumption and 13 deteriorated. Uttarakhand too had an unimpressive performance with 8 districts reporting an increase in IFA consumption and 5 reporting a decline.

6.4 Breastfeeding Practices

6.16 Table 6.8 shows the levels and increases in percentage of children breastfed within an hour of birth. These range from 75.6 per cent in Assam to 37 per cent in Bihar. Besides Bihar, low levels of 39.4 per cent and 43.3 per cent are noted in Uttar Pradesh and Jharkhand. The absolute level of progress is the lowest in Uttarakhand at 1.9 per cent, with there being a good scope for increase as the prevalence is 65.1 per cent. Rudraprayag in Uttarakhand and Bastar in Chhattisgarh have 90.8 per cent and 92.5 per cent prevalence. Sharaswati

district of Uttar Pradesh and Purba Champaran district in Bihar record the lowest prevalence. The highest percentage of children exclusively breastfed for at least six months is 50 per cent, noted only in Chhattisgarh and Jharkhand. Uttar Pradesh had the lowest percentage of children (20.8 per cent) who were exclusively breastfed. Similar levels were seen in Odisha, Bihar and Rajasthan such as 30.7 per cent, 31 per cent and 32.1 per cent respectively. Only 9 per cent children were exclusively breastfed for at least six months in Agra and 8.6 per cent in Bharatpur district of Rajasthan.

Table 6.8: Breastfeeding Practices

Percentage of children who have been breastfed within an hour of birth and exclusively breastfed for atleast six months in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and the highest and lowest percentage at the district level in 2012-13

State	AHS 2010-11	AHS 2011-12	AHS 2012-13	Absolute Change	District (2012-13)	
					Lowest	Highest
Children breastfed within one hour of birth (%)						
Assam	69.6	70.9	75.6	6	Hailakandi (62.4)	Kokrajhar (84.5)
Bihar	30.3	34.6	37	6.7	PurbaChamparan (15.8)	Khagaria (57.8)
Chhattisgarh	63.9	65.7	66.3	2.4	Raigarh (47.3)	Bastar (92.5)
Jharkhand	37.9	41.2	43.3	5.4	Dhanbad (33.4)	Ranchi (55.3)
Madhya Pradesh	61.5	65	66.8	5.3	Sagar (46.1)	Guna (84.1)
Odisha	71.5	74.3	78.7	7.2	Debagarh (65.8)	Sonapur (92.1)
Rajasthan	48.6	50.1	54.1	5.5	Banswara (35.2)	Nagaur (76.6)
Uttar Pradesh	32.9	36	39.4	6.5	Shrawasti (14.8)	Banda (76)
Uttarakhand	63.2	63.7	65.1	1.9	Haridwar (41.6)	Rudraprayag (90.8)
Children (aged 6-35 months) exclusively breastfed for at least six months (%)						
Assam	39.2	40.1	40.4	1.2	Kokrajhar (12.1)	Dibrugarh (74.9)
Bihar	28.5	30.3	31	2.5	Araria (11.6)	Vaishali (58.8)
Chhattisgarh	47.5	49.9	50.8	3.3	Kawardha (30.6)	Bastar (73.2)
Jharkhand	45.6	48.4	50.2	4.6	Chatra (29.2)	Pashchimi Singhbhum (78.5)
Madhya Pradesh	36.8	39.7	41.5	4.7	Guna (22.9)	Betul Katni (63.9)
Odisha	24.8	26.6	30.7	5.9	Malkangiri Anugul (15.9)	Kandhamal (70.9)
Rajasthan	24.7	29.4	32.1	7.4	Bharatpur (8.6)	Sawai Madhopur (63.7)
Uttar Pradesh	17.7	19.4	20.8	3.1	Agra (9)	Gonda (56.3)
Uttarakhand	38.2	39	37.3	-0.9	Bageshwar (21.9)	Champawat (53.5)

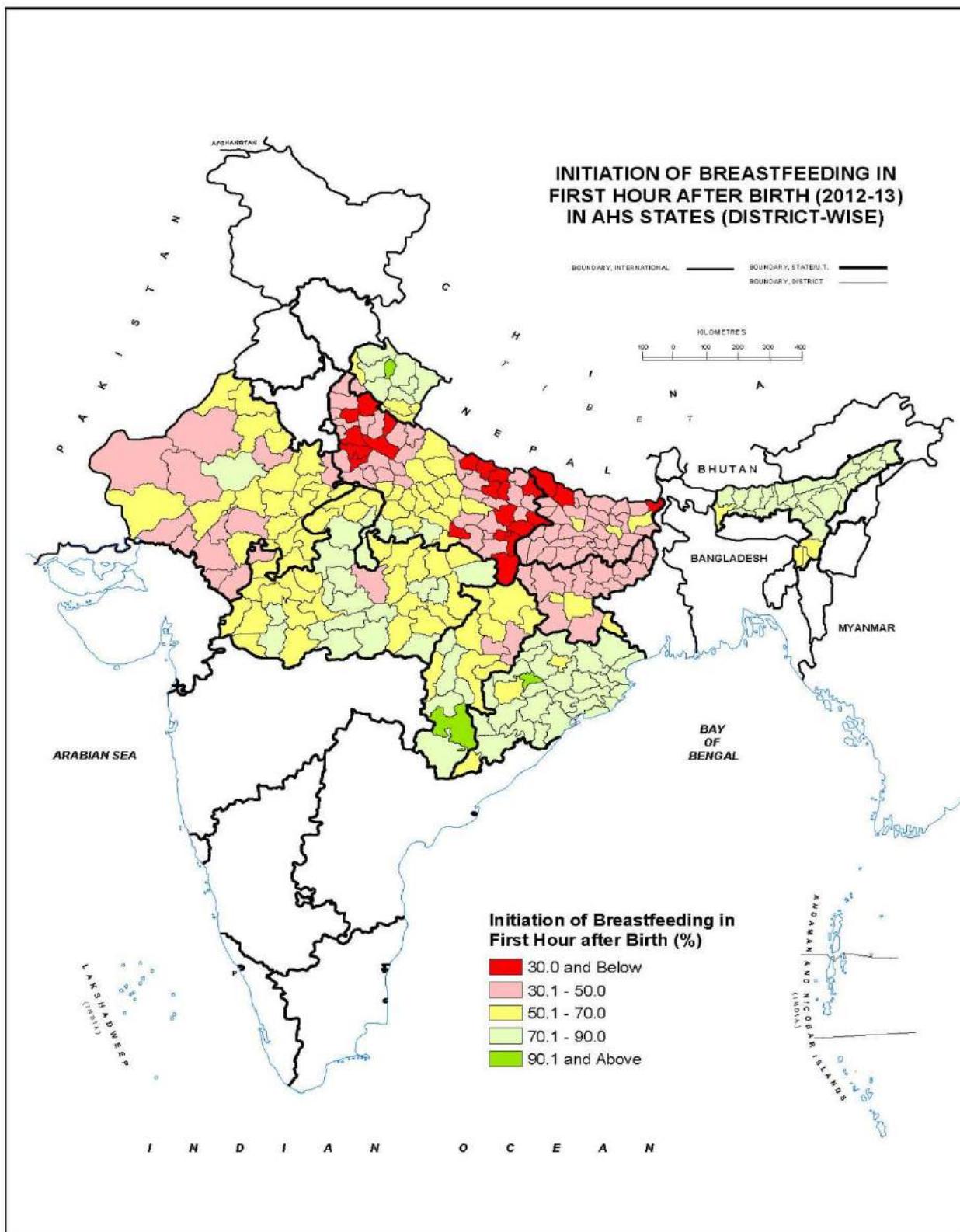
Map 6.3: Initiation of breastfeeding in first hour after birth (2012-13) in AHS States (district-wise)

Table 6.9: District-wise trends in Breastfeeding Practices

The number of districts in each State when the direction of change in percentage of children breastfed within an hour of birth and exclusively breastfed for atleast six months is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates.

State	Increase	No change	Decrease
Children breastfed within one hour of birth (%)			
Assam	17	0	6
Bihar	37	0	0
Chhattisgarh	16	0	0
Jharkhand	16	0	2
Madhya Pradesh	44	0	1
Odisha	25	0	5
Rajasthan	24	0	8
Uttar Pradesh	61	0	9
Uttarakhand	9	0	4
Children (aged 6-35 months) exclusively breastfed for at least six months (%)			
Assam	15	0	8
Bihar	26	0	11
Chhattisgarh	15	1	0
Jharkhand	12	0	6
Madhya Pradesh	41	0	4
Odisha	24	1	5
Rajasthan	31	0	1
Uttar Pradesh	58	0	12
Uttarakhand	6	0	7

Table 6.10: Frequency Distribution of Breastfeeding Practices

The number of districts in each State classified under a particular range of breastfeeding within an hour of birth and exclusive breastfeeding for six months in 2012-13 and 2010-11

Children breastfed within one hour of birth (%)				
Range	<40%	40-50%	50-60%	60%& above
Assam	0 (0)	0 (1)	0 (3)	23 (19)
Bihar	25 (33)	9 (1)	3 (3)	0 (0)
Chhattisgarh	0 (0)	2 (4)	5 (3)	9 (9)
Jharkhand	7 (12)	8 (4)	3 (1)	0 (1)
Madhya Pradesh	0 (1)	2 (6)	13 (15)	30 (23)
Odisha	0 (1)	0 (0)	0 (2)	30 (27)
Rajasthan	3 (7)	9 (11)	12 (10)	8 (4)
Uttar Pradesh	41 (51)	9 (8)	9 (3)	11 (8)
Uttarakhand	0 (1)	1 (0)	1 (2)	11 (10)
Children (aged 6-35 months) exclusively breastfed for at least six months (%)				
Range	<20%	20-30%	30-40%	40%& above
Assam	2 (3)	2 (4)	9 (6)	10 (10)
Bihar	8 (11)	12 (11)	7 (8)	10 (7)
Chhattisgarh	0 (0)	0 (0)	2 (3)	14 (13)
Jharkhand	0 (2)	1 (3)	5 (2)	12 (11)
Madhya Pradesh	0 (2)	5 (14)	14 (16)	26 (13)
Odisha	4 (13)	11 (6)	10 (6)	5 (5)
Rajasthan	5 (13)	9 (4)	7 (12)	11 (3)
Uttar Pradesh	38 (54)	25 (11)	3 (2)	4 (3)
Uttarakhand	0 (0)	1 (1)	6 (7)	6 (5)

Note: () is used to show number of districts as per baseline, 2010-11.

6.17 Table 6.9 shows the number of districts which record practices of breastfeeding within an hour and exclusive breastfeeding for at least six months. All States witnessed an increase, with considerable improvements in Bihar, Madhya Pradesh and Uttar Pradesh, in the number of districts with breastfeeding within an hour.

6.18 Table 6.10 shows the frequency distribution of breastfeeding among children in each State in 2012-13, a 2010-11. Assam, Odisha and Madhya Pradesh had a majority of districts in the 60 per cent and above category, (Table 6.10). Assam and Odisha have no districts in the lower ranges

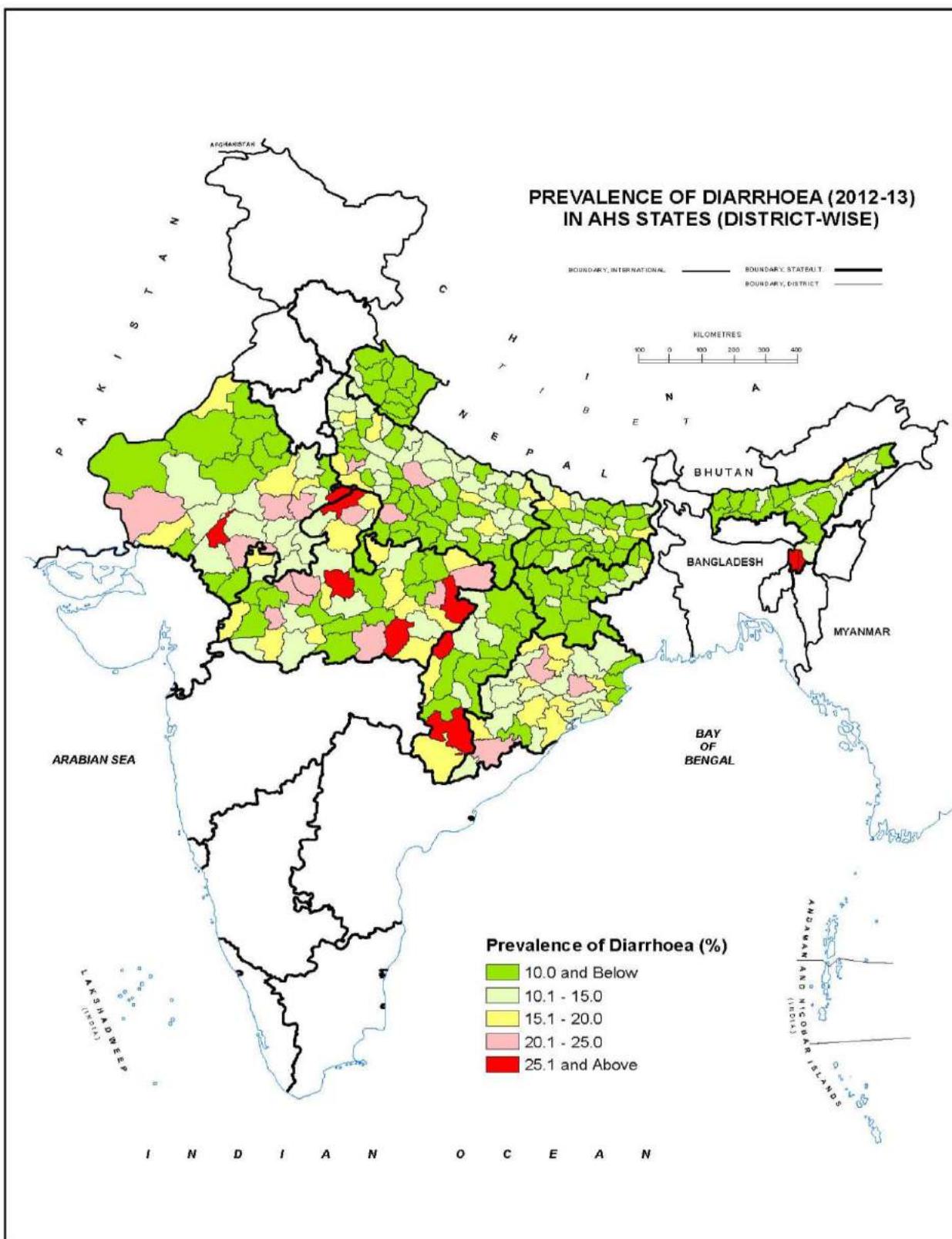
such as less than 40 per cent or 50-60 per cent. The practice has very low prevalence in Bihar, Jharkhand and Uttar Pradesh with 25, 7 and 41 districts in the less than 40 per cent category. At the same time, the lowest range recorded a decline, which is encouraging. Madhya Pradesh and Jharkhand have a higher number of districts in the 40 per cent and above category (26 and 12 respectively) when compared with lower ranges. Majority of the districts in Uttar Pradesh report low instances of children being exclusively breastfed for at least six months.

6.5. Childhood Diseases

Table 6.11: Childhood Diseases (%)

Percentage of children suffering from diarrhoea, acute respiratory infection and fever in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and the lowest and highest level at district level in 2012-13

State	AHS	AHS	AHS	Absolute	District 2012-13	
	2010-11	2011-12	2012-13	Change	Lowest	Highest
Diarrhoea (%)						
Assam	8.9	10.7	10.6	1.7	Bongaigaon (3.1)	Karimganj (29.1)
Bihar	10.8	11	10	-0.8	Munger (4)	Khagaria (19.9)
Chhattisgarh	11.3	11	12.2	0.9	Surguja (2.3)	Kawardha (33.8)
Jharkhand	7.8	8.5	7.7	-0.1	Deoghar (2.7)	Pakaur (16.2)
Madhya Pradesh	15.2	14.9	16.4	1.2	Panna (3.9)	Shahdol (47.1)
Odisha	12.4	13	14	1.6	Rayagada (9.2)	Koraput (23.4)
Rajasthan	13.5	13.6	13.4	-0.1	Nagaur (5.2)	Rajsamand (39.3)
Uttar Pradesh	13.1	11.6	10.8	-2.3	Fatehpur (3)	Jalaun (24.3)
Uttarakhand	9.6	7.2	7.3	-2.3	Chamoli (1.1)	Haridwar (14.2)
ARI (%)						
Assam	18.7	20.8	18.2	-0.5	Kokrajhar (2)	Nagaon (46.9)
Bihar	20.8	25.7	28.2	7.4	Bhojpur (9.1)	Muzaffarpur (49.8)
Chhattisgarh	17.1	14.8	15.5	-1.6	Dantewada (6.5)	Dhamtari (33.9)
Jharkhand	8.7	20.3	21.4	12.7	Bokaro (7.5)	Dhanbad (30.7)
Madhya Pradesh	15.4	15.2	19.2	3.8	Sagar (5.5)	Mandla (47.1)
Odisha	18.3	18.5	25.4	7.1	Malkangiri (6.4)	Jagatsinghapur (47.7)
Rajasthan	6.5	11.3	15.9	9.4	Bhilwara (3.5)	Jaipur (37.2)
Uttar Pradesh	8.9	19.9	27.9	19	Etawah (7.4)	Rampur (58.8)
Uttarakhand	7.3	8.3	11.4	4.1	Rudraprayag (2.5)	TehriGarhwal (23.1)
Fever (%)						
Assam	32	28.4	24.5	-7.5	Sonitpur (11.7)	Hailakandi (42.4)
Bihar	34.9	37.8	36.7	1.8	Patna (15)	Aurangabad (52.3)
Chhattisgarh	24.1	15.7	16.3	-7.8	Jashpur (5)	Bastar (30.6)
Jharkhand	23	23.8	19.8	-3.2	PurbaSinghbhum (10.5)	Pakaur (32.4)
Madhya Pradesh	24.2	20.4	21.3	-2.9	Dhar (8.7)	Raisen (87)
Odisha	33.2	30.4	30.6	-2.6	Malkangiri (15.1)	Jajapur (48.2)
Rajasthan	19.2	20.1	20.3	1.1	Nagaur (6.4)	Baran (53.2)
Uttar Pradesh	25.8	21.8	24.5	-1.3	Hamirpur (7)	Rampur (51.6)
Uttarakhand	20.2	12	12	-8.2	Rudraprayag (2.2)	TehriGarhwal (19.7)

Map 6.4: Prevalence of diarrhoea (2012-13) in AHS States (district-wise)

6.19 Table 6.11 shows the levels of diarrhoea across AHS States with the highest prevalence being in Madhya Pradesh (16.4 per cent). Jharkhand and Uttarakhand have lowest levels of 7.7 per cent and 7.3 per cent. The highest decline of 2.3 per cent is observed in Uttar Pradesh and Uttarakhand. However, Assam, Chhattisgarh, Madhya Pradesh and Odisha registered an increase in diarrhoea incidence. Among the districts, Shahdol in Madhya Pradesh had the highest prevalence level at 47.1 per cent. Madhya Pradesh was also noted for its high degree of district level disparity with Panna recording the lowest level of 3.9 per cent. The highest level of

acute respiratory infection is observed in Bihar at 28.2 per cent. The lowest level of 11.4 per cent is observed in Uttarakhand. A cautionary rise of 19 per cent in Uttar Pradesh, 12.7 per cent in Jharkhand and 9.4 per cent in Rajasthan is observed. Only Assam and Chhattisgarh register a marginal decline of 0.5 per cent and 1.6 per cent. Bihar reported the highest level of fever among children at 36.7 per cent. Uttarakhand showed the lowest level at 12 per cent. The prevalence of fever recorded a higher reduction than those of diarrhoea and acute respiratory infection, with highest decline of 8.2 per cent in Uttarakhand.

Table 6.12: Frequency Distribution of Childhood Diseases

The number of districts in each State classified under a particular range of diarrhoea, acute respiratory infection and fever in 2012-13 and 2010-11

Diarrhoea (%)							
Range	0-5%	5-10%	10-15%	15-20%	20-25%	25-30%	30% & above
Assam	4 (3)	9 (14)	5 (6)	3 (0)	0 (0)	2 (0)	0 (0)
Bihar	3 (2)	21 (15)	9 (16)	4 (4)	0 (0)	0 (0)	0 (0)
Chhattisgarh	2 (0)	6 (6)	4 (8)	2 (1)	0 (0)	1 (0)	1 (1)
Jharkhand	5 (4)	9 (10)	3 (4)	1 (0)	0 (0)	0 (0)	0 (0)
Madhya Pradesh	1 (1)	9 (3)	11 (19)	12 (14)	8 (6)	0 (1)	4 (1)
Odisha	0 (0)	4 (7)	14 (12)	9 (10)	3 (1)	0 (0)	0 (0)
Rajasthan	0 (0)	10 (10)	12 (8)	4 (12)	4 (0)	0 (1)	2 (1)
Uttar Pradesh	10 (3)	18 (31)	32 (12)	7 (13)	3 (8)	0 (2)	0 (1)
Uttarakhand	4 (2)	7 (8)	2 (2)	0 (0)	0 (1)	0 (0)	0 (0)
Acute Respiratory Infection (%)							
Range	0-5%	5-10%	10-15%	15-20%	20-25%	25-30%	30% & above
Assam	1 (0)	6 (5)	5 (4)	2 (6)	3 (2)	0 (5)	6 (1)
Bihar	0 (0)	1 (2)	1 (9)	7 (11)	10 (7)	8 (4)	10 (4)
Chhattisgarh	0 (0)	3 (2)	5 (5)	4 (2)	2 (6)	1 (0)	1 (1)
Jharkhand	0 (6)	2 (3)	2 (4)	4 (3)	4 (2)	5 (0)	1 (0)
Madhya Pradesh	0 (2)	2 (10)	12 (14)	13 (11)	11 (4)	3 (1)	4 (3)
Odisha	0 (0)	1 (6)	5 (8)	5 (5)	4 (4)	8 (3)	7 (4)
Rajasthan	2 (13)	8 (13)	8 (4)	7 (2)	4 (0)	2 (0)	1 (0)
Uttar Pradesh	0 (19)	2 (29)	11 (15)	14 (4)	15 (2)	5 (1)	23 (0)
Uttarakhand	3 (4)	3 (8)	4 (1)	2 (0)	1 (0)	0 (0)	0 (0)
Fever (%)							
Range	0-5%	5-10%	10-15%	15-20%	20-25%	25-30%	30% & above
Assam	0 (0)	0 (0)	5 (1)	3 (0)	2 (5)	7 (4)	6 (13)
Bihar	0 (0)	0 (0)	0 (1)	2 (0)	3 (5)	1 (0)	31 (31)
Chhattisgarh	0 (0)	2 (0)	5 (1)	5 (3)	3 (3)	0 (4)	1 (5)
Jharkhand	0 (0)	0 (0)	5 (0)	4 (6)	4 (4)	4 (7)	1 (1)
Madhya Pradesh	0 (0)	1 (1)	8 (2)	11 (8)	13 (17)	5 (7)	7 (10)
Odisha	0 (0)	0 (0)	0 (0)	4 (0)	7 (3)	6 (5)	13 (22)
Rajasthan	0 (0)	5 (3)	7 (7)	7 (9)	6 (4)	2 (5)	5 (4)
Uttar Pradesh	0 (1)	6 (2)	10 (13)	7 (16)	16 (6)	23 (5)	8 (27)
Uttarakhand	3 (1)	2 (2)	4 (6)	4 (1)	0 (1)	0 (0)	0 (2)

Note: () is used to show number of districts as per baseline, 2010-11.

6.20 Table 6.12 shows the distribution of districts across estimated ranges of diarrhoea, ARI and fever prevalence. In case of diarrhoea, Rajasthan and Madhya Pradesh have 2 and 4 districts respectively in the 30 per cent and above range, recording an increase over the levels observed in 2010-11. Uttar Pradesh had the highest number of districts in the 30 per cent and above range with an increase in every State in the higher

ranges. Apart from Uttarakhand, a rise in acute respiratory infection was observed. Districts with levels of fever higher than 30 per cent among children increased in every State except Uttarakhand. Bihar has the highest number of districts (31) in the 30 per cent and above range. Table 6.13 further presents the districts with the highest and lowest prevalence of these three childhood ailments across AHS States.

Table 6:13 District-level Disparity in Childhood Diseases (2012-13)

Districts with the lowest and highest percentages of diarrhoea, ARI and fever in rural and urban area of a State

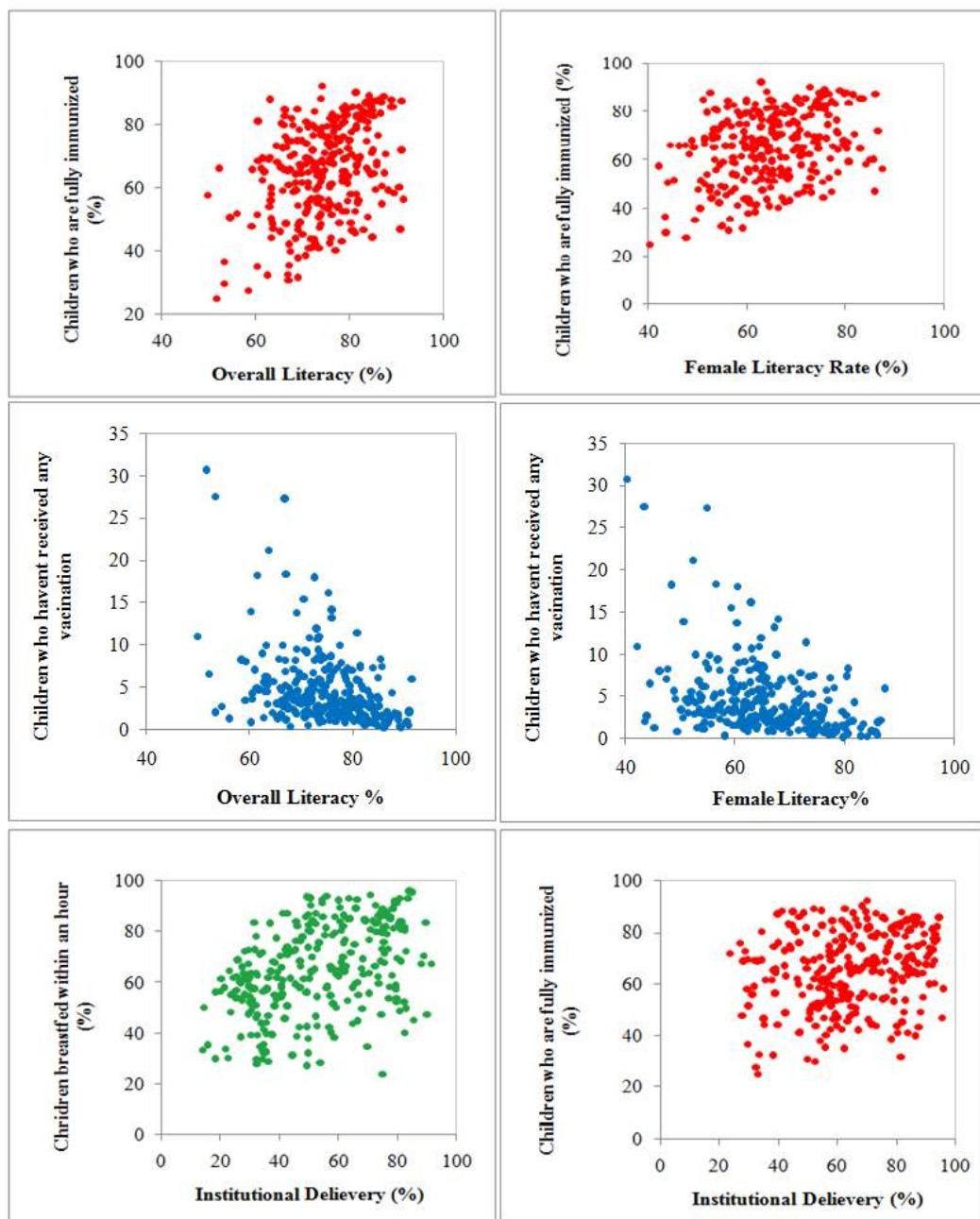
State	Rural		Urban	
	Lowest (%)	Highest (%)	Lowest (%)	Highest (%)
Diarrhoea				
Assam	Bongaigaon (3.2)	Hailakandi (29.3)	Bongaigaon (1.8)	Cachar (19.2)
Bihar	Saran (3.7)	Khagaria (20.7)	Khagaria (0)	Pashchim Champaran (22.8)
Chhattisgarh	Surguja (2.2)	Kawardha (33.2)	Janjgir-Champa (1)	Koriya (23.1)
Jharkhand	Deoghar (2.5)	Pakaur (16.1)	Chatra (1)	Dhanbad (13.5)
Madhya Pradesh	Panna, Katni (4.3)	Shahdol (52)	Sidhi, Satna (0)	Rewa (54.8)
Odisha	Rayagada (8.1)	Koraput (25.2)	Kendrapara (1.8)	Dhenkanal (32.4)
Rajasthan	Jhunjhunun (5.1)	Rajsamand (42)	Nagaur (4.2)	Jalor (50)
Uttar Pradesh	Kanpur Nagar (1.7)	Jalaun (24.7)	Fatehpur (0.9)	Jalaun (23.1)
Uttarakhand	Chamoli (1.2)	Haridwar (12.8)	Almora (0)	Haridwar (17.2)
Acute Respiratory Infection				
Assam	Kokrajhar (1.9)	Nagaon (47.1)	Bongaigaon (2.7)	Nagaon (45.8)
Bihar	Bhojpur (7.4)	Muzaffarpur (51.7)	Patna (16.1)	Gaya (56.9)
Chhattisgarh	Raipur (6.3)	Dhamtari (35.8)	Janjgir-Champa (7.2)	Bastar (26.2)
Jharkhand	Bokaro (5.6)	Dumka (29.5)	Bokaro (9.8)	Giridih (52.5)
Madhya Pradesh	Jabalpur (3.5)	Mandla (47.6)	Sidhi (0)	Morena (45)
Odisha	Malkangiri (5.7)	Jagatsinghapur (47.4)	Debagarh (1.5)	Jagatsinghapur (50.6)
Rajasthan	Bhilwara (2.3)	Jaipur (41.2)	Nagaur (4.2)	Barmer (36.9)
Uttar Pradesh	Etawah (6.3)	Rampur (61.9)	Jhansi (7.8)	Budaun (65.4)
Uttarakhand	Rudraprayag (2.5)	Tehri Garhwal (20.9)	Almora (2.4)	Tehri Garhwal (41.2)
Fever				
Assam	North Cachar Hills (8.7)	Hailakandi (43.5)	Bongaigaon (10.8)	Sonitpur (18.3)
Bihar	Patna (13.3)	Aurangabad (53.3)	Jehanabad (7.1)	Katihar (20)
Chhattisgarh	Jashpur (4.8)	Bastar (31.3)	Janjgir-Champa (3.1)	Mahasamund (66.3)
Jharkhand	Purba Singhbhum (8.4)	Pakaur (32.7)	Deoghar (4.9)	Chatra (57.3)
Madhya Pradesh	Ujjain (7.1)	Raisen (96.1)	Betul (2.1)	Hoshangabad (56.9)
Odisha	Malkangiri (14.9)	Jajapur (48.6)	Balangir (15.7)	Dhenkanal (51.5)
Rajasthan	Banswara (5.9)	Rajsamand (57.2)	Nagaur (6.9)	Baran (50.5)
Uttar Pradesh	Mahoba (5.7)	Rampur (53.7)	Rae Bareli (2.4)	Hamirpur (5.1)
Uttarakhand	Rudraprayag (2.1)	Dehradun (20.3)	Chamoli (2.1)	Uttarkashi (30.5)

6.4. Association with Developmental Indicators

6.21 A relation has been drawn between levels of literacy and immunization and vaccination administered to children. Figure 6.6 clearly indicates that the districts with higher rates of

literacy show higher rates of children being fully immunized, suggesting that higher levels of knowledge increase awareness about the required health conditions for children. Clearly, the figure indicates that when overall literacy and female literacy levels in a district are high, the share of fully immunized children is also high.

Figure 6.6: Association of Immunization indicators with institutional delivery and overall and female literacy level, AHS 2012-13



6.22 There exists a negative association between literacy levels and children who have not received any vaccination. Districts with low overall literacy and female literacy levels clearly had higher number of children who had received no vaccination. Thus literacy level in a district is important in determining the overall health of children, particularly the timely dosage of requisite vaccinations.

6.23 The district-wise proportion of children breast-fed within an hour of birth bears a positive relation to institutional deliveries. Higher the rate of institutional deliveries, greater the chances of infants receiving breast milk within an hour. The figure also suggests that the practice of breast

feeding within an hour of birth is more associated with higher proportion of children being born in a medical facility. Thus improving the coverage of institutional deliveries can also help increase the practice of breastfeeding within an hour of birth. However, in a few districts, despite high levels of institutional delivery, the practice of breast feeding remains at low levels. So, besides increasing the instances of institutional delivery, the practice of early breast feeding should receive individual attention. A positive association also exists between institutional delivery and full immunization of children at the district level. Districts where childbirth has predominantly taken place at a medical facility also recorded a higher rate of children being fully immunized.

6.5. Key Findings

- Child immunization levels are dependent on female literacy, as districts with higher literacy tend to have higher levels of child immunization. The highest level of immunization is observed in Uttarakhand and the lowest in Uttar Pradesh.
- Odisha has made considerable improvements in ensuring full immunization. However, a few of its districts such as Malkangiri have levels of full immunization as low as 29.6%. This is also reflected in the high levels of inter-district disparity in the State.
- At the State-level, no wide variations are noted in case of children with weight less than 2.5kg. Improvements in vaccination coverage are low at higher levels, with districts which have higher vaccine coverage making lower levels of absolute progress. It is also important to note that among the four vaccinations, BCG vaccination has the highest coverage in every State.
- Rajasthan reports the highest level of vitamin A consumption in children aged 6-35 months along with substantial progress. When compared to Vitamin A supplementation, consumption of IFA tablets/syrup is low in every State. The highest levels of consumption are noted in Jharkhand and Bihar.
- Uttar Pradesh and Bihar have very low levels of breastfeeding within an hour of birth. In most of the districts of the nine States studied, the practice of breast feeding within an hour of birth has increased. Breast feeding within an hour of birth is largely dependent on the place of child birth, with more children being born in medical facility tending to be breast-fed within an hour rather than children being born at home.

7.1 Child mortality is a critical indicator of social and economic progress as well as of a country's commitment towards child health and development. Child mortality must be regularly monitored in order to design policies for bringing about improvements in child survival, focusing specifically on the poorest and marginalized social groups. This chapter presents the levels, trends, and patterns observed in neonatal, infant, and under-five mortality in the eight EAG States and Assam.

7.1. Definition of Indicators

- A neonatal death is defined as a death during the first 28 days of life and neonatal mortality rate (NMR) as the probability of dying in the first month of life expressed as per 1,000 live births.
- Infant mortality is the death of a child less than one year of age. Infant mortality rate (IMR) is the probability of death of children below one year of age expressed as per 1,000 live births.
- Under-Five mortality refers to the death of infants and children under the age of five. Under-five mortality rate (UFMR) is calculated as the probability of dying between birth and exactly five years of age, again expressed per 1,000 live births.

7.2. Levels and Trends

7.2.1 Neonatal, Infant and Under-Five Mortality Rate

7.2 Table 7.1 presents neonatal, infant and under-five mortality rates for all the nine AHS States

over the three AHS years 2010-11, 2011-12 and 2012-13. NMR is increasingly emerging as the most significant component of child mortality. In 2012-13, Uttar Pradesh had the highest NMR of 49 neonatal deaths per 1,000 live births whereas Jharkhand had the lowest at 23 per 1,000 live births. At the district level, Bolangir in Odisha and Rudraprayag in Uttarakhand had the highest and lowest NMR of 70 per 1,000 live births and 11 per 1,000 live births respectively. From 2010-11 to 2012-2013, NMR reduced in all 9 States but at a slow pace. Assam and Madhya Pradesh showed a constant rate of annual reduction in NMR levels. The table also reports the names of the districts in each State having the highest and lowest mortality rates during 2012-13. Significant inter-district disparities across States are evident. For instance, Kanpur Nagar in Uttar Pradesh has the lowest NMR of 24 per 1,000 live births, whereas Siddarthanagar has the highest NMR of 70 per 1,000 live births (about three times the level of Kanpur Nagar).

7.3 In case of IMR, States have shown more favourable reductions over the period 2010-11 to 2012-13. With an IMR of 68 deaths per 1,000 live births in 2012-13, Uttar Pradesh continues to be the worst performer among the AHS States. Jharkhand has the lowest IMR of 36 per 1,000 live births, closely followed by Uttarakhand with 40 infant deaths per 1,000 live births.

7.4 From AHS 2012-13, it is also apparent that a few districts such as Bolangir in Odisha and Shrawasti in Uttar Pradesh continue to have very high levels of IMR (97 and 96 deaths per 1,000 live births, respectively), highlighting the need for more effective health and developmental measures to reduce such stark inter-district disparities.

7.5 The predominant share of neonatal and infant deaths is largely contributing towards a high level of UFMR mortality among the AHS States. In 2012-13, the UFMR is highest for Uttar Pradesh (90 deaths per 1,000 live births) and lowest for Uttarakhand (48 deaths per 1,000 live births). Despite relative improvements in overall UFMR,

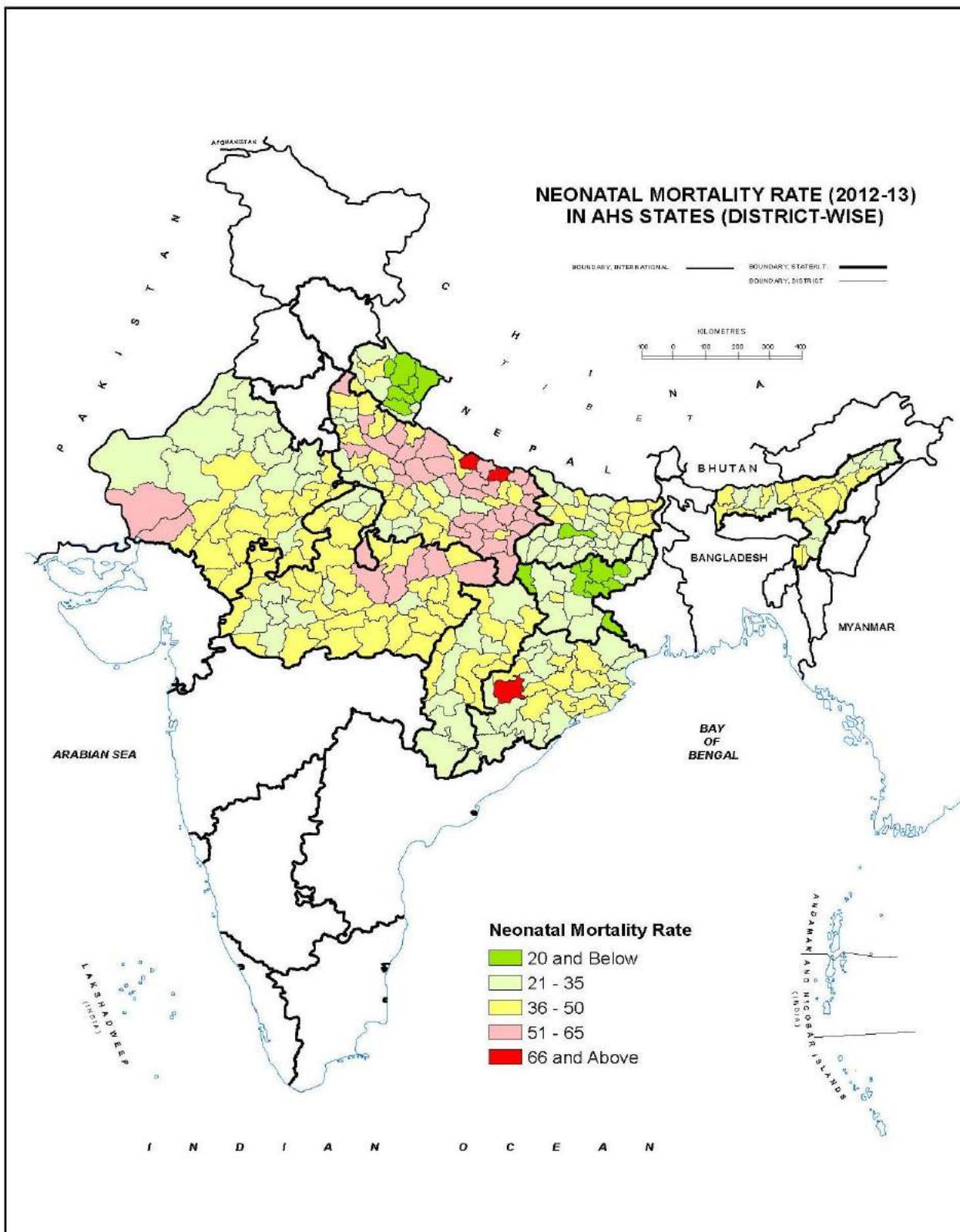
Odisha has districts with the worst mortality rates among all the AHS States (UFMR in Kandhamal district is 139 deaths per 1,000 live births). Uttar Pradesh, Madhya Pradesh and Assam also have districts with UFMR greater than 100 deaths per 1,000 live births. However, Almora district from Uttarakhand has the lowest UFMR of 24.

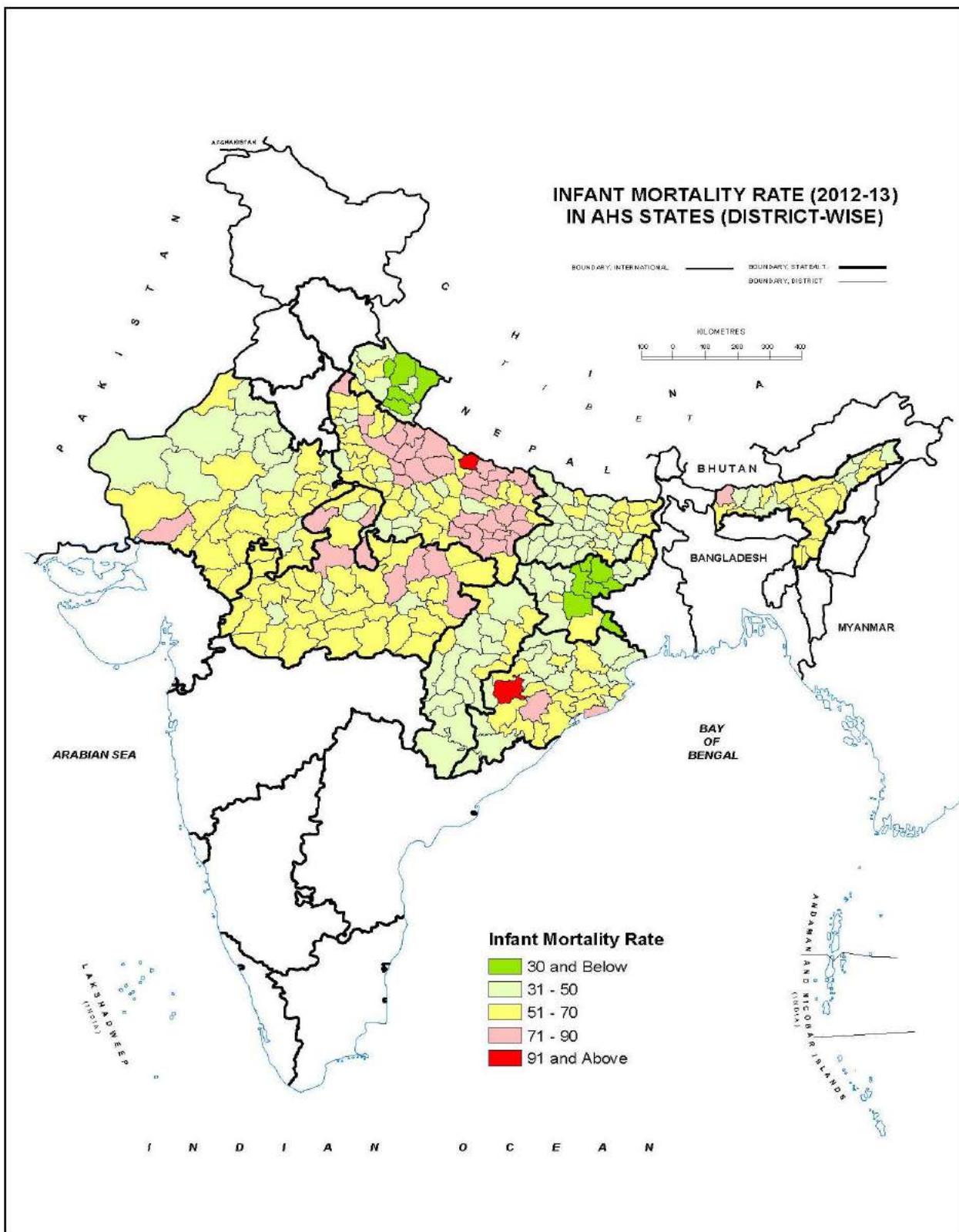
Table 7.1: Levels of Child Mortality

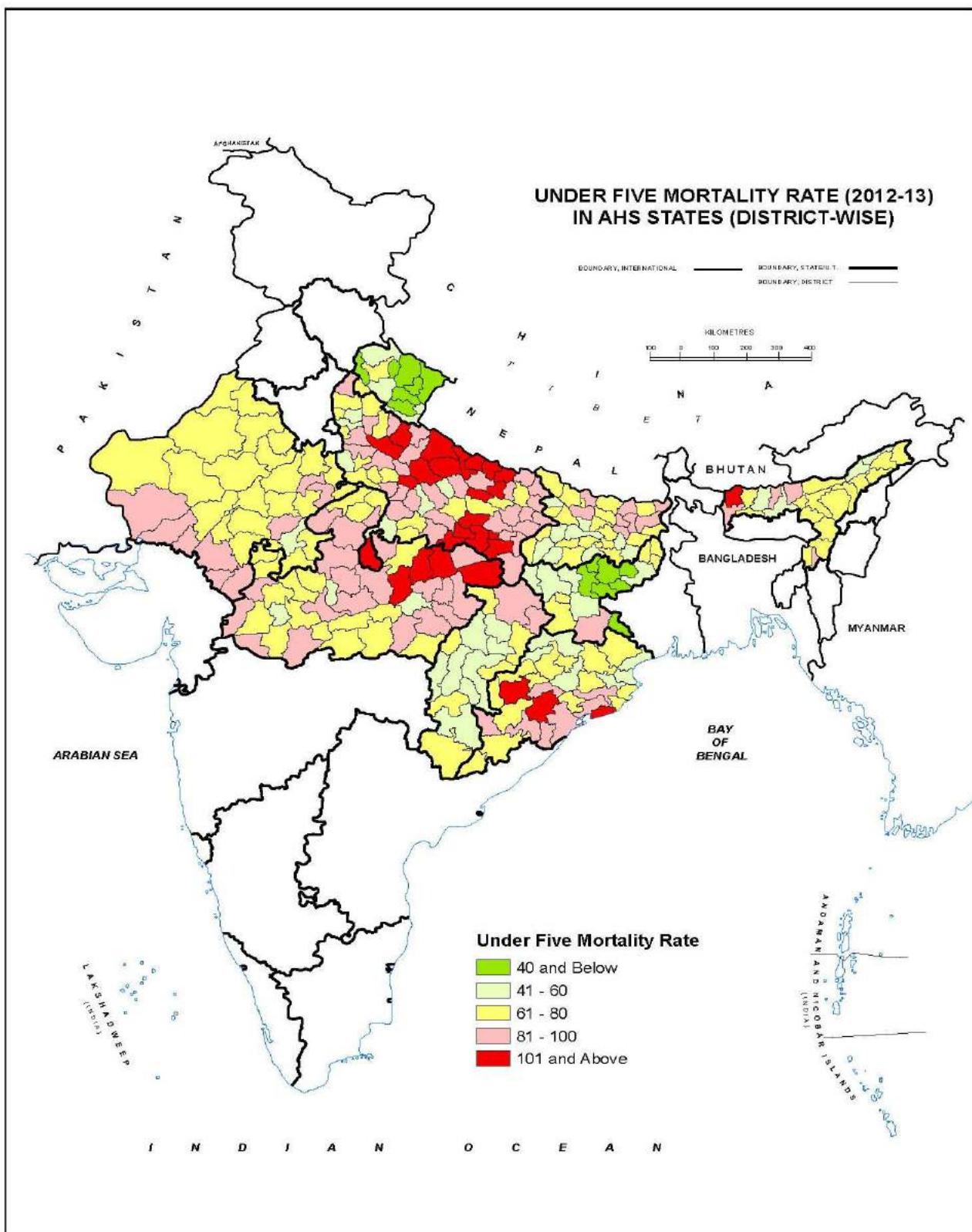
Neo-natal, infant and under five mortality rate in 2010-11, 2011-12 and 2012-13, the percentage decline in 2011-12 and 2012-13 in comparison with the preceding year and the lowest and highest levels at district level in 2012-13

State	AHS 2010- 11	% Decrease 2010-11 to 2011-12	AHS 2011- 12	% Decrease 2011-12 to 2012-13	AHS 2012- 13	District (Mortality Rate) 2012-13	
	Lowest	Highest					
Neonatal mortality rate							
Assam	39	2.6	38	2.6	37	Kamrup (25)	Dhubri (50)
Bihar	35	2.9	34	5.9	32	Patna (18)	Madhepura (45)
Chhattisgarh	35	0.0	35	8.6	32	Durg (24)	Kawardha (42)
Jharkhand	26	7.7	24	4.2	23	Hazaribagh (14)	Lohardaga (39)
Madhya Pradesh	44	2.3	43	2.3	42	Indore (24)	Panna (61)
Odisha	40	2.5	39	5.1	37	Jagatsinghpur (27)	Balngir (71)
Rajasthan	40	5.0	38	2.6	37	Kota (25)	Barmer (53)
Uttar Pradesh	50	0.0	50	2.0	49	Kanpur Nagar (24)	Siddartha Nagar (70)
Uttarakhand	30	3.3	29	3.4	28	Rudraprayag (11)	Haridwar (45)
Infant mortality rate							
Assam	60	5.0	57	3.5	55	Dhemaji (44)	Kokrajhar (74)
Bihar	55	5.5	52	7.7	48	Patna (31)	Madhepura (64)
Chhattisgarh	53	5.7	50	8.0	46	Durg (35)	Kawardha (57)
Jharkhand	41	7.3	38	5.3	36	Purba Singhbhum (26)	Godda (54)
Madhya Pradesh	67	3.0	65	4.6	62	Indore (37)	Panna (85)
Odisha	62	4.8	59	5.1	56	Jharsuguda (42)	Balangir (97)
Rajasthan	60	5.0	57	3.5	55	Kota (36)	Jalor (72)
Uttar Pradesh	71	1.4	70	2.9	68	Kanpur Nagar (37)	Shrawasti (96)
Uttarakhand	43	4.7	41	2.4	40	Rudraprayag (19)	Haridwar (64)
Under-five mortality rate							
Assam	79	5.1	75	5.3	71	Dhemaji (45)	Kokrajhar (101)
Bihar	77	5.2	73	4.1	70	Patna (46)	Sitamarhi (97)
Chhattisgarh	70	5.7	66	9.1	60	Durg (43)	Surguja (90)
Jharkhand	59	6.8	55	7.3	51	Kodarma (33)	Pashchimi Singhbhum (87)
Madhya Pradesh	89	3.4	86	3.5	83	Indore (46)	Panna (127)
Odisha	82	3.7	79	5.1	75	Jharsuguda (48)	Kandhamal (139)
Rajasthan	79	3.8	76	2.6	74	Kota (47)	Banswara (95)
Uttar Pradesh	94	2.1	92	2.2	90	Kanpur Nagar (50)	Shrawasti (130)
Uttarakhand	53	5.7	50	4.0	48	Almora (24)	Haridwar (77)

Map 7.1: Neonatal mortality rate (2012-13) in AHS States (district-wise)



Map 7.2: Infant mortality rate (2012-13) in AHS States (district-wise)

Map 7.3: Under-five mortality rate (2012-13) in AHS States (district-wise)

7.6 Figure 7.1 shows that most of the scatter for all of the child mortality indicators, i.e., infant mortality, neo-natal mortality and under five

mortality, lies below the diagonal, indicating that across most of the districts reductions in child mortality over the assessed period is observable .

Figure 7.1: Different indicators of child mortality, 2010-11 and 2012-13

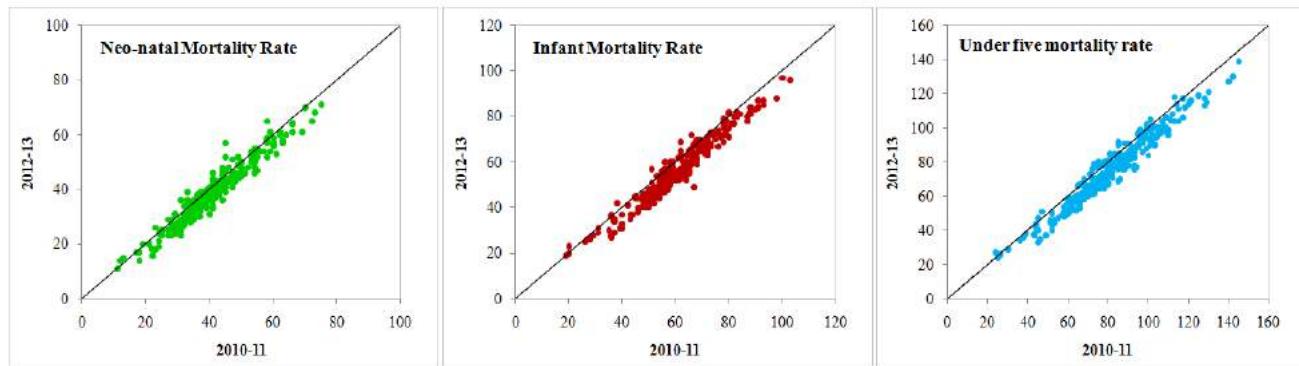


Table 7.2: Frequency Distribution of Child Mortality Rates

The number of districts in each State classified under a particular range of neonatal, infant and under-five mortality rate in 2010-11 and 2012-13

Neonatal mortality rate						
NMR Range	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60+
Assam	0	3(1)	11(12)	8(9)	1(1)	0
Bihar	1	19(7)	11(20)	6(10)	0	0
Chhattisgarh	0	6(3)	9(5)	1(8)	0	0
Jharkhand	6(2)	6(8)	6(7)	0(1)	0	0
Madhya Pradesh	0	2(3)	13(9)	25(22)	4(8)	1(3)
Odisha	0	4	17(17)	8(10)	0 (2)	1(1)
Rajasthan	0	4(1)	17(15)	9(14)	2(2)	0
Uttar Pradesh	0	4(4)	16(15)	14(17)	24(19)	12(15)
Uttarakhand	4(5)	7(6)	1	1(1)	0 (1)	0
Infant mortality rate						
IMR Range	15 - 30	30 - 45	45 - 60	60 - 75	75 - 90	90+
Assam	0	3(1)	12(13)	8(8)	0 (1)	0
Bihar	0	11(1)	24(27)	2(9)	0	0
Chhattisgarh	0	4(1)	12(10)	0(5)	0	0
Jharkhand	6(3)	5(6)	7(8)	0(1)	0	0
Madhya Pradesh	0	1(1)	13(9)	28(28)	3(5)	0(2)
Odisha	0	1	21(17)	5(8)	2(4)	1(1)
Rajasthan	0	1(1)	20(15)	11(15)	0	0(1)
Uttar Pradesh	0	4(2)	18(18)	24(22)	23(23)	1(5)
Uttarakhand	5(4)	6(7)	1	1(2)	0	0
Under-five mortality rate						
USMR Range	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120	120+
Assam	0	4(2)	14(11)	4(9)	1(1)	0
Bihar	0	8(1)	21(22)	8(10)	0(4)	0
Chhattisgarh	0	8(1)	6(11)	2(2)	0(2)	0
Jharkhand	6(1)	6(9)	5(4)	1(4)	0	0
Madhya Pradesh	0	2(2)	18(9)	19(23)	4(9)	2(2)
Odisha	0	6(2)	13(14)	8(9)	2(4)	1(1)
Rajasthan	0	1(1)	19(17)	12(14)	0	0
Uttar Pradesh	0	6(1)	13(14)	31(30)	19(18)	1(7)
Uttarakhand	6(6)	5(5)	2(1)	0(1)	0	0

Note: () is used to show number of districts as per baseline, 2010-11.

7.7 Table 7.2 shows the frequency distribution of neonatal, infant and under-five mortality rates in terms of number of districts in each State in 2012-13 and compares it with the distribution observed in 2010-11. As regards neonatal, infant and under-five mortality rates, highest number of AHS districts fall under the NMR range of 30-40, IMR range of 45-60 and UFMR range of 60-80 deaths per 1,000 live births respectively. There is a clear shift in the concentration of districts from the high UFMR range of 80-100 deaths per 1,000 live births in 2010-11 to a lower range of 60-80 deaths per 1,000 live births in 2012-13. A considerable reduction since 2010-11 can also be observed in the number of districts in the highest ranges of neonatal, infant and under-five mortality rates, along with an increase in the number of districts in the lowest range of mortality rates from 2010-11 to 2012-13. Jharkhand has shown considerable progress in reducing NMR below 20 neonatal deaths per 1,000 live births. From Jharkhand, only two districts were in the lowest NMR range in 2010-11, while six of its districts had NMR levels

below 20 neonatal deaths per 1,000 live births in 2012-13.

7.8 Table 7.3 reports the distribution of districts as per the direction of change experienced in neonatal, infant and under-five mortality from 2010-11 to 2012-13. Out of 284 AHS districts, 216, 245 and 247 districts have experienced reduction in neonatal, infant and under-five mortality rates respectively since 2010-11. When compared to baseline estimates, 68 out of 284 districts did not experience any reduction in the neonatal mortality, making the reduction of this a more prominent concern. Notably, in 46 of these districts NMR has increased between 2010-11 and 2012-13. Infant and under-five mortality rates have also increased in 23 and 29 districts. All districts in Bihar and Chhattisgarh have shown improvements over the base level estimates. Out of the 70 districts of Uttar Pradesh, 34 have not shown any improvements in NMR when compared to the 2010-11 estimates. Also, 20 districts have not experienced reductions in infant and under-five mortality rates.

Table 7.3: District-wise trends in Child Mortality Rates

The number of districts in each State when the direction of change in neo-natal, infant and under five mortality rate is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates

State	Neonatal mortality rate			Infant mortality rate			Under-five mortality rate		
	Increase	No change	Decrease	Increase	No change	Decrease	Increase	No change	Decrease
Assam	4	2	17	2	0	21	2	0	21
Bihar	0	0	37	0	0	37	0	0	37
Chhattisgarh	0	0	16	0	0	16	0	0	16
Jharkhand	1	1	16	0	1	17	0	0	18
Madhya Pradesh	4	2	39	1	0	44	1	0	44
Odisha	3	1	26	2	0	28	2	0	28
Rajasthan	8	2	22	5	3	24	7	1	24
Uttar Pradesh	22	12	36	11	9	50	15	5	50
Uttarakhand	4	2	7	2	3	8	2	2	9

7.9 Figure 7.2 presents the State-wise distribution of 100 districts with highest neonatal, infant and under-five mortality rates between 2010-11 and 2012-13. It is expected that the share of each State should correspond to its share amongst all

the AHS districts. However, it is observed that in terms of neonatal, infant and under-five mortality rates, Uttar Pradesh accounts for 45, 40 and 44 districts respectively among the 100 worst performing districts, which is greater than its

share amongst the total AHS districts. Similarly, Madhya Pradesh has a significant number of districts with very high mortality rates. In 2012-13, Uttar Pradesh and Madhya Pradesh jointly account for 73, 75 and 71 of the total 100 worst

performing districts in NMR, IMR and UFMR. Odisha and Rajasthan have a similar number of districts among the worst 100 performers whereas the contributions of Assam, Bihar, Uttarakhand and Chhattisgarh are much smaller.

Figure 7.2: State-wise distribution of 100 districts with highest mortality rates in 2010-11 and 2012-13

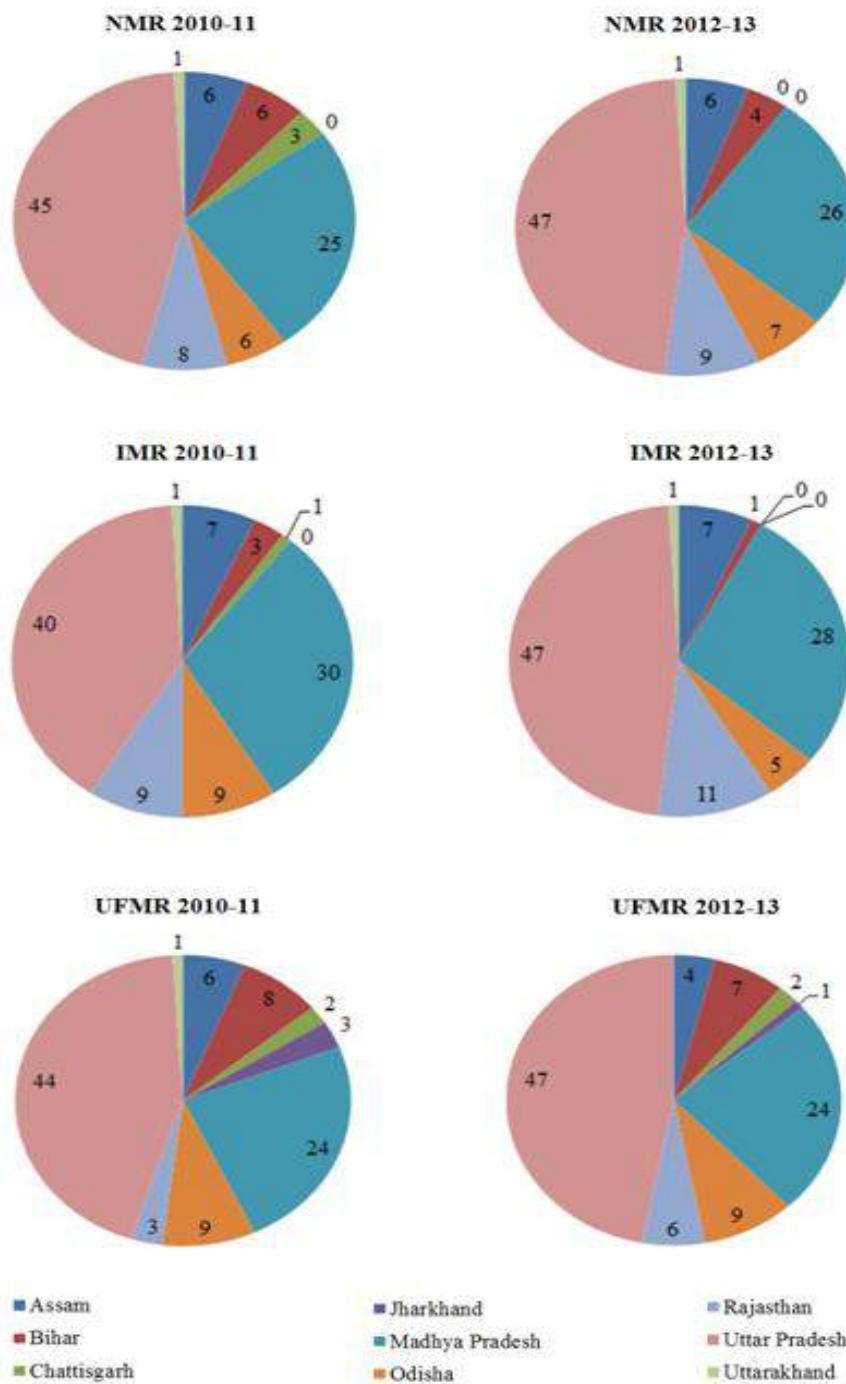


Table 7.4: List of 100 districts with highest neonatal, infant and under-five mortality rates, 2012-13

	State	District	State	District	State	No.
1	Odisha	Balangir (71)	Odisha	Balangir (97)	Odisha	Kandhamal (139)
2	UP	Siddharthnagar (70)	UP	Shrawasti (96)	UP	Shrawasti (130)
3	UP	Shrawasti (68)	UP	Faizabad (88)	MP	Panna (127)
4	UP	Budaun (65)	UP	Balrampur (87)	MP	Satna (121)
5	UP	Faizabad (65)	UP	Siddharthnagar (87)	UP	Chitrakoot (119)
6	UP	Ghazipur (64)	MP	Panna (85)	UP	Hardoi (118)
7	UP	Pratapgarh (64)	UP	Budaun (84)	UP	Balrampur (117)
8	MP	Panna (61)	UP	Pratapgarh (84)	UP	Kheri (117)
9	UP	Kaushambi (61)	MP	Satna (83)	UP	Siddharthnagar (116)
10	UP	Kushinagar (61)	Odisha	Kandhamal (82)	UP	Faizabad (115)
11	UP	Maharajganj (61)	UP	Kaushambi (82)	UP	Lalitpur (114)
12	UP	Allahabad (60)	UP	S R Nagar (Bhadoli) (82)	UP	Sitapur (114)
13	UP	Balrampur (60)	UP	Allahabad (81)	UP	Kaushambi (113)
14	UP	Basti (60)	UP	Basti (81)	MP	Sidhi (112)
15	UP	Jaunpur (59)	UP	Hardoi (81)	Odisha	Balangir (111)
16	UP	S R Nagar (Bhadoli) (59)	UP	Kushinagar (80)	UP	Budaun (108)
17	UP	Mau (58)	UP	Mirzapur (80)	MP	Damoh (106)
18	UP	Shahjahanpur (58)	UP	Shahjahanpur (80)	UP	Basti (106)
19	MP	Sagar (57)	UP	Sitapur (80)	UP	S R Nagar (Bhadoli) (106)
20	MP	Satna (57)	UP	Kannauj (79)	UP	Bahraich (105)
21	UP	Azamgarh (57)	UP	Bareilly (78)	UP	Mirzapur (105)
22	UP	J P Nagar (57)	UP	Farrukhabad (78)	UP	Allahabad (104)
23	UP	Mirzapur (57)	UP	Kheri (78)	UP	Bareilly (104)
24	UP	Chandauli (56)	UP	Maharajganj (78)	UP	Pratapgarh (104)
25	UP	Kannauj (55)	UP	Chandauli (77)	UP	Kannauj (102)
26	UP	Kheri (55)	UP	Ghazipur (77)	Assam	Kokrajhar (101)
27	UP	Deoria (54)	UP	Saharanpur (76)	Odisha	Puri (101)
28	UP	Farrukhabad (54)	MP	Guna (75)	MP	Rewa (100)
29	UP	Gonda (54)	Odisha	Puri (75)	MP	Shivpuri (100)
30	UP	Saharanpur (54)	UP	Jaunpur (75)	UP	Shahjahanpur (100)
31	UP	Sitapur (54)	Assam	Kokrajhar (74)	MP	Umaria (99)
32	MP	Damoh (53)	UP	Azamgarh (74)	UP	Kushinagar (99)
33	Rajasthan	Barmer (53)	MP	Datia (73)	UP	Saharanpur (99)
34	UP	Lalitpur (53)	UP	Lalitpur (73)	UP	Sonbhadra (99)
35	Rajasthan	Jalor (52)	UP	Mau (73)	MP	Sheopur (98)
36	UP	Ballia (52)	UP	Pilibhit (73)	Odisha	Rayagada (98)
37	UP	Barabanki (52)	MP	Sheopur (72)	UP	Chandauli (98)
38	UP	Bareilly (52)	Rajasthan	Jalor (72)	UP	Farrukhabad (98)
39	UP	Hardoi (52)	UP	J P Nagar (72)	Bihar	Sitamarhi (97)
40	UP	Sonbhadra (52)	UP	Varanasi (72)	UP	Barabanki (97)
41	MP	Sidhi (51)	MP	Damoh (71)	UP	Gonda (97)
42	UP	Aligarh (51)	MP	Shahdol (71)	UP	Jalaun (97)
43	Assam	Dhubri (50)	UP	Gonda (71)	Odisha	Khordha (96)
44	UP	Pilibhit (50)	Assam	Darrang (70)	UP	Banda (96)
45	UP	Varanasi (50)	Rajasthan	Barmer (70)	UP	Maharajganj (96)
46	UP	SantKabir Nagar (49)	UP	Aligarh (70)	Bihar	Khagaria (95)
47	MP	Raisen (48)	UP	Deoria (70)	MP	Dindori (95)
48	MP	Vidisha (48)	Assam	Dhubri (69)	Rajasthan	Banswara (95)
49	Rajasthan	Sawaimadhopur (48)	MP	Chhindwara (69)	MP	Datia (94)
50	UP	Bulandshahar (48)	MP	Raisen (69)	MP	East nimar (94)
51	UP	Etah (48)	MP	Sagar (69)	MP	Vidisha (94)
52	UP	Jalaun (48)	MP	Shivpuri (69)	Rajasthan	Jalor (94)
53	MP	Katni (47)	Rajasthan	Karauli (69)	UP	Ghazipur (94)

	State	District	State	District	State	No.
54	Rajasthan	Bundi (47)	UP	Ballia (69)	UP	Kanpur Dehat (94)
55	Rajasthan	Chittaurgarh (47)	UP	Sonbhadra (69)	MP	Guna (93)
56	UP	Ambedkarnagar (47)	MP	Mandla (68)	Bihar	Madhepura (92)
57	UP	Bijnor (47)	MP	Rewa (68)	MP	Ratlam (92)
58	Assam	Nalbari (46)	UP	Barabanki (68)	MP	Sagar (92)
59	MP	Balaghat (46)	UP	Bulandshahar (68)	UP	J P Nagar (92)
60	MP	Chhatarpur (46)	MP	East nimar (67)	Assam	Darrang (91)
61	MP	Guna (46)	MP	Sehore (67)	Bihar	Purnia (91)
62	MP	Mandla (46)	MP	Seoni (67)	Rajasthan	Udaipur (91)
63	MP	Seoni (46)	MP	Sidhi (67)	UP	Jaunpur (91)
64	Odisha	Bargarh (46)	Odisha	Dhenkanal (67)	UP	Pilibhit (91)
65	Odisha	Debagarh (46)	Odisha	Khordha (67)	UP	SantKabir Nagar (91)
66	Odisha	Dhenkanal (46)	Rajasthan	Sawaimadhopur (67)	Chhattisgarh	Surguja (90)
67	Rajasthan	Bhilwara (46)	UP	Chitrakoot (67)	UP	Aligarh (90)
68	Rajasthan	Jhalawar (46)	UP	Etah (67)	UP	Varanasi (90)
69	UP	Gorakhpur (46)	MP	Barwani (66)	MP	Barwani (89)
70	UP	Moradabad (46)	MP	Dindori (66)	UP	Azamgarh (89)
71	Bihar	Madhepura (45)	UP	Bahraich (66)	UP	Bulandshahar (89)
72	MP	Chhindwara (45)	Assam	Karimganj (65)	MP	Raisen (88)
73	MP	Rewa (45)	MP	Katni (65)	Assam	Dhubri (87)
74	Odisha	Baudh (45)	MP	Ratlam (65)	Assam	Hailakandi (87)
75	Rajasthan	Karauli (45)	MP	Vidisha (65)	Jharkhand	Pashchimisinghbhum (87)
76	UP	Chitrakoot (45)	Rajasthan	Bundi (65)	Odisha	Ganjam (87)
77	UP	Rampur (45)	Rajasthan	Sirohi (65)	MP	Jhabua (86)
78	Uttarakhand	Haridwar (45)	UP	Jalaun (65)	UP	Etah (86)
79	Assam	Karimganj (44)	UP	Kanpur Dehat (65)	UP	Mau (86)
80	Bihar	Khagaria (44)	Bihar	Madhepura (64)	UP	Rampur (86)
81	Bihar	Kishanganj (44)	MP	Jhabua (64)	MP	Seoni (85)
82	MP	Betul (44)	Rajasthan	Bhilwara (64)	MP	Shahdol (85)
83	MP	Dindori (44)	UP	Moradabad (64)	Odisha	Baudh (85)
84	MP	Hoshangabad (44)	Uttarakhand	Haridwar (64)	Odisha	Cuttack (85)
85	MP	Sehore (44)	Assam	Marigaon (63)	Rajasthan	Barmer (85)
86	MP	Shahdol (44)	MP	Chhatarpur (63)	Rajasthan	Bundi (85)
87	Rajasthan	Sirohi (44)	MP	Harda (63)	Rajasthan	Sirohi (85)
88	UP	Bahraich (44)	Rajasthan	Chittaurgarh (63)	UP	Etawah (85)
89	Assam	Golaghat (43)	Rajasthan	Dungarpur (63)	Bihar	Kishanganj (84)
90	Assam	Kokrajhar (43)	Rajasthan	Jhalawar (63)	Bihar	Muzaffarpur (84)
91	Assam	Sonitpur (43)	Rajasthan	Udaipur (63)	Chhattisgarh	Jashpur (84)
92	MP	Datia (43)	UP	Ambedkarnagar (63)	MP	Mandla (84)
93	MP	East nimar (43)	UP	SantKabir Nagar (63)	MP	Sehore (84)
94	MP	Sheopur (43)	Assam	Nagaon (62)	MP	Tikamgarh (84)
95	MP	Shivpuri (43)	MP	Narsimhapur (62)	UP	Auraiya (84)
96	MP	Tikamgarh (43)	UP	Bijnor (62)	MP	Katni (83)
97	MP	Umaria (43)	UP	Gorakhpur (62)	Odisha	Nabarangapur (83)
98	Odisha	Kendrapara (43)	Assam	Sonitpur (61)	UP	Deoria (83)
99	Odisha	Khordha (43)	MP	Betul (61)	UP	Unnao (83)
100	Bihar	Supaul (42)	MP	Tikamgarh (61)	Bihar	Saharsa (82)

7.10 Jharkhand had no district among the 100 worst performing ones in terms of NMR or IMR. While only one of its districts was identified in the list in terms of U5MR. Also, only one district of Uttarakhand is in the list of 100 districts with

highest NMR and IMR. A comparative assessment suggests that between 2010-11 and 2012-13, the share of Uttar Pradesh in the 100 highest IMR districts increased from 40 to 47. Odisha witnessed substantial improvements at the

district-level as the share of districts fell from 9 per cent to 5 per cent. Although Odisha had a much lower representation in the list of 100 worst performing districts, it also had the highest level of NMR (Bolangir), IMR (Bolangir) and UFMR (Kandhamal).

7.3. Inter-District and Rural-Urban Disparities

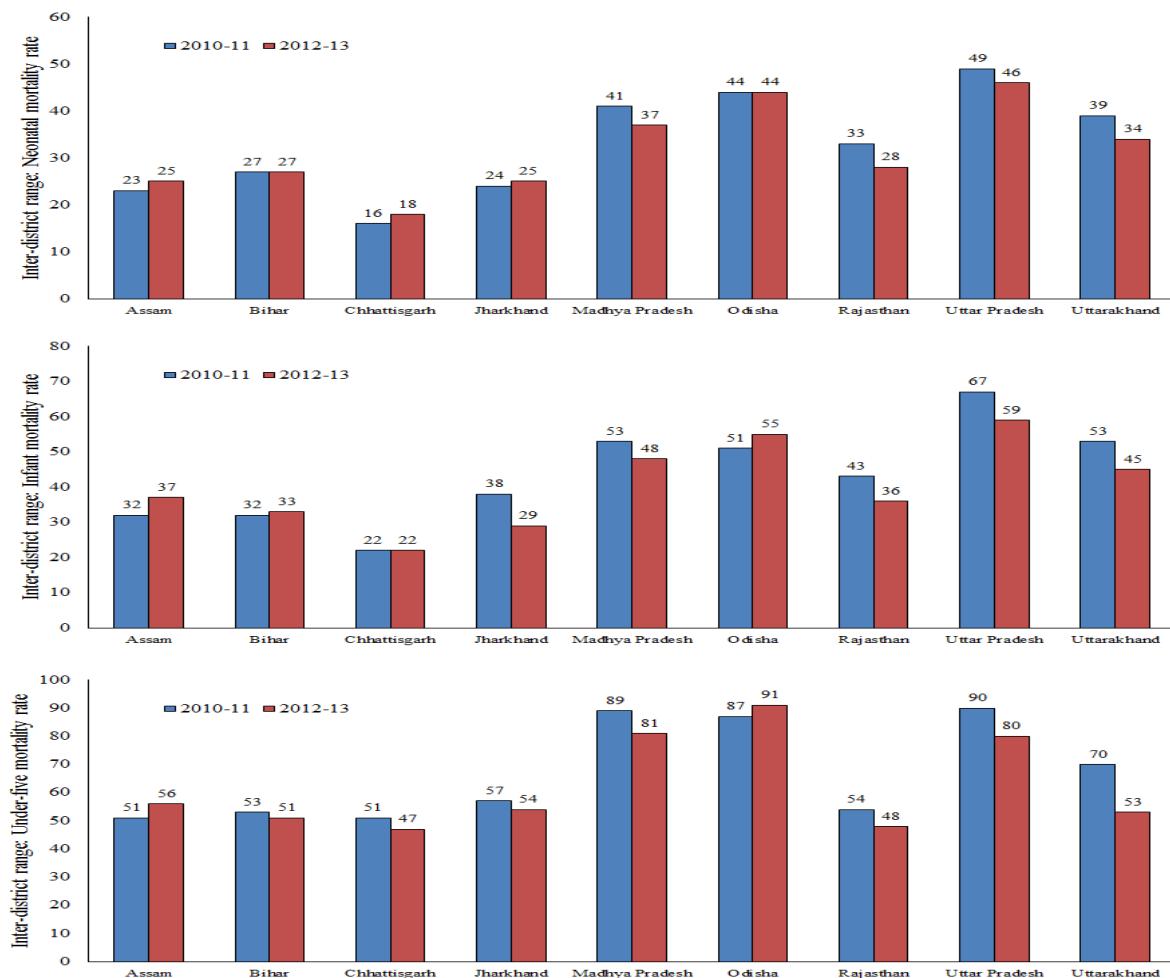
7.11 Figure 7.3 presents the State-wise inter-district ranges for neonatal, infant and under-five mortality rates for the years 2010-11 and 2012-13. The inter-district ranges in NMR, IMR and

UFMR vary considerably across States. In 2010-11, while Chhattisgarh had the lowest inter-district range of 16 points, 22 points and 51 points for NMR, IMR and UFMR, Uttar Pradesh had the highest inter-district range of 49 points, 67 points and 90 points for the same.

7.12 AHS 2012-13 finds that the inter-district range in case of NMR marginally increased in three States, remained constant in two States and decreased in four States. However, in case of UFMR, seven States registered a reduction in inter-district range between 2010-11 and 2012-13.

Figure 7.3: District level disparity in Child Mortality Rates

State-wise comparison between the inter-district range of neo-natal, infant and under five mortality rates in 2010-11 and 2012-13



7.13 Table 7.5 reports the coefficient of variation (CV) for district neonatal, infant and under-five mortality rates by State and survey year 2010-11, 2011-12 and 2012-13. The CV considers the distance of each district from the overall average and is a simple indicator with higher values of CV indicating higher regional disparity and vice versa. The CV values for 2010-11 suggest that Uttarakhand has the highest inter-district variations in NMR (CV 0.47), IMR (CV 0.43) and UFMR (CV 0.45). Uttarakhand also had the highest CV values for these indicators over 2011-

12 and 2012-13. Nevertheless, it may be noted that the magnitude of inter-district variations in Uttarakhand as revealed by the CV, have registered a decline since the baseline. Assam had the lowest CV for district level variations in NMR. Inter-district variations in IMR and UFMR were observed to be lowest in Bihar and Rajasthan respectively. Overall, the States show mixed patterns of reduction and increase in inter-district variations though Jharkhand recorded a relatively greater increase in the magnitude of CV.

Table 7.5: Coefficient of Variation of District Level Child Mortality Rates in each State

State-wise comparison between the coefficient of variation of district level neo-natal, infant and under five mortality rates in 2010-11, 2011-12 and 2012-13

State	2010-11			2011-12			2012-13		
	NMR	IMR	UFMR	NMR	IMR	UFMR	NMR	IMR	UFMR
Assam	0.15	0.14	0.15	0.16	0.16	0.18	0.17	0.17	0.19
Bihar	0.19	0.12	0.17	0.20	0.12	0.17	0.22	0.14	0.18
Chhattisgarh	0.16	0.13	0.19	0.16	0.13	0.18	0.17	0.14	0.19
Jharkhand	0.27	0.26	0.29	0.29	0.28	0.31	0.31	0.29	0.34
Madhya Pradesh	0.20	0.15	0.19	0.19	0.15	0.20	0.18	0.14	0.20
Odisha	0.22	0.19	0.23	0.23	0.20	0.24	0.23	0.21	0.26
Rajasthan	0.17	0.13	0.12	0.17	0.13	0.12	0.19	0.15	0.13
Uttar Pradesh	0.25	0.21	0.20	0.24	0.20	0.20	0.24	0.20	0.20
Uttarakhand	0.47	0.43	0.45	0.42	0.40	0.40	0.40	0.37	0.37

Table 7.6: Rural-urban differentials in Child Mortality (2012-13)

State-wise comparison of neo-natal, infant and under five mortality rates in rural and urban areas

State	Neonatal mortality rate			Infant mortality rate			Under-five mortality rate		
	Rural	Urban	R/U	Rural	Urban	R/U	Rural	Urban	R/U
Assam	40	21	1.90	59	31	1.90	77	36	2.14
Bihar	32	26	1.23	49	41	1.20	72	51	1.41
Chhattisgarh	34	25	1.36	48	34	1.41	65	40	1.63
Jharkhand	26	14	1.86	40	22	1.82	57	29	1.97
Madhya Pradesh	46	30	1.53	68	47	1.45	93	57	1.63
Odisha	39	23	1.70	59	37	1.59	80	48	1.67
Rajasthan	40	26	1.54	59	38	1.55	81	52	1.56
Uttar Pradesh	52	35	1.49	72	51	1.41	97	63	1.54
Uttarakhand	30	23	1.30	42	31	1.35	52	37	1.41

7.14 Table 7.6 reports the rural-urban differentials in neonatal, infant and under-five mortality during the period 2012-13. While Uttar Pradesh showed the highest NMR of 52 deaths and 35 deaths per 1,000 live births for rural and urban areas respectively, Jharkhand had the lowest NMR of 26 deaths and 14 deaths per 1,000 live births for rural and urban areas respectively. Similar patterns of high infant and under-five mortality are observed in both rural and urban areas of Uttar Pradesh. Madhya Pradesh also has relatively higher levels of

mortality rates in both rural and urban areas. Jharkhand, Uttarakhand and Chhattisgarh display relatively lower levels of IMR and UFMR among all the AHS States. Further, in order to highlight the disparities between rural and urban areas of the States, the ratio of rural-urban mortality rates has been used. In case of NMR, the rural-urban ratio is the lowest in Bihar (1.23) and the highest in Assam (1.90), followed by Jharkhand (1.86) and Odisha (1.70). A similar ranking of States in terms of rural-urban ratio is observed in case of both IMR and UFMR.

Table 7.7: Districts with highest and lowest mortality rates in rural and urban areas, 2012-13

State	Rural		Urban	
	Highest (Rate)	Lowest (Rate)	Highest (Rate)	Lowest (Rate)
Neonatal mortality rate				
Assam	Dhubri (51)	Dhemaji (27)	Tinsukia (35)	Dhemaji (10)
Bihar	Madhepura (46)	Patna (20)	Saran (42)	Patna (14)
Chhattisgarh	Korba (44)	Bilaspur (26)	Raigarh (47)	Durg (14)
Jharkhand	Lohardaga (41)	Hazaribagh (15)	Gumla (24)	Hazaribagh (12)
Madhya Pradesh	Panna (62)	Dhar (32)	Shivpuri (58)	Chhatarpur (19)
Odisha	Balangir (73)	Nabarangapur (29)	Balangir(54)	Rayagada (11)
Rajasthan	Barmer (54)	Jaisalmer (28)	Karauli (48)	Ajmer (15)
Uttar Pradesh	Siddharthnagar (70)	Hamirpur (26)	Chandauli (73)	Bahraich (14)
Uttarakhand	Haridwar (49)	Rudraprayag (11)	Haridwar (35)	Chamoli (8)
Infant mortality rate				
Assam	Kokrajhar (78)	Dhemaji (38)	North cachar hills (46)	Kamrup (16)
Bihar	Madhepura (65)	Patna (35)	Vaishali (75)	Patna (25)
Chhattisgarh	Mahasamund (59)	Bilaspur (37)	Raigarh (59)	Durg (18)
Jharkhand	Pashchimisinghbhum (57)	Kodarma (27)	Sahibganj (33)	Dhanbad (19)
Madhya Pradesh	Satna (92)	Indore (52)	Shivpuri (80)	Seoni (30)
Odisha	Balangir(99)	Jharsuguda (45)	Balangir (71)	Ganjam (20)
Rajasthan	Jalor (73)	Kota (46)	Karauli (70)	Kota (26)
Uttar Pradesh	Shrawasti (96)	Hamirpur (45)	S R Nagar (93)	Jhansi (28)
Uttarakhand	Haridwar (70)	Rudraprayag (19)	Haridwar (70)	Chamoli (11)
Under-five mortality rate				
Assam	Kokrajhar (107)	Dhemaji (47)	KarbiAnglong (52)	Kamrup (19)
Bihar	Sitamarhi (102)	Aurangabad (51)	Vaishali (96)	Patna (29)
Chhattisgarh	Surguja (93)	Bilaspur (52)	Raigarh (60)	Durg (23)
Jharkhand	Pashchimisinghbhum (96)	Kodarma (33)	Sahibganj (40)	Purbasinghbhum (24)
Madhya Pradesh	Satna (138)	Jabalpur (59)	Shivpuri (109)	Mandla (37)
Odisha	Kandhamal (146)	Baleshwar (52)	Puri (78)	Ganjam (30)
Rajasthan	Udaipur (101)	Kota (65)	Karauli (75)	Tonk (30)
Uttar Pradesh	Shrawasti (130)	Meerut (65)	S R Nagar (109)	Rae Bareli (39)
Uttarakhand	Haridwar (88)	Almora (25)	Champawat (60)	Chamoli (11)

7.15 Table 7.7 lists the names of the districts with highest and lowest neonatal, infant and under-five mortality rates in rural and urban areas during 2012-13. Balangir district in Odisha has the highest rural NMR of 73 deaths per 1,000 live births whereas Rudraprayag district in Uttarakhand has the lowest rural NMR of 11 deaths per 1,000 live births. Likewise, Chandauli district of Uttar Pradesh is estimated to have the highest urban NMR (73 deaths per 1,000 live births) and Chamoli of Uttarakhand the lowest NMR (8 deaths per 1,000 live births). As regards IMR, Bolangir district of Odisha has the highest rural IMR (99 deaths per 1,000 live births). Rudraprayag district of Uttarakhand has lowest rural IMR (19 deaths per 1,000 live births).

7.16 Further, S R Nagar district of Uttar Pradesh is noted to have the highest urban IMR (93 deaths per 1,000 live births) and Chamoli of Uttarakhand the lowest urban IMR (11 deaths per 1,000 live births). Highest rural UFMR is estimated for Kandhamal district of Odisha (146 deaths per 1,000 live births) and highest urban UFMR for Shivpuri of Madhya Pradesh and S R

Nagar of Uttar Pradesh (109 deaths per 1,000 live births). Almora (25 deaths per 1,000 live births) and Chamoli (11 deaths per 1,000 live births) districts of Uttarakhand display the lowest UFMR for rural and urban areas respectively.

7.4. Gender Differentials

7.17 Gender differentials in health and mortality outcomes constitute a prominent developmental concern. Table 7.8 reports the State-wise IMR and UFMR estimates for male and female child for 2012-13 and also the female-male ratio differential in mortality rates. IMR among males and females is the highest in Uttar Pradesh (67 and 69 infant deaths per 1,000 live births) and the lowest in Jharkhand (36 and 37 infant deaths per 1,000 live births, respectively). Uttar Pradesh continues to display a higher level of under-five mortality among males and females (86 and 95 under five deaths per 1,000 live births, respectively) whereas, as suggested by 2012-13 estimates, Uttarakhand has the lowest UFMR among males and females in the AHS States (47 and 49 under five deaths per 1,000 live births).

Table 7.8: Female-male Differentials in Child Mortality Rates (2012-13)
State-wise comparison of neo-natal, infant and under five mortality rates across male and female

State	Infant mortality rate			Under-five mortality rate		
	Female	Male	F/M	Female	Male	F/M
Assam	56	55	1.02	72	71	1.01
Bihar	49	47	1.04	73	67	1.09
Chhattisgarh	49	43	1.14	63	58	1.09
Jharkhand	37	36	1.03	52	49	1.06
Madhya Pradesh	65	60	1.08	86	80	1.08
Odisha	59	53	1.11	78	73	1.07
Rajasthan	60	51	1.18	81	68	1.19
Uttar Pradesh	69	67	1.03	95	86	1.10
Uttarakhand	40	39	1.03	49	47	1.04

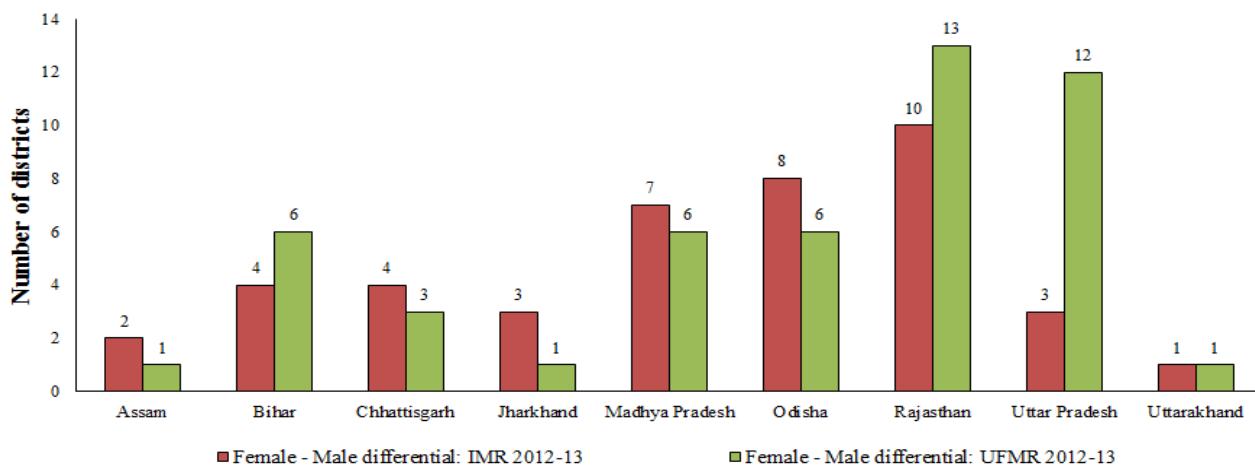
7.18 It may be noted that in all the AHS States, IMR and UFMR among female children is always greater than males although the gap in mortality rate varies considerably across States.

The female disadvantage in infant and child survival is apparent from the gender gap between respective mortality rates. The difference in female and male IMR as well as UFMR is widest

in Rajasthan (9 point and 13 point disadvantage respectively). Odisha, Chhattisgarh and Madhya Pradesh also have higher gender gaps in IMR and Uttar Pradesh, Bihar and Madhya Pradesh have

higher gaps in UFMR. Table 7.8 also reports the female-male ratio differentials in IMR and UFMR, showing similar inferences regarding gender differential in mortality outcomes.

Figure 7.4: Number of districts with high female-male ratio differential in mortality rates, 2012-13



Note: A female to male ratio greater than 1.2 is regarded as high female-male differential

7.19 Figure 7.4 presents the distribution of districts in 2012-13 that had a higher ratio differential (1.2 and above) in IMR and UFMR among females and males. In case of IMR, Rajasthan has 10 districts with a ratio of 1.2, followed by Odisha and Madhya Pradesh with 8 and 7 districts respectively. Uttarakhand had the lowest number of districts. In case of UFMR too, Rajasthan has the highest number of districts (13) followed by Uttar Pradesh (12) with an adverse ratio of 1.2, closely followed by Uttar Pradesh (12 districts). Assam, Jharkhand and Uttarakhand had only one district each with higher gender differential in UFMR. In Bihar the number of districts having higher female disadvantage is greater in case of UFMR than IMR. A similar pattern of greater female disadvantage in UFMR is observed in Rajasthan and Uttar Pradesh. Uttar Pradesh in particular had a considerably higher number of districts with greater gender differentials in UFMR (12 districts) than IMR (3 districts).

7.5. Association with Developmental Indicators

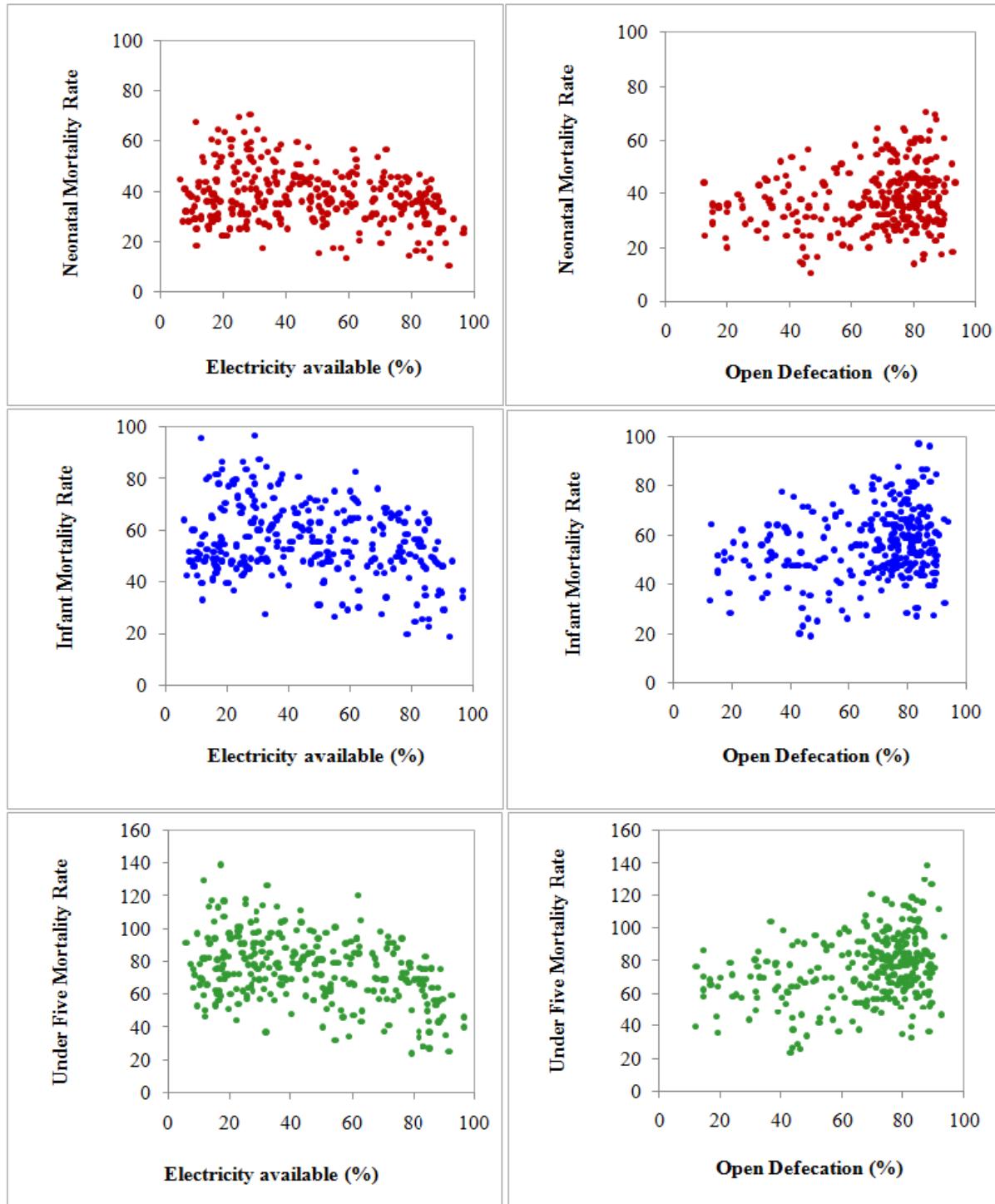
7.20 A number of social and developmental factors affect child health and survival. Literacy, for instance, helps mothers to make informed choices and improving their awareness about child nutrition, personal hygiene, immunisation, birth spacing, maternal skills, breast-feeding and overall health. Educated couples are also more likely to access health facilities such as those for ante-natal care, post natal care and immunization and to earn higher incomes which would in turn provide them with better living conditions, better food and better health services for their children.

7.21 Figure 7.5 shows that districts reporting higher levels of open defecation tend to have higher levels of neonatal, infant and child mortality with a large number of AHS districts falling under this high open defecation category. However, it may be noted that across districts

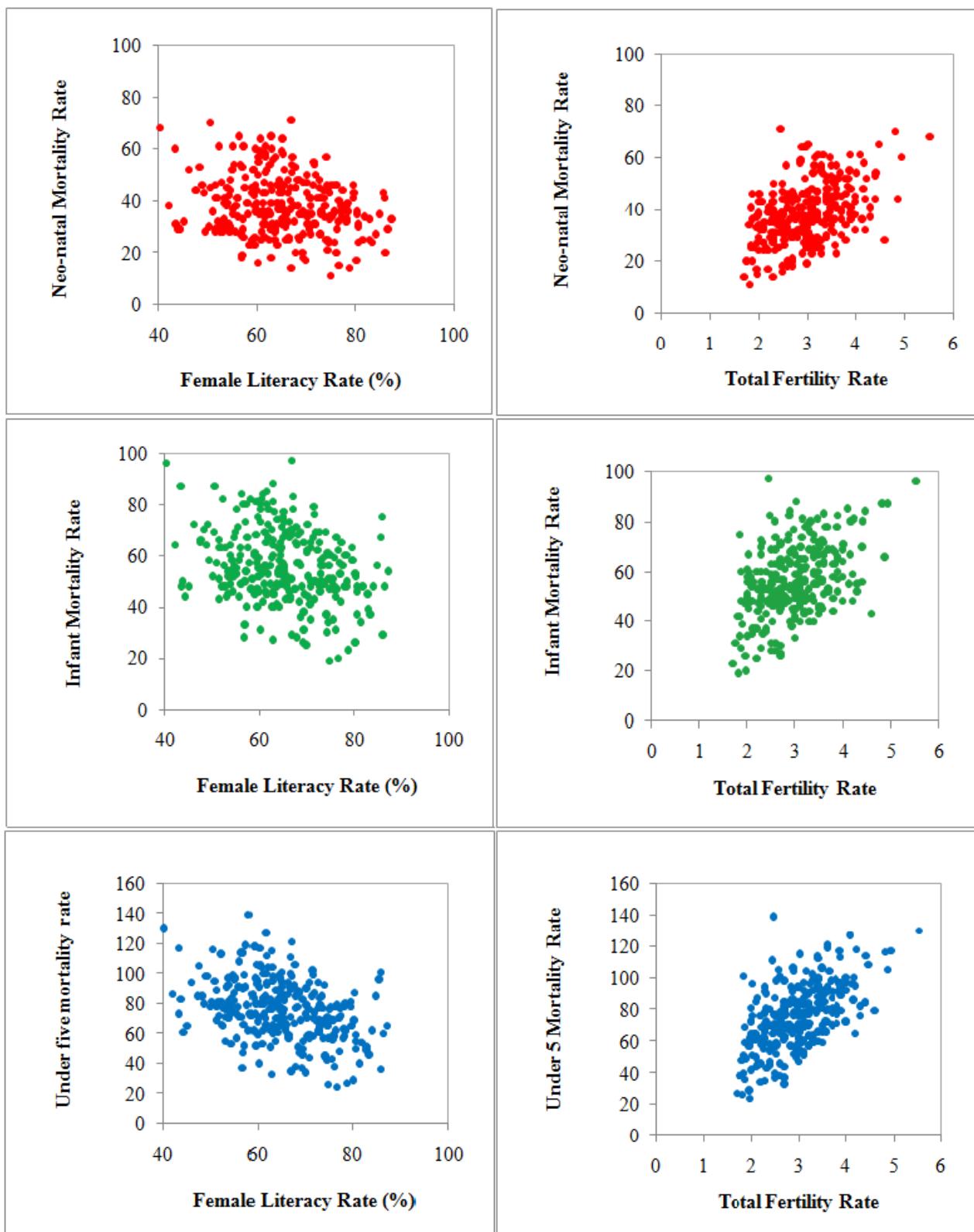
with very high levels of open defecation (such as 80 per cent households reporting open defecation), there are considerable variations.

Thus it is important to explore the possible impact of reduced open defecation on child mortality across such districts.

Figure 7.5: Association of district-level mortality rates with access to electricity and open defecation



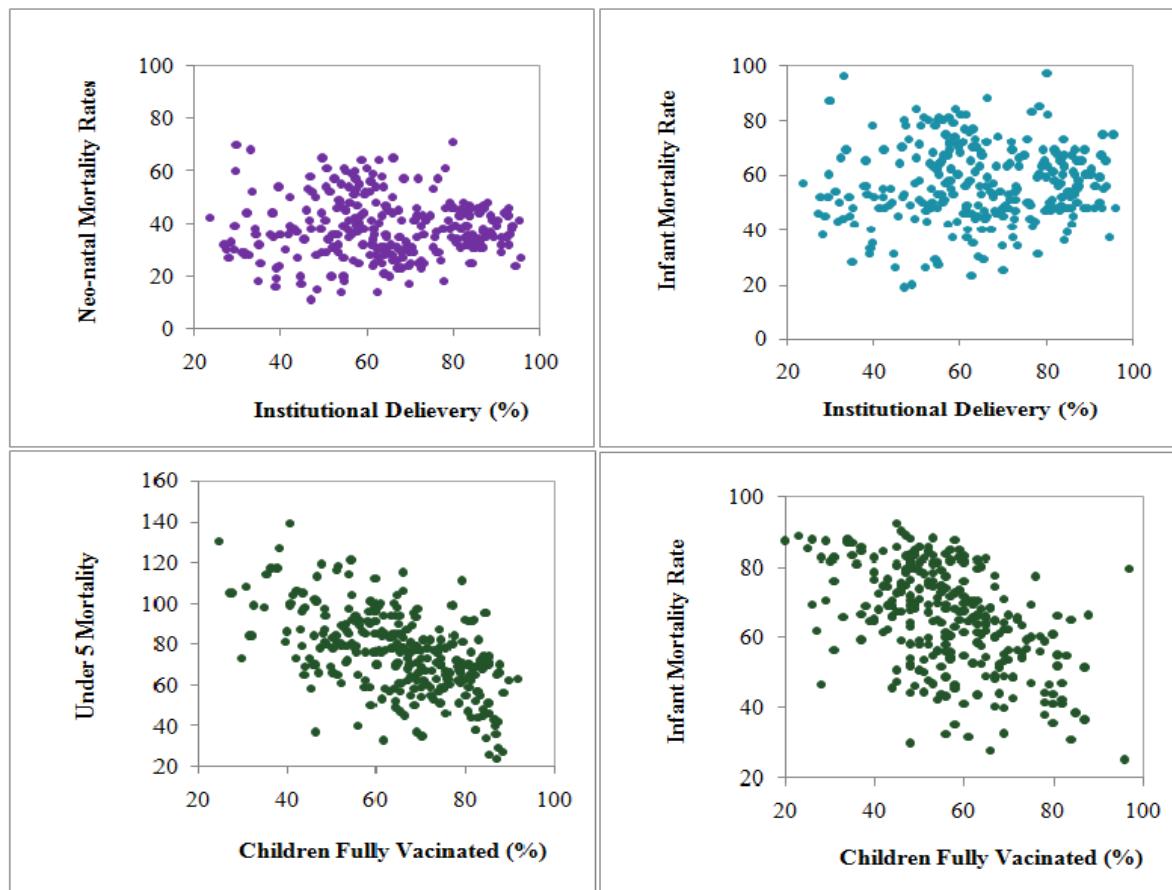
Note: District level electricity and open defecation indicators are based on Census of India, 2011

Figure 7.6: Association of district-level mortality rates with female literacy and Total Fertility Rate

7.22 Similarly, access to electricity is a critical variable representing greater coverage of public services and reflecting on the status of poverty and regional development. Access to electricity, in enabling better information dissemination through electronic media and facilitating food preparation and child care, also has a direct impact on child mortality. Such a favourable association of electricity with child survival is apparent from the scatter plot of district level mortality rates and proportion of households reporting access to electricity as a source of lighting. It is clear that expansion of basic infrastructure services such as access to electricity and safe sanitation can play a crucial role in improving child health and survival in backward districts across the AHS States.

7.23 The relation between literacy and mortality rate, both infant and neo-natal, is presented in Figure 7.6. Districts with high levels of neo-natal mortality rates have low levels of female literacy. However, the relationship does not hold true in case of some districts, implying that factors other than female literacy too determine neo-natal mortality rates. A positive relation exists between neo-natal mortality level and total fertility rate, indicating correlation between the two. A similar pattern can be observed in the case of infant mortality rate. A negative association between under-five mortality rate and female literacy rate can be seen as districts with high levels of under-five mortality generally have low levels of female literacy, and districts with higher fertility rates have high under-five mortality rates.

Figure 7.7: Association of district-level mortality rates with institutional delivery and full vaccination



7.24 Figure 7.7 shows the relation between institutional deliveries and mortality rate. Data shows that neo-natal mortality rate is not dependent on the place of child birth. Mortality rate, both neo-natal and infant, seems to be largely determined by health conditions as comparatively fewer districts show an inverse relation of lower mortality rate with higher institutional deliveries. The association between

mortality and children receiving vaccinations is negative, wherein lower cases of infant and neo-natal mortality can be witnessed in districts with higher levels of vaccinations administered to children. A clear link is thus established between health conditions prevalent in the country and mortality rate. It stresses the need to provide higher healthcare conditions for a considerable reduction in mortality rate.

7.6. Key Findings

- Neonatal deaths constitute the most significant component of child mortality across EAG States and Assam. Further, the estimates based on the three successive AHS suggest that the pace of reduction in NMR is slow and about one in four districts are unable to sustain a consistent pace of reduction in neonatal mortality. Besides, huge inter-State, inter-district and rural-urban disparities in neonatal mortality rates emerge as a fundamental developmental concern.
- Although, since 2010-11 most of the districts show favourable reductions in IMR and UFMR 30 AHS districts continue to have unusually high UFMR exceeding 100 child deaths per 1,000 live births. Districts such as Bolangir in Odisha display very high levels of child mortality and require greater policy attention to reduce such stark intra-State disparities.
- In 2012-13, Uttar Pradesh and Madhya Pradesh jointly account for 73, 75 and 71 of the total 100 worst performing districts in terms of NMR, IMR and UFMR respectively. Odisha has the highest NMR (71 deaths per 1,000 live births in Bolangir), IMR (97 deaths per 1,000 live births in Bolangir) and UFMR (139 deaths per 1,000 live births in Kandhamal) whereas none of the districts from Jharkhand figure in the list in either NMR or IMR.
- Gender differentials in child mortality is a prominent concern across all the nine AHS States. IMR and UFMR among female children are always greater than in males. The gap in female and male IMR and UFMR is widest in Rajasthan (9 point and 13 point disadvantage respectively). Rajasthan also has more districts with higher gender differential in IMR and UFMR.
- District level child mortality and district literacy rates are positively correlated. Furthermore it is noted that higher gender differentials in child mortality are correlated with higher gender gaps in literacy. These associations further contribute to a female disadvantage in case of child survival.
- While a negative association exists between district-level open defecation and child survival, of the one between district-level electricity coverage and child survival is positive. Expansion of basic infrastructure services such as access to electricity and safe sanitation can go a long way towards improving child survival and health among backward districts across EAG States and Assam.

ACUTE AND CHRONIC ILLNESS

8.1. Definition of Indicators

8.1 Acute illness: Acute illness is defined as a disease that has an abrupt onset and is generally short-lived.

8.2 Chronic illness: Chronic illness is a human health condition that is persistent and lasts longer than usual. In most cases, it cannot be cured completely.

8.2. Levels and Trends

8.2.1 Acute and Chronic Illnesses

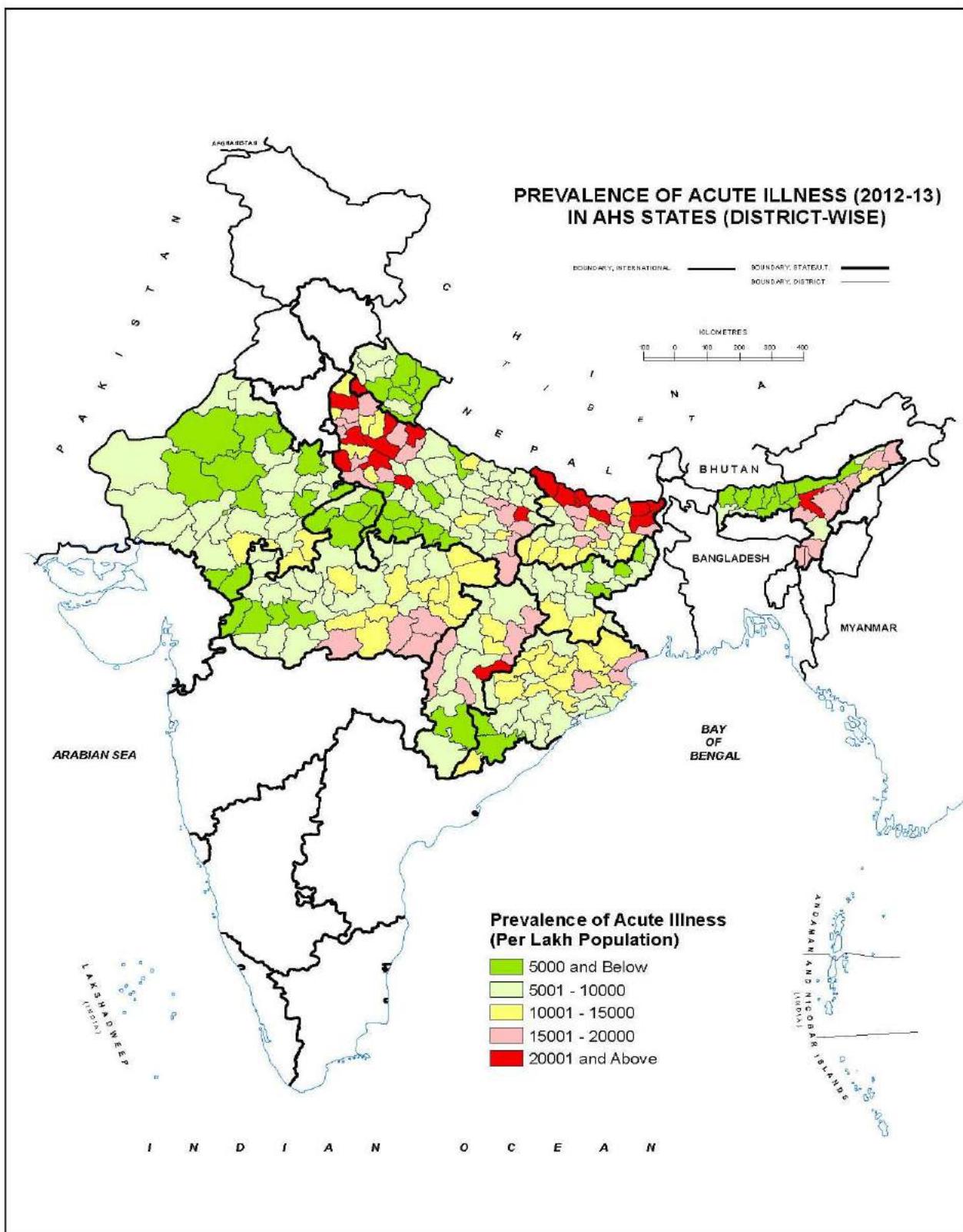
8.3 Table 8.1 presents data for the number of people suffering from acute and chronic illnesses

per 100,000 persons. Assam, Madhya Pradesh and Uttar Pradesh have shown a reduction in the cases of acute illness over the three periods studied: 2010-11, 2011-12 and 2012-13. The highest number of cases is observed in Bihar (14,923), followed by Uttar Pradesh (12,184). At the district level, Rampur district of Uttar Pradesh (35,464) has the highest number of persons reporting acute illness, followed by Sheohar (30,266) district in Bihar. Rajasthan reports the lowest figures at both the State and district level. At the State level, 5,465 per 100,000, and Nagaur district has the lowest figure of 842 per 100,000. The highest absolute increase is observed in Bihar at 2025 cases per 100,000 population and the lowest in Uttarakhand at 79 cases per 100,000 population.

Table 8.1: Levels of Acute and Chronic Illness

Instances of any acute illness and any chronic illness per 100,000 population in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and lowest and highest instances at the district level in 2012-13

State	AHS	AHS	AHS	Absolute Change	District (2012-13)	
	2010-11	2011-12	2012-13		Lowest	Highest
Any Acute Illness (Per 100,000 Population)						
Assam	11225	11180	10256	-969	Sonitpur (2806)	Nagaon (22005)
Bihar	12898	14178	14923	2025	Bhojpur (5550)	Sheohar (30266)
Chhattisgarh	9746	11647	10724	977	Bastar (4655)	Mahasamund (20789)
Jharkhand	5537	7398	7072	1535	Bokaro (4068)	Pashchimi Singhbhum (11813)
Madhya Pradesh	9304	9177	8967	-337	Dewas (3094)	Seoni (19275)
Odisha	9550	9632	10147	598	Koraput (4594)	Bhadrak (17616)
Rajasthan	3547	5300	5465	1918	Nagaur (842)	Jhalawar (10491)
Uttar Pradesh	12561	12050	12184	-377	Jalaun (1925)	Rampur (35464)
Uttarakhand	8448	8540	8527	79	Almora (2169)	Haridwar (26777)
Any Chronic Illness(Per 100,000 Population)						
Assam	9954	12741	15651	5697	Kokrajhar (6964)	Nagaon (25170)
Bihar	8755	9827	10219	1465	Siwan (5084)	Begusarai (18047)
Chhattisgarh	4107	4093	3821	-286	Dantewada (1542)	Dhamtari (6886)
Jharkhand	4349	6578	7413	3064	Gumla (5049)	Dhanbad (12691)
Madhya Pradesh	4446	5286	5441	995	Jhabua (2084)	Bhopal (9412)
Odisha	6636	6769	9417	2782	Khordha (3034)	Puri (21919)
Rajasthan	2201	4228	4299	2098	Nagaur (1793)	Pali (7676)
Uttar Pradesh	7390	8384	10645	3255	Lalitpur (3296)	Mau (18175)
Uttarakhand	8005	9263	8837	832	U S Nagar (5563)	Pithoragarh (13522)

Map 8.1: Prevalence of acute illness (2012-13) in AHS States (district-wise)

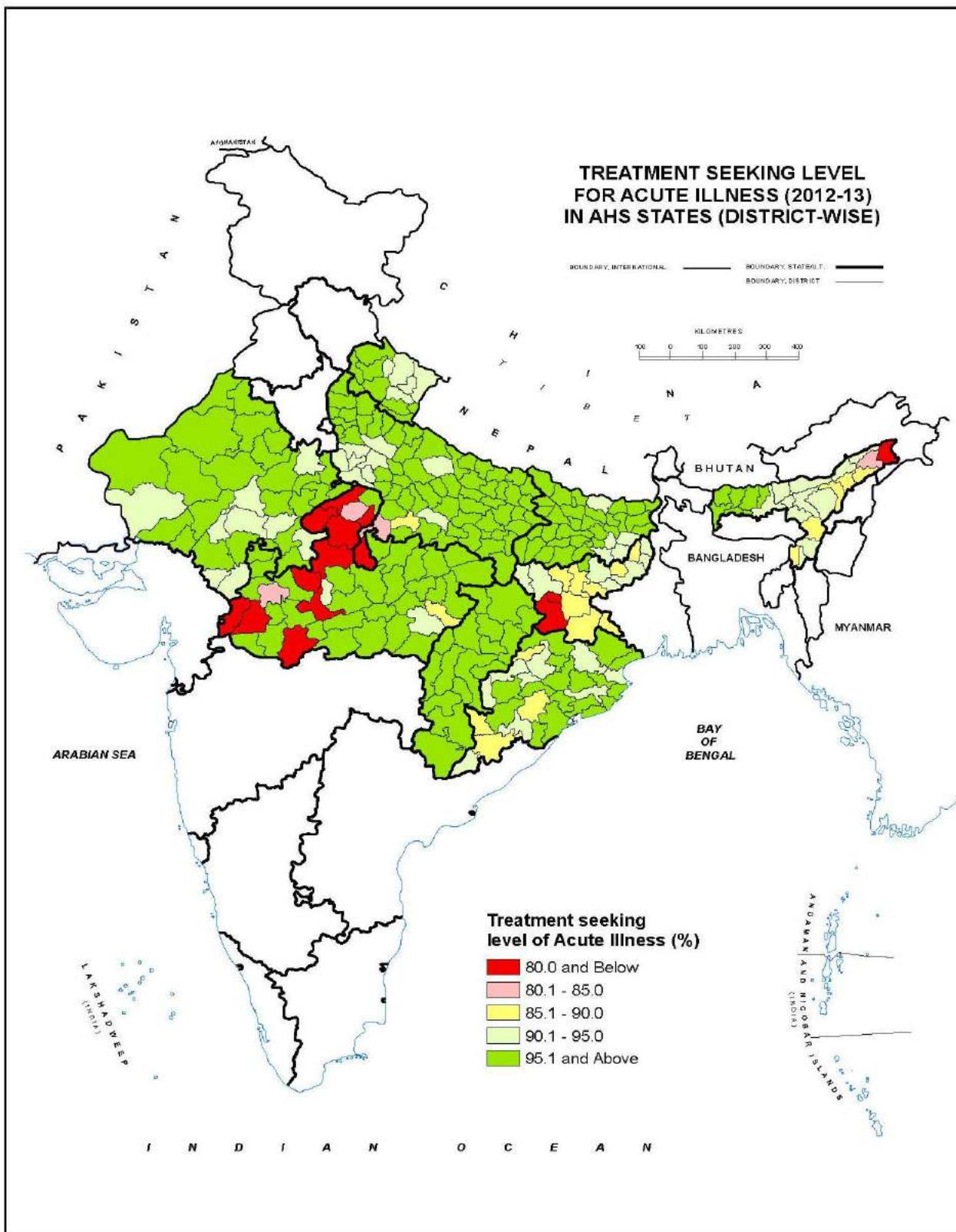
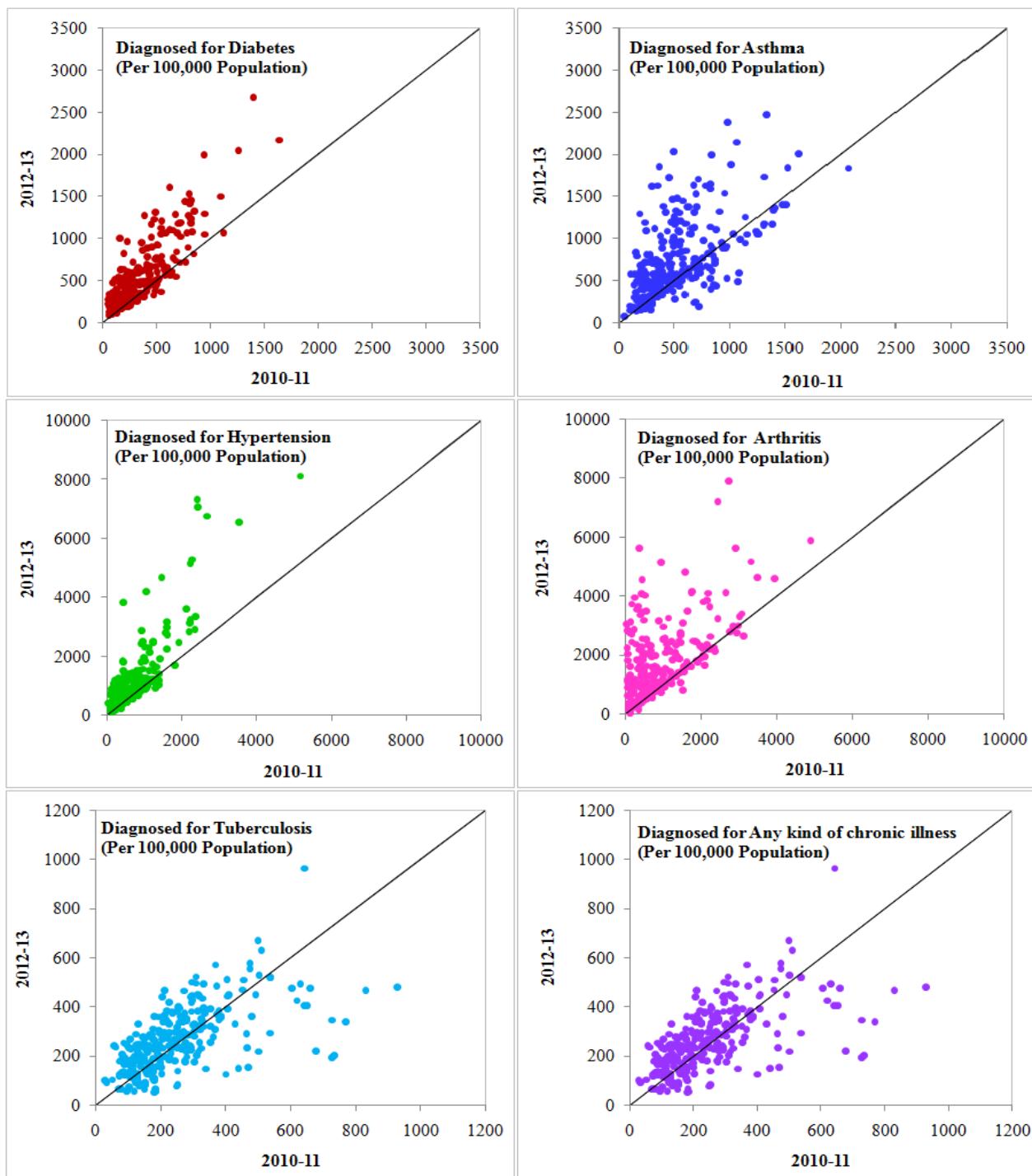
Map 8.2: Treatment seeking level for acute illness (2012-13) in AHS States (district-wise)

Figure 8.1: Different type of chronic illnesses, 2010-11 and 2012-13

8.4 Assam reports not only the highest number of individuals with chronic ailments (15,651) but also the highest absolute increase. Chhattisgarh (3,821) reports the lowest level and is the only State with a moderate decline in the number of

people over the three AHSs. Nagaon district in Assam has the highest cases at 25,170, while Dantewada in Chhattisgarh has the lowest cases of chronic illnesses at 1,542. Figure 8.1 shows a major increase in prevalence of diseases such as

diabetes, tuberculosis, asthma, hypertension, arthritis over the period 2010-11 and 2012-13.

8.5 Table 8.2 shows the percentage of people who received treatment for acute illness and the sources of treatment. There are various avenues of treatment, a prominent one being government establishments. Across the AHS States, a

substantial majority received treatment from any source, of which the percentage of acutely ill individuals obtaining treating from government source is very low especially in Bihar and Uttar Pradesh at 5.2 per cent and 5.4 per cent. The highest percentage is noted in Odisha (51.5 per cent). There are marginal increases and decreases in the source of origin with no tracable patterns.

Table 8.2: Treatment for acute illness

Percentage of acutely ill people receiving treatment from any source and government source in 2010-11 and 2012-13

State	Treatment From Any Source (%)		Treatment From Government Source (%)	
	2010-11	2012-13	2010-11	2012-13
Assam	86.5	89.3	36.1	35.2
Bihar	98	98	10.3	5.2
Chhattisgarh	93.9	99.4	20.1	29.9
Jharkhand	93.3	88.3	11.3	12.6
Madhya Pradesh	87.9	92.6	17.1	20
Odisha	95.9	95.5	52	51.5
Rajasthan	96.1	96.2	35.5	40.9
Uttar Pradesh	97.8	97.4	3.8	5.4
Uttarakhand	96.4	98.9	12.7	17.1

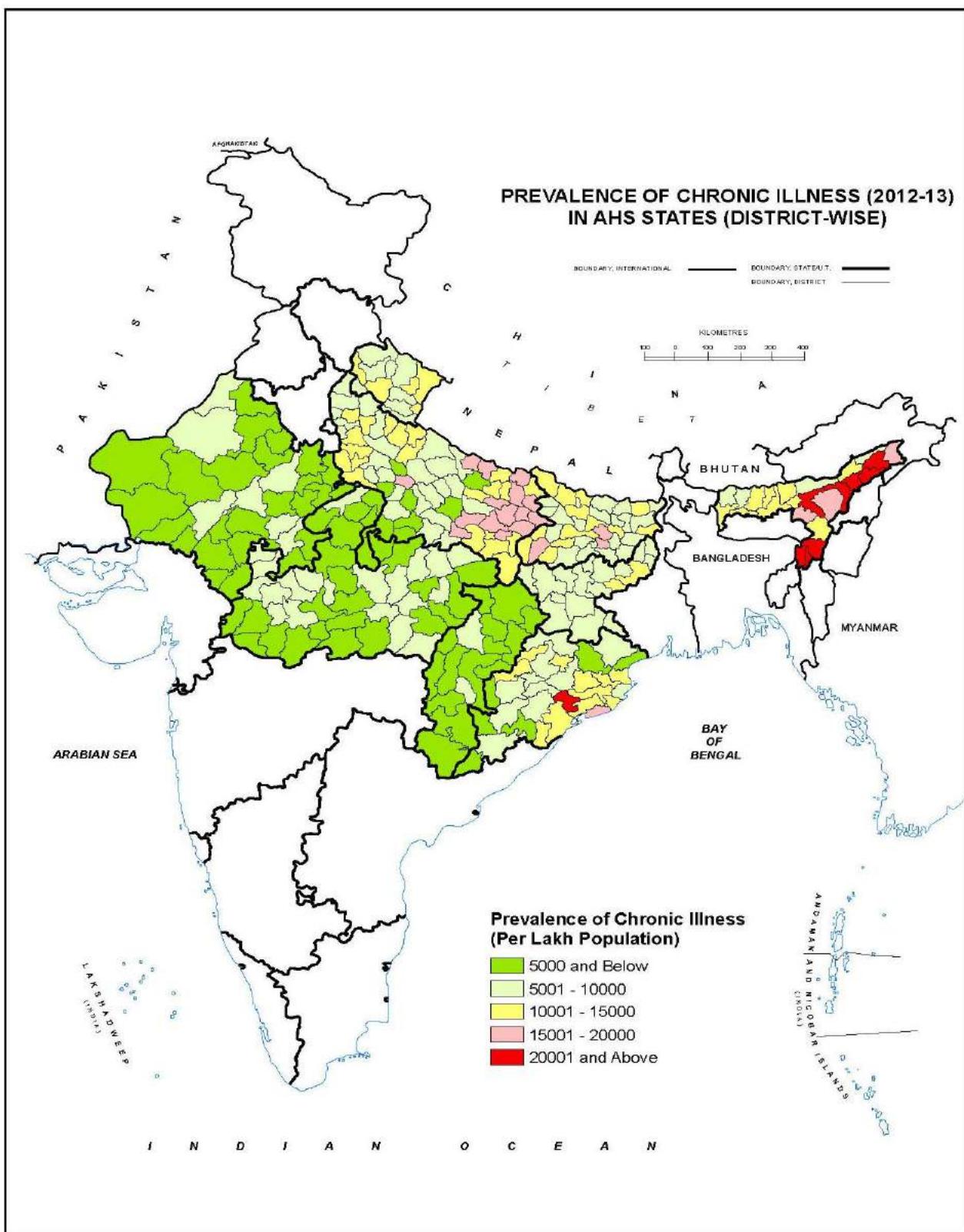
8.6 Table 8.3 presents the percentage of individuals diagnosed for chronic illness who are receiving regular treatment. The rate of people receiving treatment in this case is lower than the percentage of individuals receiving treatment for acute illness. In this case also, the share of

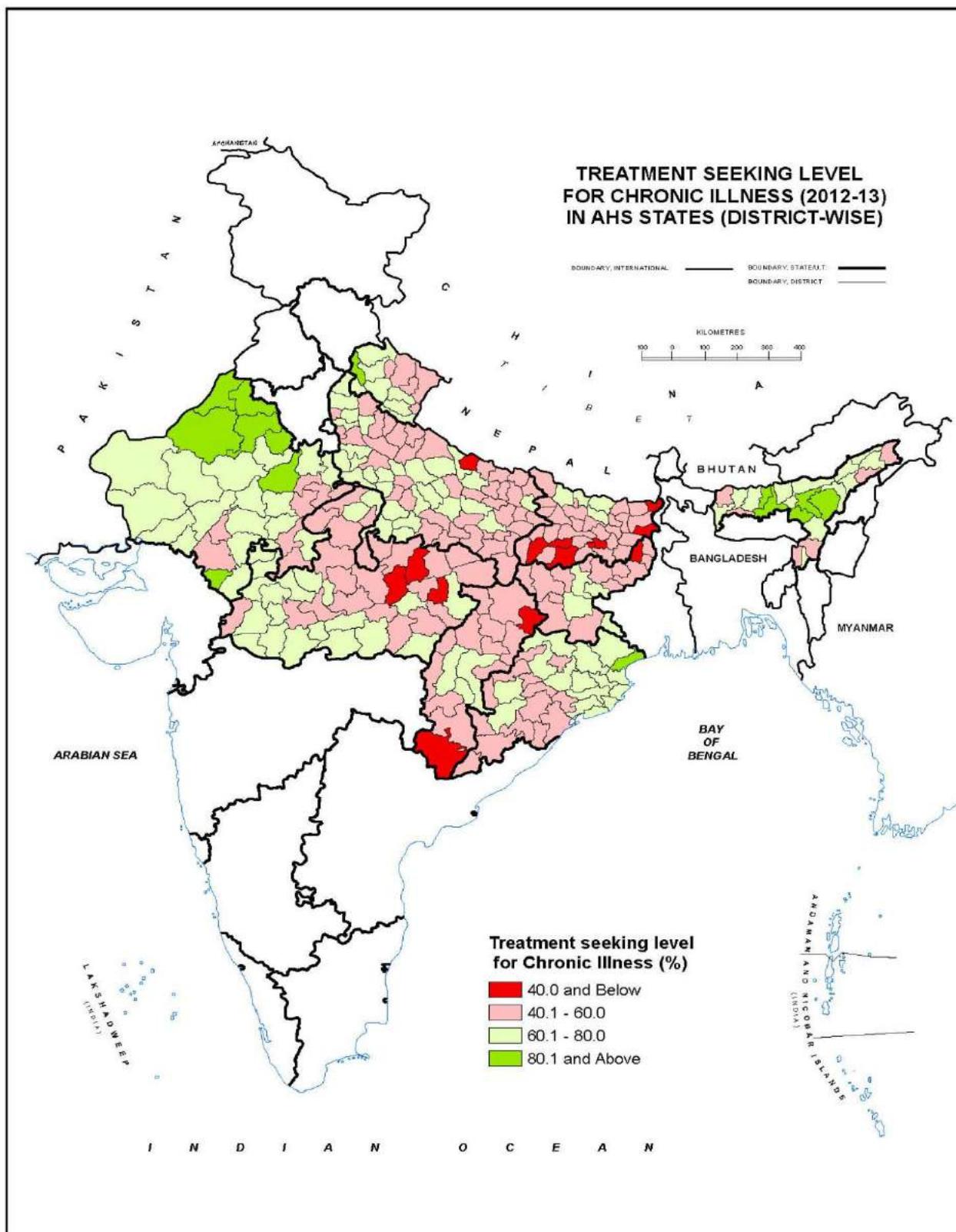
government sources remains low. Bihar reported both the lowest percentage of individuals who underwent regular treatment and received it from a government facility. In Rajasthan, high percentage of individuals (53 per cent) receiving treatment avail it from a government source.

Table 8.3: Treatment for Chronic Illness

Percentage of chronically ill people receiving regular treatment and regular treatment from government source in 2010-11 and 2012-13

State	Regular Treatment (%)		Regular Treatment From Government Source (%)	
	2010-11	2012-13	2010-11	2012-13
Assam	63.5	67.4	27.2	40
Bihar	51	48.4	8.8	9.2
Chhattisgarh	50	53.7	23.4	30.2
Jharkhand	53.4	56.3	15.9	15.3
Madhya Pradesh	54.5	61.4	24.7	28
Odisha	58.7	63.4	51.9	50.3
Rajasthan	65.4	69.7	46.7	53
Uttar Pradesh	50.1	58.7	9.9	15.6
Uttarakhand	60.7	69	26.4	33.7

Map 8.3: Prevalence of chronic illness (2012-13) in AHS States (district-wise)

Map 8.4: treatment seeking level for chronic illness (2012-13)in ahs states (district-wise)

8.7 Table 8.4 shows the distribution level of people suffering from various acute illnesses like diarrhoea/ dysentery, acute respiratory infection and all types of fever. Uttar Pradesh recorded a noticeably high number of individuals suffering from acute respiratory infection at 7722 per 100,000 persons. Bihar and Odisha have high instances of fever at 6719 and 6266. Bihar had

the highest levels of both diarrhoea/dysentery at 1876 and any acute illness at 14923, besides high levels in acute respiratory infection at 4721 and fever at 6719. Jharkhand, Rajasthan and Uttarakhand have relatively fewer cases of diarrhoea at 346, 364 and 366 respectively. Lowest levels of fever (2719) and any acute illness (5465) are also observed in Rajasthan.

Table 8.4: Types and Prevalence of Acute Illness

Instances of diarrhea, acute respiratory infection, fever and any chronic illness per 100,000 population in 2012-13

State	Diarrhoea/Dysentery	ARI	Fever (All Types)	Any Acute illness
Assam	1374	4927	3366	10256
Bihar	1876	4721	6719	14923
Chhattisgarh	841	3252	6253	10724
Jharkhand	346	3320	2866	7072
Madhya Pradesh	633	1844	5955	8967
Odisha	762	1134	6266	10147
Rajasthan	364	1678	2719	5465
Uttar Pradesh	636	7722	3386	12184
Uttarakhand	366	2140	5666	8527

Table 8.5: Types and Prevalence of Chronic Illness

Instances of diabetes, hypertension, tuberculosis, asthma, arthritis and any chronic illness per 100,000 population in 2012-13

State	Diabetes	Hypertension	Tuberculosis	Asthma	Arthritis	Any Chronic illness
Assam	935	3999	282	619	2866	15651
Bihar	394	826	376	1162	1919	10219
Chhattisgarh	541	571	190	419	600	3821
Jharkhand	802	839	307	415	1774	7413
Madhya Pradesh	411	785	176	507	1000	5441
Odisha	1047	1776	185	720	1886	1047
Rajasthan	437	844	181	652	716	4299
Uttar Pradesh	479	757	344	887	1880	10645
Uttarakhand	916	1293	203	845	2019	8837

8.8 Table 8.5 denotes the percentage of people suffering from varied chronic illnesses like diabetes, hypertension, tuberculosis, asthma and arthritis. The prevalence of chronic illness varies among the nine States studied here. Odisha had the highest prevalence for diabetes at 1047. Assam on the other hand showed a higher instance of hypertension. Bihar and Uttar Pradesh

reported the highest instances of tuberculosis at 376 and 344 respectively, as well as of Asthma at 1162 and 887 per 100,000 population. Assam reported highest level of arthritis at 2866.

8.9 Table 8.6 provides the frequency distribution of acute and chronic illness with a district-wise assessment of the nine AHS States in 2012-13 in

six corresponding ranges. A majority of the districts across States fall in the second lowest range of 5000-10000. Odisha and Bihar have a high number of districts (13 each) in the 10000-15000 range. A majority of the districts of Chhattisgarh (7), Jharkhand (12), Madhya Pradesh (21), Rajasthan (18) and Uttar Pradesh (29) are included in the 5000-10000 range. Districts of Rajasthan find a higher representation in the 0-5000 category, while a few districts of Bihar and Uttar Pradesh have very high levels of acute illness in featuring in the 20000-25000 and 25000-above categories too. It can be seen that while Rajasthan has the highest number of

districts (3) in the 0-2000 category with regard to the prevalence of chronic illnesses, there has been a substantial decline in the State's figures from 14 in 2010-11 to 3 in 2012-13. Rajasthan's districts have a lower prevalence of chronic illness than those of other States as most of its districts feature in the 4000-6000 category. Chhattisgarh, with 7 districts in 2000-4000 and 4000-6000 categories, has the lowest prevalence of chronic diseases. Most districts of Assam are clearly in the 10000 and above range. Besides Assam, Bihar (16), Odisha (13), Uttar Pradesh (36) and Uttarakhand (5) have high representation in the 10000 and above category.

Table 8.6: Frequency Distribution of Acute and Chronic Illness

The number of districts in each State classified under a particular range of prevalence of acute and chronic illness per 100,000 population in 2012-13 and 2010-11

Prevalence of Acute illness						
Range	0-5000	5000-10000	10000-15000	15000-20000	20000-25000	25000+
Assam	9 (1)	4 (10)	1 (6)	8 (6)	1 (0)	0 (0)
Bihar	0 (0)	9 (14)	13 (13)	7 (5)	4 (5)	4 (0)
Chhattisgarh	1 (1)	7 (7)	2 (3)	5 (5)	1 (0)	(0)
Jharkhand	4 (8)	12 (9)	2 (1)	0 ()	0 (0)	0 (0)
Madhya Pradesh	9 (8)	21 (20)	11 (11)	4 (5)	0 (1)	0 (0)
Odisha	2 (1)	12 (15)	13 (10)	3 (4)	0 (0)	0 (0)
Rajasthan	11 (24)	18 (8)	3 (0)	0 (0)	0 (0)	0 (0)
Uttar Pradesh	9 (10)	29 (22)	9 (17)	14 (11)	6 (5)	3 (5)
Uttarakhand	7 (6)	5 (6)	0 (0)	0 (0)	0 (1)	1 (0)
Prevalence of Chronic illness						
Range	0-2000	2000-4000	4000-6000	6000-8000	8000-10000	10000+
Assam	0 (0)	0 (1)	0 (4)	2 (7)	2 (3)	19 (8)
Bihar	0 (0)	0 (1)	2 (6)	3 (9)	16 (6)	16 (15)
Chhattisgarh	1 (2)	7 (4)	7 (9)	1 (0)	0 (1)	0 (0)
Jharkhand	0 (0)	0 (11)	8 (5)	6 (1)	2 (1)	2 (0)
Madhya Pradesh	0 (6)	11 (13)	20 (18)	11 (6)	3 (2)	0 (0)
Odisha	0 (3)	3 (5)	4 (7)	5 (8)	5 (5)	13 (2)
Rajasthan	3 (14)	8 (16)	18 (2)	3 (0)	0 (0)	0 (0)
Uttar Pradesh	0 (0)	3 (16)	10 (28)	10 (6)	11 (1)	36 (19)
Uttarakhand	0 (0)	0 (0)	1 (3)	4 (3)	3 (4)	5 (3)

Note: () is used to show number of districts as per baseline, 2010-11.

8.10 Table 8.7 provides information about the shift in the prevalence of acute and chronic illness in the districts of the nine AHS States. Most States have witnessed an upward trend, while no district has shown constant figures. The prevalence of acute illness has reduced in 14 districts of Assam and 27 districts of Madhya Pradesh, where the level of absolute change is higher than the increase in these States. Bihar has the highest number of districts (31) where prevalence of acute illness has increased,

followed by Uttar Pradesh (30). However in Uttar Pradesh, as many as 40 districts have experienced a decline in prevalence of acute illness. It can be observed that in Assam, Bihar, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand, the prevalence of chronic illness has risen more than the decrease noted. Chhattisgarh is the only State with districts that registered a substantial decline as the prevalence of chronic illness declined in 12 districts, and increased only in 4 districts.

Table 8.7: District-wise trends in Any Acute and Chronic Illness

The number of districts in each State when the direction of change in levels of prevalence of acute and chronic illness per 100,000 population is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates

State	Acute Illness prevalence		
	Increase	No change	Decrease
Assam	9	0	14
Bihar	31	0	6
Chhattisgarh	10	0	6
Jharkhand	11	0	7
Madhya Pradesh	18	0	27
Odisha	14	0	16
Rajasthan	23	0	9
Uttar Pradesh	30	0	40
Uttarakhand	5	0	8

State	Chronic Illness prevalence		
	Increase	No change	Decrease
Assam	22	0	1
Bihar	26	0	11
Chhattisgarh	4	0	12
Jharkhand	18	0	0
Madhya Pradesh	30	0	15
Odisha	28	0	2
Rajasthan	31	0	1
Uttar Pradesh	62	0	8
Uttarakhand	12	0	1

8.11 Figure 8.2 presents the distribution of 100 districts with highest prevalence of any acute illness. While, Uttar Pradesh continues to be the major contributor in 2010-11 and 2012-13, the number of its districts reduced from 36 to 31 in 2012-13, unlike Bihar where the share increased from 18 to 26. Rajasthan is the only State that did

not have any district among the top 100 in 2010-11 and 2012-13. Figure 8.3 denotes the share of each State in the 100 districts with highest prevalence of chronic disease in 2010-11 and 2012-13. More than half of the worst 100 districts of the nine AHS States are from Bihar and Uttar Pradesh. While the share of Uttar Pradesh went

up from 23 to 39 over 2010-11 to 2012-13, the share of Bihar dropped from 29 to 20. Rajasthan was again the only State with no district among

the worst 100 districts with high prevalence of chronic illness. Very marginal changes were observed in the districts of the other States.

Figure 8.2: State-wise distribution of 100 districts with highest prevalence of Any Acute Illness per 100,000 population in 2010-11 and 2012-13

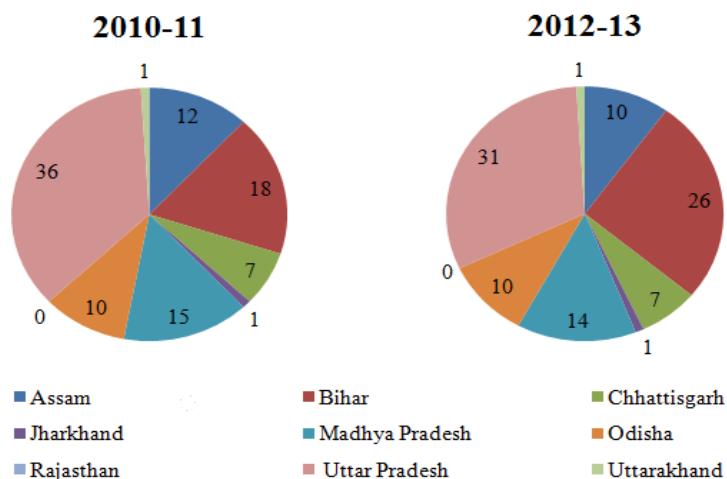
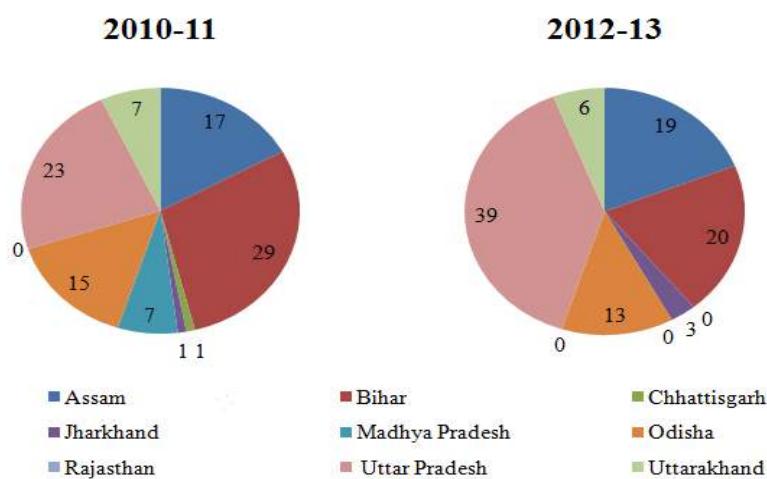


Figure 8.3: State-wise distribution of 100 districts with highest prevalence of chronic disease per 1,00,000 population in 2010-11 and 2012-13



8.12 Table 8.8 lists the names of all the 100 districts in the nine AHS States with the highest prevalence of any acute illness per 100,000 population. Districts of Uttar Pradesh and Bihar predominantly top the list, indicating a deplorable state of acute illness. It can be seen that Rampur district in Uttar Pradesh recorded the highest prevalence at 35464 per 100,000 population.

Table 8.8 also provides the names of all the 100 districts in the nine AHS States with the highest prevalence of any chronic illness per 100,000 population, in the descending order. Of the 19 districts from Assam that are part of the list, 9 are among the top 10, indicating high occurrences of chronic disease in the State. Its Nagaon district recorded the highest prevalence at 25170 per

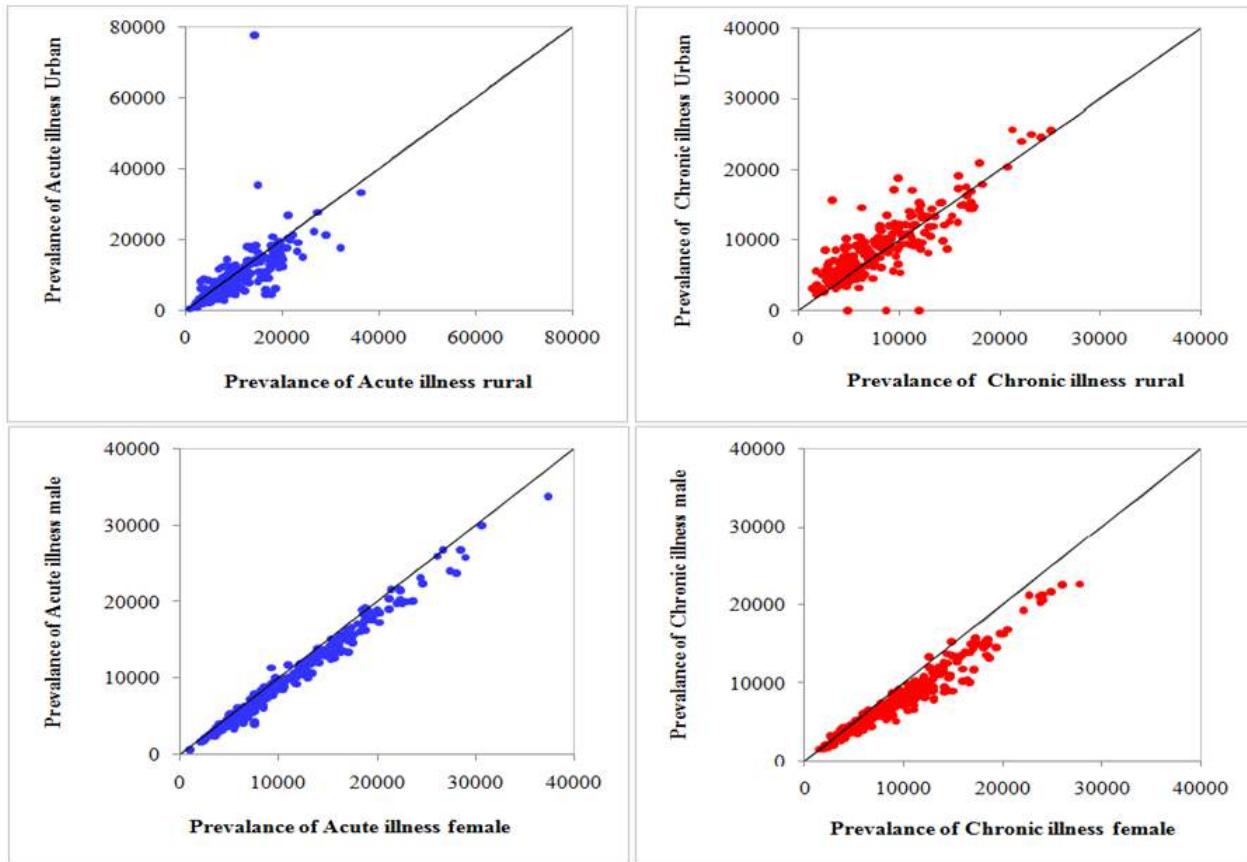
100,000 population. Bijnor district of Uttar Pradesh recorded the lowest prevalence among the worst performing 100 districts at 9514 per 100,000 population.

Table 8.8: List of 100 districts with highest prevalence of acute and chronic disease per 100,000 population, 2012-13

No.	Prevalence of acute disease		Prevalence of chronic disease	
	State	District	State	District
1	Uttar Pradesh	Rampur (35464)	Assam	Nagaon (25170)
2	Bihar	Sheohar (30266)	Assam	Jorhat (24231)
3	Uttar Pradesh	Budaun (27648)	Assam	Sibsagar (23222)
4	Uttar Pradesh	Etah (27306)	Assam	Dibrugarh (22610)
5	Uttarakhand	Haridwar (26777)	Assam	Hailakandi (22367)
6	Bihar	Sitamarhi (26019)	Assam	Karimganj (22323)
7	Bihar	Kishanganj (25957)	Assam	Cachar (22075)
8	Bihar	Purnia (25696)	Odisha	Nayagarh (21919)
9	Bihar	Purba Champaran (23745)	Assam	Golaghat (20663)
10	Bihar	Pashchim Champaran (23435)	Assam	Karbi Anglong (18638)
11	Assam	Nagaon (22005)	Uttar Pradesh	Mau (18175)
12	Uttar Pradesh	Pilibhit (21922)	Bihar	Begusarai (18047)
13	Uttar Pradesh	Bulandshahar (21780)	Uttar Pradesh	Gorakhpur (17045)
14	Bihar	Araria (21514)	Uttar Pradesh	Ballia (16998)
15	Bihar	Darbhanga (21500)	Uttar Pradesh	Azamgarh (16969)
16	Uttar Pradesh	Kannauj (21298)	Bihar	Lakhisarai (16747)
17	Uttar Pradesh	Muzaffarnagar (21108)	Uttar Pradesh	Ghazipur (16744)
18	Uttar Pradesh	Mathura (20825)	Uttar Pradesh	Deoria (16636)
19	Chhattisgarh	Mahasamund (20789)	Uttar Pradesh	Maharajganj (16549)
20	Uttar Pradesh	Mau (20136)	Uttar Pradesh	Balrampur (16503)
21	Uttar Pradesh	Azamgarh (19527)	Assam	Tinsukia (16474)
22	Uttar Pradesh	Agra (19350)	Uttar Pradesh	Kaushambi (16216)
23	Uttar Pradesh	G B Nagar (19329)	Uttar Pradesh	Varanasi (16210)
24	Madhya Pradesh	Seoni (19275)	Bihar	Rohtas (15995)
25	Chhattisgarh	Dhamtari (19132)	Uttar Pradesh	Ambedkar Nagar (15954)
26	Assam	Karimganj (19004)	Uttar Pradesh	Kannauj (15817)
27	Uttar Pradesh	Sonbhadra (18975)	Odisha	Puri (15698)
28	Assam	Hailakandi (18922)	Uttar Pradesh	Jaunpur (15318)
29	Assam	Cachar (18766)	Uttar Pradesh	Pratapgarh (15143)
30	Uttar Pradesh	Bareilly (18695)	Uttar Pradesh	Shrawasti (15075)
31	Uttar Pradesh	Ghazipur (18641)	Uttar Pradesh	Faizabad (14666)
32	Uttar Pradesh	Chandauli (18570)	Uttar Pradesh	Mirzapur (14350)
33	Uttar Pradesh	Shahjahanpur (18471)	Odisha	Khordha (14321)
34	Chhattisgarh	Rajnandgaon (18358)	Bihar	Pashchim Champaran (14249)
35	Bihar	Katihar (18225)	Uttar Pradesh	Sant Kabir Nagar (14212)
36	Madhya Pradesh	Balaghpat (18104)	Uttar Pradesh	Sonbhadra (14179)
37	Madhya Pradesh	Mandla (17761)	Odisha	Jagatsinghpur (14168)
38	Odisha	Bhadrak (17616)	Uttar Pradesh	Siddharthnagar (14096)
39	Chhattisgarh	Raigarh (17579)	Odisha	Bhadrak (14075)
40	Uttar Pradesh	Ghaziabad (17433)	Uttar Pradesh	Kushinagar (14010)
41	Assam	Jorhat (17243)	Uttarakhand	Pithoragarh (13522)
42	Chhattisgarh	Jashpur (17074)	Odisha	Debagarh (13447)
43	Bihar	Begusarai (16902)	Uttar Pradesh	Chandauli (13334)
44	Madhya Pradesh	Betul (16729)	Uttarakhand	Champawat (13162)
45	Assam	Golaghat (16616)	Uttar Pradesh	Mathura (13151)
46	Uttar Pradesh	Hathras (16258)	Odisha	Cuttack (13008)
47	Assam	Dibrugarh (16237)	Assam	North Cachar Hills (12968)

No.	Prevalence of acute disease		Prevalence of chronic disease	
	State	District	State	District
48	Uttar Pradesh	Meerut (16234)	Assam	Nalbari (12872)
49	Bihar	Madhubani (16103)	Uttar Pradesh	S R Nagar (Bhadohi) (12810)
50	Odisha	Baleshwar (16083)	Uttar Pradesh	Pilibhit (12768)
51	Uttar Pradesh	Bijnor (16065)	Uttar Pradesh	Basti (12751)
52	Bihar	Saharsa (15897)	Jharkhand	Dhanbad (12691)
53	Assam	Karbi Anglong (15862)	Odisha	Jharsuguda (12690)
54	Bihar	Vaishali (15848)	Bihar	Samastipur (12510)
55	Uttar Pradesh	Ambedkar Nagar (15738)	Uttar Pradesh	Allahabad (12464)
56	Chhattisgarh	Kawardha (15471)	Bihar	Buxar (12379)
57	Bihar	Muzaffarpur (15290)	Assam	Dhubri (12351)
58	Assam	Tinsukia (15234)	Assam	Goalpara (12291)
59	Odisha	Dhenkanal (15219)	Odisha	Ganjam (12243)
60	Uttar Pradesh	Mainpuri (15142)	Odisha	Jajapur (12192)
61	Bihar	Nalanda (15026)	Assam	Marigaon (12097)
62	Madhya Pradesh	Rewa (14987)	Uttar Pradesh	Bulandshahar (11818)
63	Madhya Pradesh	Vidisha (14963)	Bihar	Muzaffarpur (11807)
64	Odisha	Debagarh (14882)	Uttar Pradesh	J P Nagar (11662)
65	Chhattisgarh	Janjgir-Champa (14853)	Uttar Pradesh	Agra (11659)
66	Odisha	Nayagarh (14706)	Bihar	Kaimur (Bhabua) (11565)
67	Uttar Pradesh	J P Nagar (14697)	Assam	Lakhimpur (11478)
68	Uttar Pradesh	Baghpat (14466)	Uttar Pradesh	Aligarh (11327)
69	Madhya Pradesh	Damoh (14278)	Assam	Barpetta (11282)
70	Odisha	Jajapur (14245)	Bihar	Aurangabad (11256)
71	Madhya Pradesh	Dindori (14185)	Bihar	Khagaria (11201)
72	Uttar Pradesh	Saharanpur (14113)	Bihar	Jehanabad (11016)
73	Madhya Pradesh	Umaria (14094)	Bihar	Katihar (11012)
74	Madhya Pradesh	Hoshangabad (14081)	Uttarakhand	Dehradun (10968)
75	Madhya Pradesh	Shahdol (13967)	Uttar Pradesh	Meerut (10882)
76	Bihar	Lakhisarai (13938)	Odisha	Gajapati (10822)
77	Odisha	Malkangiri (13922)	Uttar Pradesh	Bareilly (10811)
78	Uttar Pradesh	Aligarh (13796)	Odisha	Dhenkanal (10730)
79	Bihar	Sheikhpura (13408)	Bihar	Araria (10715)
80	Bihar	Bhagalpur (13402)	Uttarakhand	Bageshwar (10705)
81	Uttar Pradesh	Shrawasti (13316)	Bihar	Sitamarhi (10690)
82	Uttar Pradesh	Varanasi (13235)	Uttar Pradesh	Hathras (10563)
83	Madhya Pradesh	Katni (13040)	Uttar Pradesh	Rampur (10394)
84	Madhya Pradesh	Sidhi (13019)	Bihar	Patna (10386)
85	Bihar	Rohtas (12911)	Uttarakhand	Pauri Garhwal (10235)
86	Bihar	Samastipur (12795)	Uttar Pradesh	Shahjahanpur (10186)
87	Bihar	Supaul (12591)	Assam	Kamrup (10164)
88	Bihar	Madhepura (12428)	Assam	Darrang (10107)
89	Assam	Sibsagar (12321)	Odisha	Bargarh (10107)
90	Odisha	Mayurbhanj (12216)	Jharkhand	Dumka (10046)
91	Uttar Pradesh	Firozabad (12152)	Bihar	Purba Champaran (10012)
92	Madhya Pradesh	Chhindwara (12101)	Uttar Pradesh	Baghpat (9991)
93	Odisha	Anugul (12050)	Uttarakhand	Tehri Garhwal (9988)
94	Bihar	Gopalganj (11960)	Bihar	Darbhang (9944)
95	Uttar Pradesh	Moradabad (11871)	Bihar	Purnia (9806)
96	Bihar	Gaya (11820)	Uttar Pradesh	Sitapur (9805)
97	Jharkhand	Pashchimi Singhbhum (11813)	Bihar	Sheohar (9763)
98	Bihar	Banka (11671)	Bihar	Gaya (9633)
99	Odisha	Sambalpur (11623)	Jharkhand	Pashchimi Singhbhum (9568)
100	Bihar	Nawada (11525)	Uttar Pradesh	Bijnor (9514)

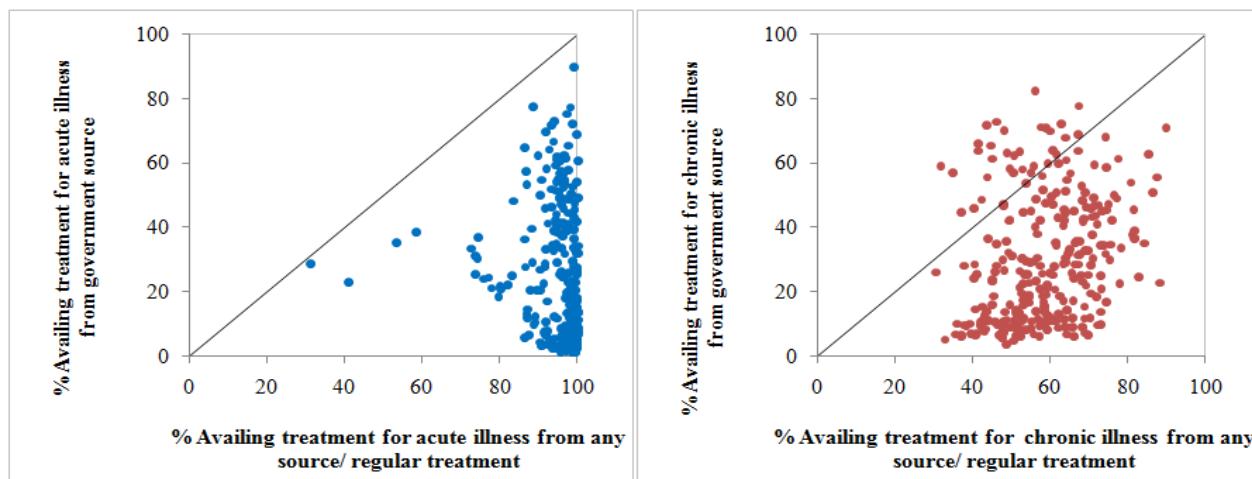
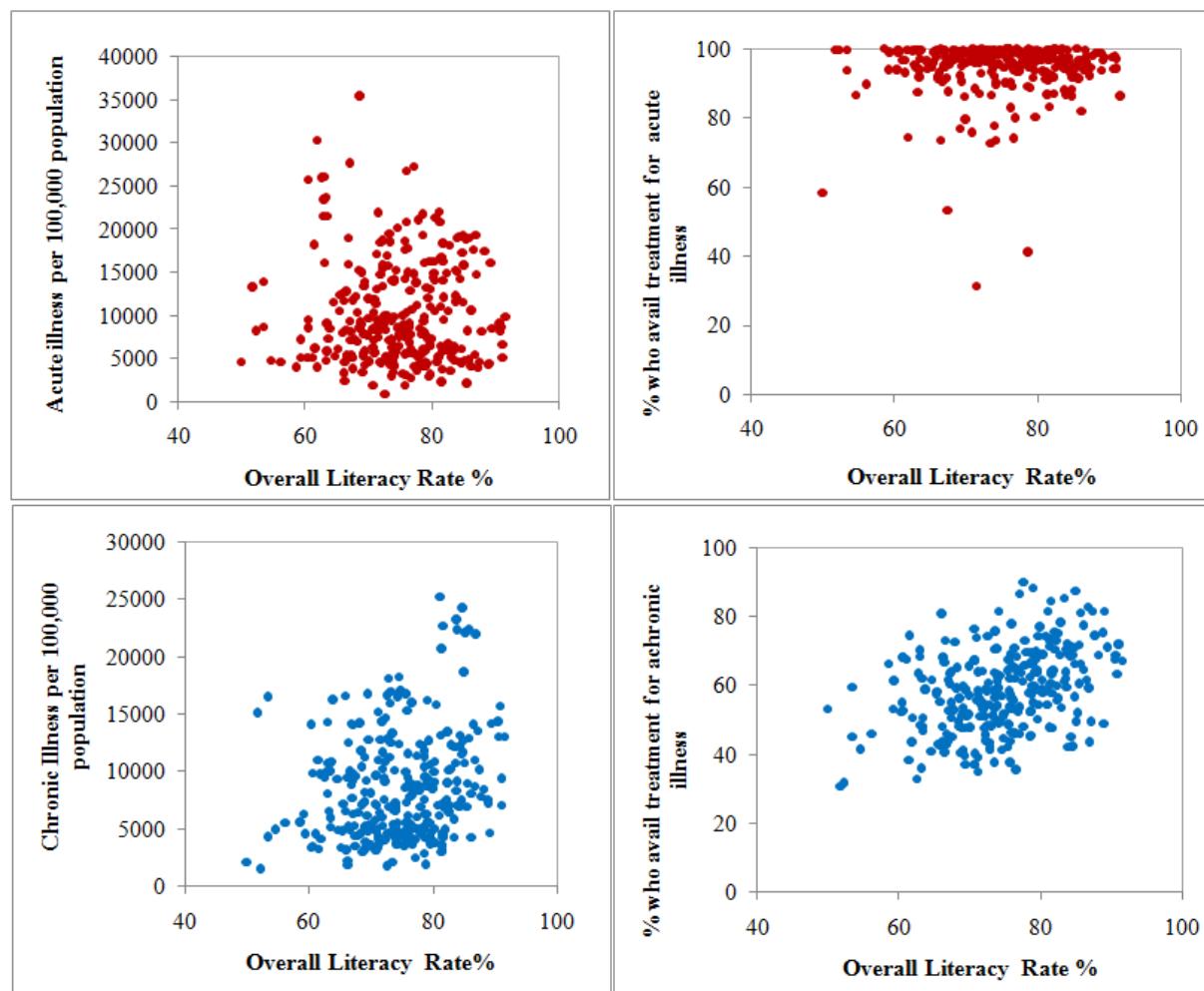
Figure 8.4: Comparison between the prevalence of acute and chronic illness in males and females (2012-13)



8.13 Figure 8.4 shows a marginally higher prevalence of acute and chronic illnesses among females in comparison to males as most districts fall below the diagonal. It can also be observed that a larger proportion of the population in rural areas suffer from acute illnesses as compared to the urban population. However a considerably higher number of cases of chronic illness are reported from urban rather than rural areas. Figure 8.5 indicates of a lower preference for treatment of chronic illness at government facilities as opposed to any other source. Figure 8.6 draws a comparison between occurrences of illness and literacy. Districts with higher levels of literacy have comparatively higher cases of chronic illness, owing to an increased level of awareness about illnesses and self-reporting.

8.14 The relationship between literacy rates and treatment received for chronic illness too reveals a positive trend, indicating that individuals from districts with substantially higher rates of literacy are more likely to seek treatment for their ailments.. It can also be inferred that since the symptoms of most acute illnesses being visible, makes treatment for them easier, whereas the symptoms of chronic illnesses being less evident, proper treatment can only be undertaken in districts with high literacy levels.

8.15 Finances for treatment could be another factor as acute illnesses require low funds in comparison to chronic illness, indicating that areas with lower literacy may have opted out of treatment for the latter.

Figure 8.5: Comparison between the sources of treatment for acute and chronic illness (2012-13)**Figure 8.6: Association of chronic and acute illnesses and percentage availaing treatment with overall literacy rate, 2012-13**

8.3. Key Findings

- For a better understanding of the health conditions of the States, acute illness has been broadly categorized under three sections, namely diarrhoea, fever and acute respiratory infections as people most often suffer more these. The environment plays a vital role in determining the extent of cases of respiratory infection and fever. Bihar recorded the highest instances of diarrhoea/dysentery at 1876 per 100,000 population besides high levels of acute respiratory infection at 4721 and fever at 6719.
- AHS data reveals that Rajasthan had relatively fewer cases of diarrhoea and also the lowest instances of fever. Jharkhand and Uttarakhand were the other States that reported lower levels of diarrhoea, while the former also recorded lower cases of fever and the latter fewer instances of respiratory infection. The figures of the States denote the possibility of high preventive measures being adopted here.
- Chronic illness has been an area of grave concern. The prevalence of chronic illness varies among the nine States studied here. However, while Assam reported substantially higher instances of diabetes, hypertension and arthritis, Madhya Pradesh and Rajasthan recorded fewer cases. Madhya Pradesh particularly recorded the lowest number of instances of diabetes and tuberculosis.
- The changes in the level of instances have been dissimilar in case of chronic and acute illnesses considered simultaneously. Interestingly, while Assam reported high absolute change in acute illness with a drop of 969 cases per 1,00,000 population between 2010-11 and 2012-13, the State displayed contrasting figures for chronic illness by reporting an average increase of 5697 cases, the highest across States. Contrary to it, Chhattisgarh, which showcased the finest change in chronic illness, fared poorly in the case of acute illness by recording the highest cases.
- Assessment of treatment received for acute illness across States show relatively high instances in most States, indicating an increased degree of awareness regarding importance of medical aid. Chhattisgarh and Uttarakhand particularly recorded higher conditions of treatment from any source. Between 2010-11 and 2012-13, a marginal increase was witnessed in most States in the number of cases being undertaken at government establishments, implying enhanced medical conditions here.
- Contrary to acute illness, people receiving medical aid for chronic illnesses from any source has been relatively low. Bihar reported the lowest percentage of individuals who underwent regular treatment and received it from a government facility for acute and chronic illness, while Odisha recorded the highest instances of treatment from government sources in case of both illnesses.

9.1 This chapter elaborates on all the varied forms of injuries, namely severe, major and minor, and the accessibility to treatment in the nine AHS States. The trends in cases of injuries across States in 2012-13 have been dealt with in detail by using statistics of 2010-11 for baseline reference, while also discussing about the prevalence of any type of disability.

9.1. Definition of Indicators

9.2 Disability: Disability can be defined as a physical or mental condition that limits a person's movements, senses, or activities.

9.3 Injury: Injury can be defined as an act or event that causes someone or something to no longer be fully healthy or in good condition. Based on its condition, injuries have been categorised into three types: severe, major and minor. **Severe injury** refers to an injury for which an injured person is given treatment in intensive care unit for any time and in-patient stay more than two weeks in the hospital. **Major injury** refers to an injury for which an injured person is given treatment for one to two weeks and stay as in-patient for less than one week.

Minor injury refers to an injury for which an injured person is given treatment as outpatient and treated by traditional healers.

9.2. Levels and Trends

9.2.1 Disabilities and Injuries

9.4 Table 9.1 shows the levels of prevalence of any type of disability per 100,000 population in the nine AHS States in the year 2010-11, 2011-12 and 2012-13. While Odisha recorded the highest prevalence in 2012-13 at 2,358 per 100,000 population, Uttar Pradesh recorded the lowest at 1,496 per 100,000 population. The table also shows the absolute change in the prevalence of any type of disability in the States, with Chhattisgarh reporting the highest at 723 per 100,000 population, and Uttarakhand recording the lowest at 179 per 100,000 population. The highest prevalence can be seen in Dungarpur district of Rajasthan (4603 per 100,000 population) and the lowest in Jhabua district of Madhya Pradesh (638 per 100,000 population). It can be observed that the inter-district disparity with regard to the prevalence of disabilities is high in almost all the States.

Table 9.1: Prevalence of Disability

Instances of disability of any type in 100,000 population in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and the highest and lowest levels at district level in 2012-13

State	AHS	AHS	AHS	Absolute Change	District (2012-13)	
	2010-11	2011-12	2012-13		Lowest	Highest
Assam	1530	1681	1746	216	Sonitpur (859)	Cachar (3200)
Bihar	1313	1617	1905	592	Kishanganj (1303)	Nawada (2676)
Chhattisgarh	1148	1704	1871	723	Dantewada (1053)	Kawardha (2428)
Jharkhand	1353	1726	2046	693	Pakaur (1349)	Ranchi (2808)
Madhya Pradesh	1396	1604	1771	375	Jhabua (638)	Chhindwara (3301)
Odisha	1990	2064	2358	368	Khordha (1317)	Kalahandi (3408)
Rajasthan	1719	1973	2188	469	Jodhpur (1315)	Dungarpur (4603)
Uttar Pradesh	1269	1429	1496	227	Lalitpur (855)	Bijnor (2514)
Uttarakhand	1331	1494	1510	179	Dehradun (1160)	U S Nagar (1748)

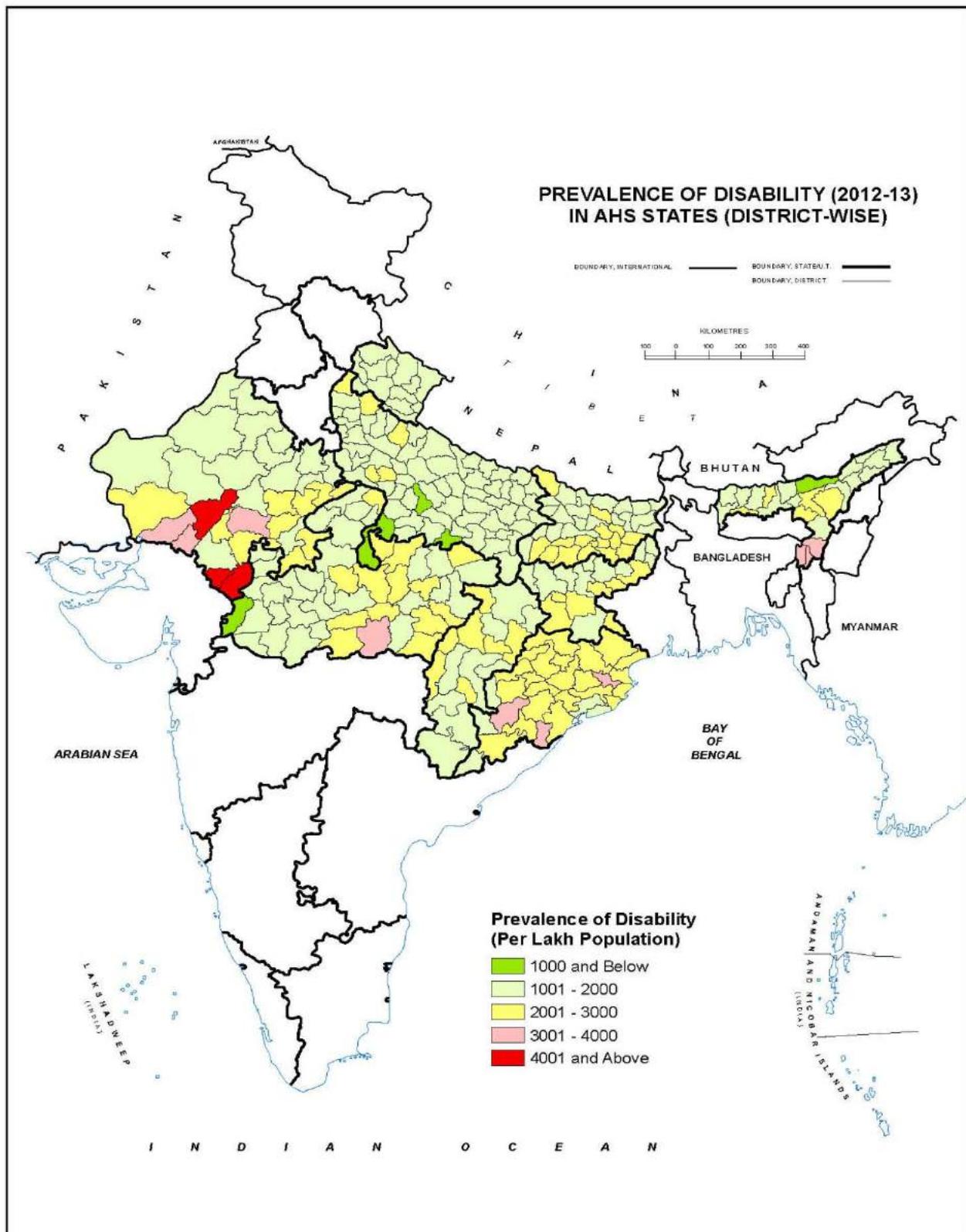
Map 9.1: Prevalence of disability (2012-13) in AHS States (district-wise)

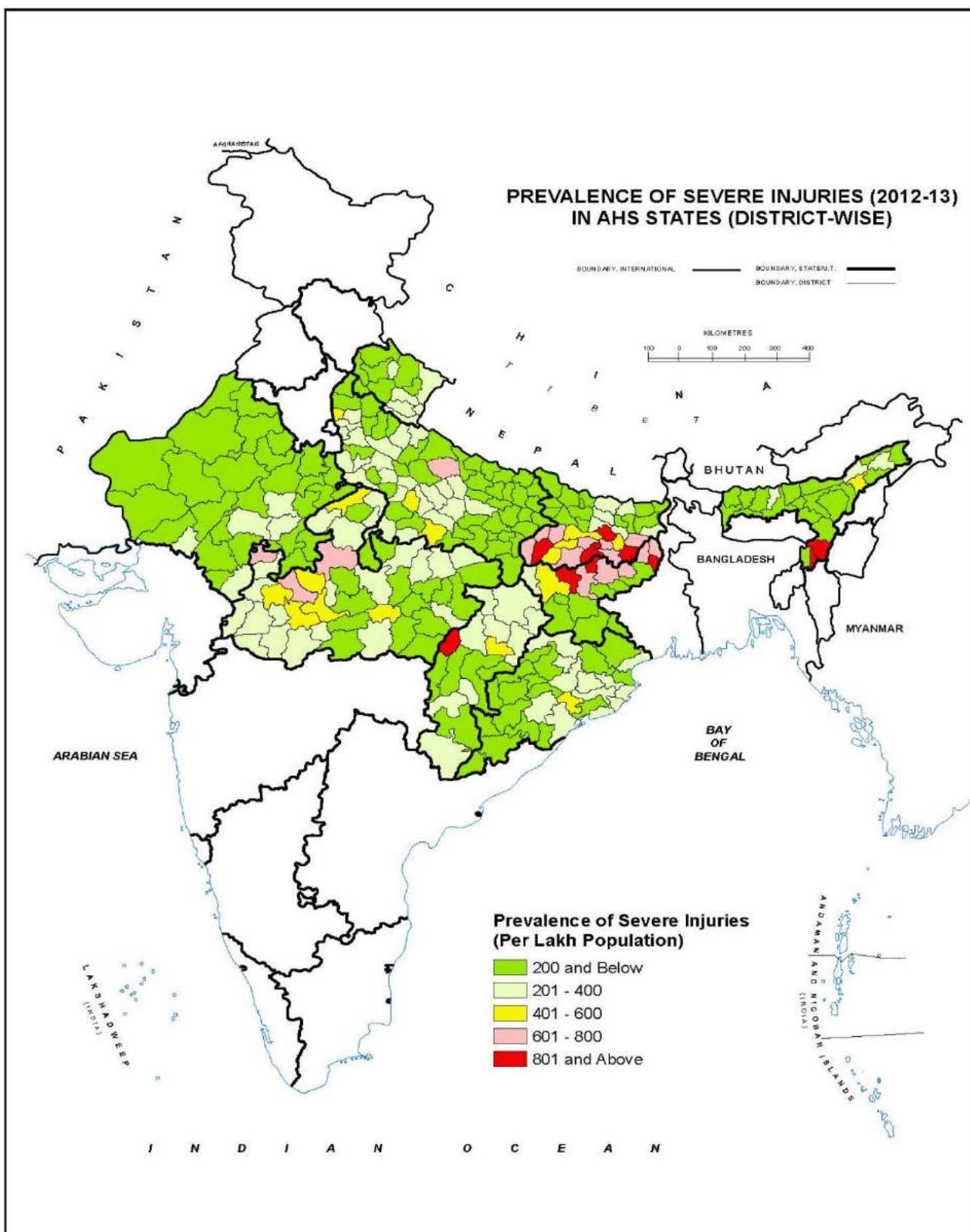
Table 9.2: Prevalence of Injuries

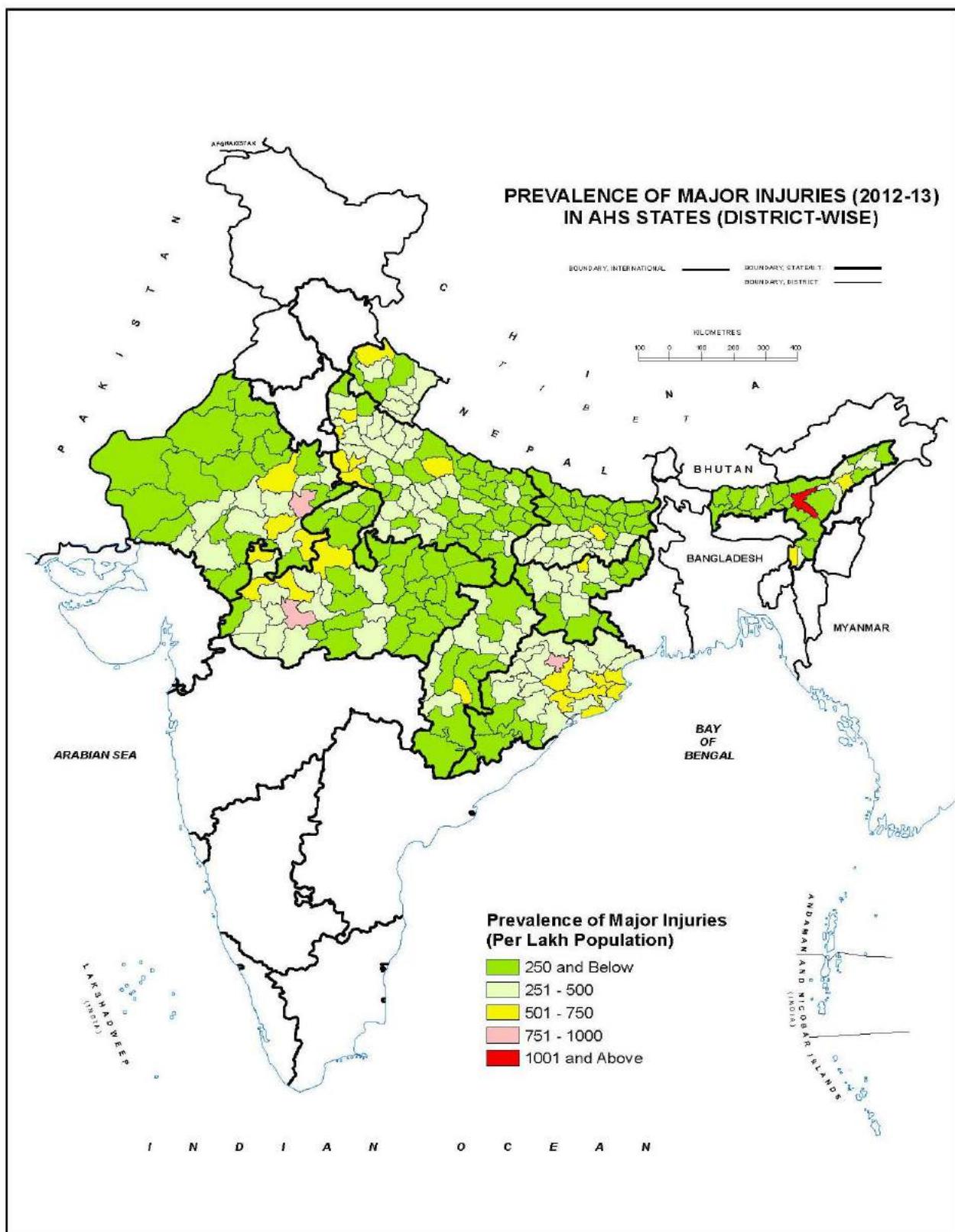
Instances of severe, major and minor injury in 100,000 population in 2010-11, 2011-12 and 2012-13, the absolute change in 2012-13 in comparison with 2010-11 and the highest and lowest levels at district level in 2012-13

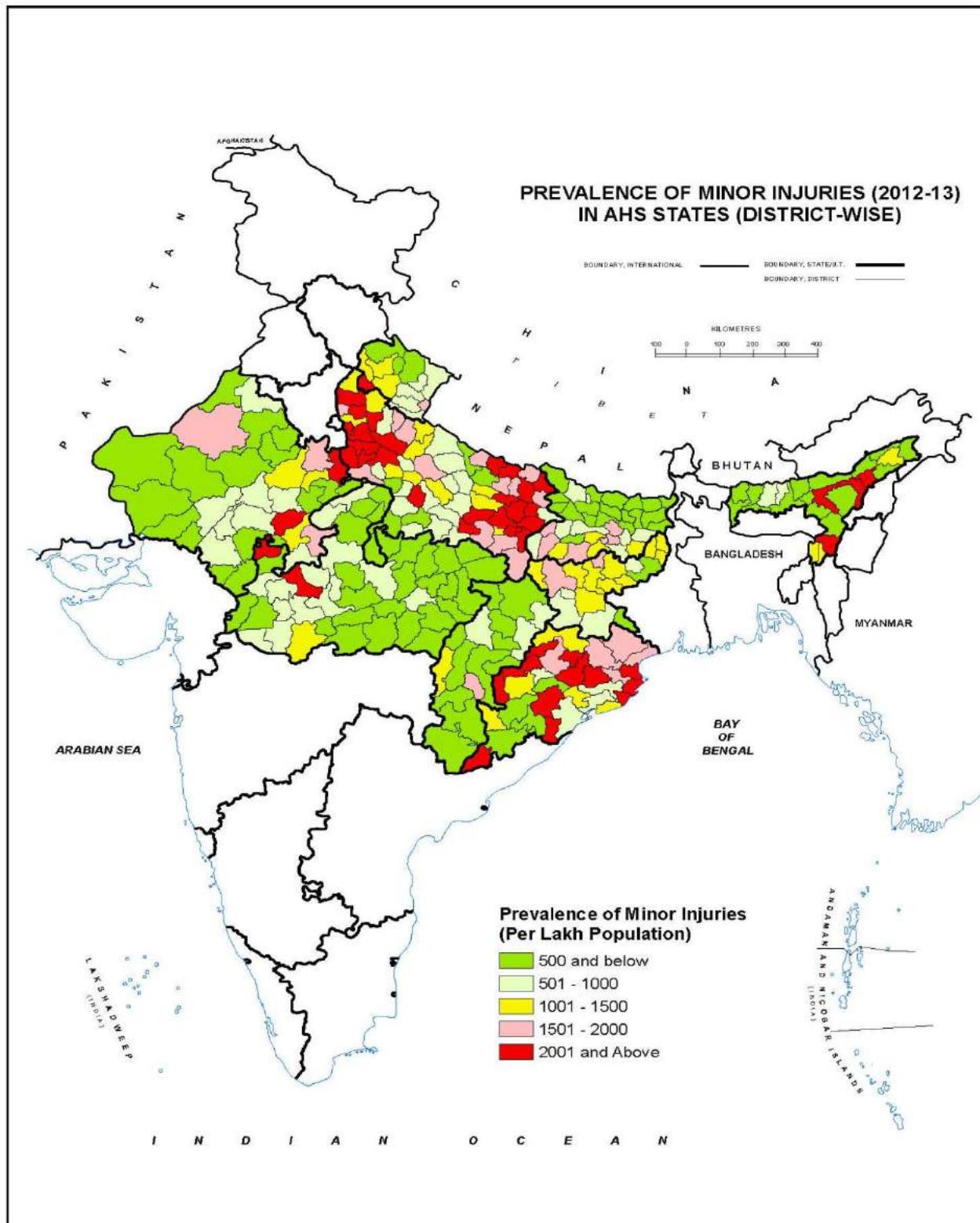
State	AHS	AHS	AHS	Absolute	District (2012-13)	
	2010-11	2011-12	2012-13	Change	Lowest	Highest
Severe Injury (per 100,000 populations)						
Assam	234	284	219	-15	Kokrajhar (6)	Cachar (1190)
Bihar	357	231	362	5	Kishanganj (50)	Rohtas (908)
Chhattisgarh	247	262	260	13	Bastar (89)	Kawardha (1046)
Jharkhand	270	256	376	106	Dumka (67)	Pakaur (1044)
Madhya Pradesh	244	287	286	42	Balaghat (44)	Shajapur (767)
Odisha	167	223	219	52	Nabarangapur (33)	Nayagarh (445)
Rajasthan	156	154	146	-10	Dungarpur (38)	Bundi (346)
Uttar Pradesh	251	188	186	-65	Kushinagar (34)	Sitapur (618)
Uttarakhand	261	186	184	-77	Dehradun (120)	Rudraprayag (298)
Major Injury (per 100,000 populations)						
Assam	432	560	355	-77	Kokrajhar (21)	Nagaon (1753)
Bihar	254	198	185	-69	Kishanganj (33)	Begusarai (564)
Chhattisgarh	221	223	229	8	Surguja (98)	Dhamtari (548)
Jharkhand	214	301	264	50	Dumka (76)	Kodarma (549)
Madhya Pradesh	285	270	272	-13	Shahdol (10)	Dewas (848)
Odisha	333	350	374	41	Nabarangapur (61)	Debagarh (864)
Rajasthan	194	298	261	67	Dungarpur (54)	Sawai Madhopur (820)
Uttar Pradesh	257	271	284	27	Kaushambi (87)	Sitapur (672)
Uttarakhand	300	323	305	5	Pauri Garhwal (137)	Uttarkashi (658)
Minor Injury (per 100,000 populations)						
Assam	1002	1093	990	-12	Bongaigaon (62)	Nagaon (3811)
Bihar	1097	604	622	-475	Kishanganj (53)	Begusarai (1942)
Chhattisgarh	499	510	503	4	Bastar (147)	Dhamtari (1877)
Jharkhand	519	840	1049	530	Dumka (430)	Palamu (1922)
Madhya Pradesh	665	487	494	-171	Tikamgarh (63)	Neemuch (2140)
Odisha	1428	1265	1735	307	Rayagada (115)	Gajapati (8345)
Rajasthan	859	1110	770	-89	Jaisalmer (126)	Bharatpur (2564)
Uttar Pradesh	1250	1302	1655	405	Etawah (164)	Muzaffarnagar (4548)
Uttarakhand	1234	1206	1155	-79	Uttarkashi (68)	Haridwar (2253)

9.5 Table shows the levels of different type of injuries per 100,000 population in the AHS states in the year 2010-11, 2011-12 and 2012-13. Jharkhand recorded the highest instances of severe injury in 2012-13 at 376 per 100,000 population, while Rajasthan recorded the lowest at 146 per 100,000 population. In 2012-13, the highest instances of severe injury were reported from Cachar district of Assam (1190 per 100,000 population) and the lowest from Kokrajhar district of Assam (6 per 100,000 population). Also, the inter-district disparity in case of severe injury is high in almost all the states.

9.6 The table also shows the levels of major and minor injuries in the AHS states in the period 2010-11, 2011-12 and 2012-13. Instances of major and minor injuries were highest in Odisha in 2012-13 at 374 per 100,000 population, and 1735 per 100,000 population, respectively. The highest occurrence of major and minor injuries can be seen in Nagaon district of Assam (1753 per 100,000 population) and Muzzafarnagar (4548 per 100,000 population) of Uttar Pradesh and the lowest in Shahdol district of Madhya Pradesh (10 per 100,000 population) and Kishanganj (53 per 100,000 population) in Bihar.

Map 9.2: Prevalence of severe injuries (2012-13) in AHS States (district-wise)

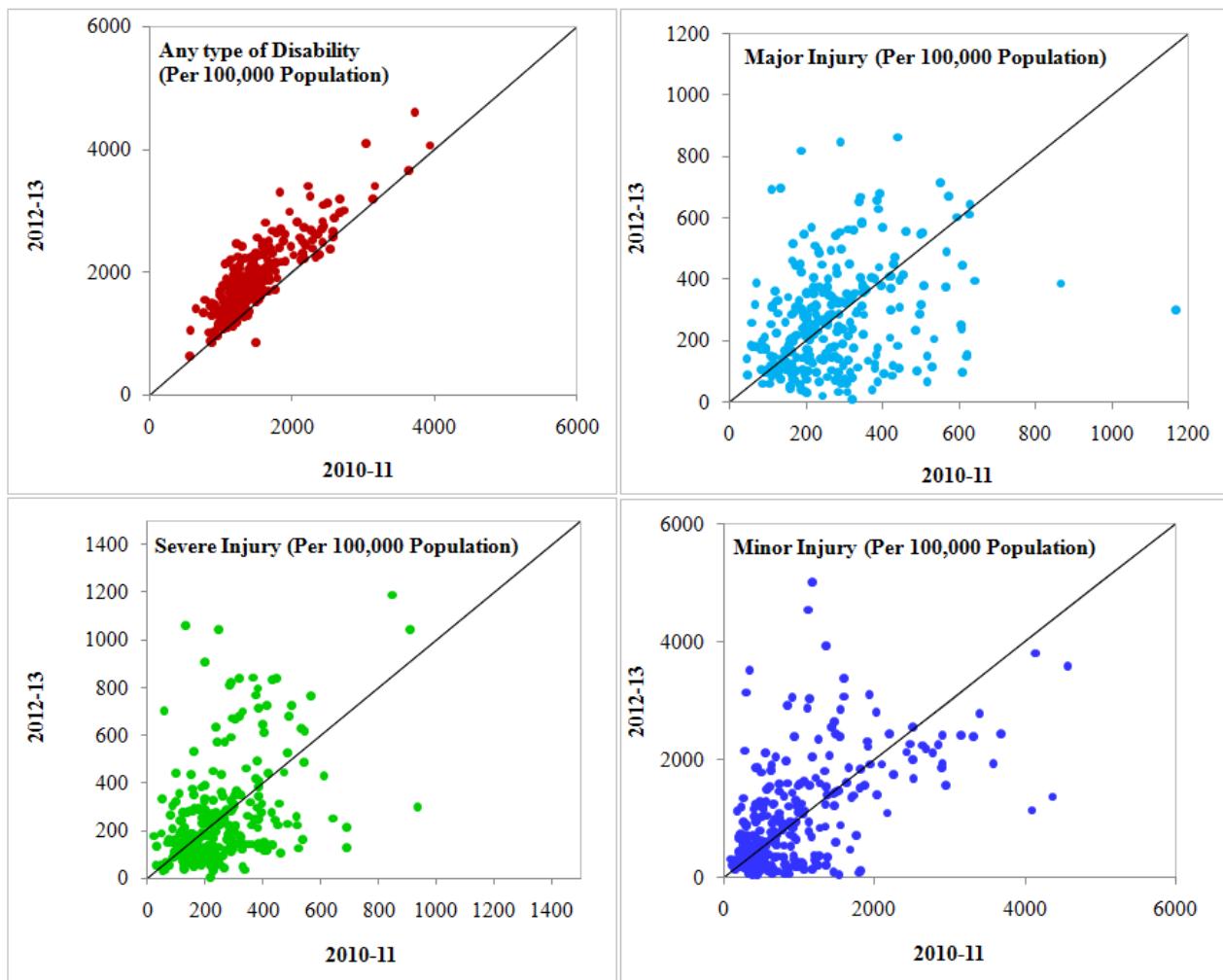
Map 9.3: Prevalence of major injuries (2012-13) in AHS States (district-wise)

Map 9.4: Prevalence of minor injuries (2012-13) in AHS States (district-wise)

9.7 Figure 9.1 indicates that there has been a major increase across districts in the number of people reporting disability over the period 2010-11 and 2012-13. Whereas there is a mixed

pattern in incidence of all kind of injuries, with some districts are showing reductions in overall levels and others witnessing increased number of injuries.

Figure 9.1: Disability, Severe Injury, Major Injury and Minor Injury (per 100,000 population), 2010-11 and 2012-13



9.8 Table 9.3 shows the division of the number of people per 100,000 population receiving treatment for severe, major and minor injuries in rural and urban areas of the nine AHS States in 2012-13. Jharkhand recorded the highest cases of severe injuries at 376 per 100,000 population, while Uttarakhand reported the lowest at 184 per 100,000 population. The rural-urban divide is considerably wide in some States. In rural areas,

while the highest was recorded from Jharkhand (416 per 100,000 population) and the lowest from Rajasthan (133 per 100,000 population), in urban areas, the highest number was reported from Bihar (398 per 100,000 population) and the lowest from Uttarakhand (165 per 100,000 population). Odisha recorded the highest cases of major injuries at 284 per 100,000 population, and Bihar the lowest at 185 per 100,000 population.

The highest among rural areas was recorded from Odisha (374 per 100,000 population), and the highest among urban areas from Assam (548 per 100,000 population). The lowest in case of both rural and urban areas was from Bihar at 181 per 100,000 population and 207 per 100,000 population. Maximum cases of minor injuries can

be seen once again in Odisha (1735 per 100,000 population). The lowest figure of minor injuries was recorded from Chhattisgarh at 503 per 100,000 population. In urban areas, Uttar Pradesh recorded the highest (1493), while Madhya Pradesh reported the lowest at 452 per 100,000 population.

Table 9.3: Treatment for Injuries (2012-13)

Number of people receiving treatment for severe, major and minor injuries per 100,000 populations in rural-urban areas

State	Severe			Major			Minor		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Assam	219	206	276	355	312	548	990	914	1335
Bihar	362	357	398	185	181	207	622	604	751
Chhattisgarh	260	257	271	229	224	248	503	453	690
Jharkhand	376	416	265	264	255	288	1049	1045	1059
Madhya Pradesh	286	302	250	272	291	231	494	513	452
Odisha	219	228	172	374	388	304	1735	1805	1372
Rajasthan	146	133	184	261	240	323	770	725	907
Uttar Pradesh	186	188	181	284	285	281	1655	1703	1493
Uttarakhand	184	192	165	305	314	285	1155	1162	1139

9.9 Table 9.4 shows the frequency of prevalence of any disability in terms of the number of districts in the nine AHS States in 2012-13, drawing a comparison with 2010-11 data as baseline. The highest number occurs in the 1500-2000 range, followed by the 1000-1500 range.

The prevalence of disabilities increased considerably across most States between 2010-11 and 2012-13. For instance, the number of districts in the 1500-2000 range went up from 14 in 2010-11 to 27 in 2012-13. Only three States had any districts in the lowest range, 500-1000.

Table 9.4: Frequency Distribution of Disability

The number of districts in each State classified under a particular range of disability prevalence per 100,000 population in 2012-13 and 2010-11

Prevalence of disabilities (per 100,000 persons)					
Range	500-1000	1000-1500	1500-2000	2000-2500	2500-above
Assam	1 (3)	8 (12)	7 (5)	4 (1)	3 (2)
Bihar	0 (3)	3 (28)	18 (5)	13 (1)	3 (0)
Chhattisgarh	0 (4)	2 (8)	7 (4)	7 (0)	0 (0)
Jharkhand	0 (3)	3 (10)	8 (5)	6 (0)	1 (0)
Madhya Pradesh	1 (7)	13 (20)	16 (15)	8 (3)	7 (0)
Odisha	0 (1)	2 (9)	3 (3)	15 (11)	10 (6)
Rajasthan	0 (0)	3 (15)	13 (3)	4 (9)	12 (5)
Uttar Pradesh	4 (5)	34 (51)	27 (14)	4 (0)	1 (0)
Uttarakhand	0 (1)	6 (9)	7 (3)	0 (0)	0 (0)

Note: () is used to show number of districts as per baseline, 2010-11.

9.10 Table 9.5 indicates the district-wise distribution in accordance with the change in prevalence of any disability per 100,000 population for 2012-13, using 2010-11 data as baseline reference. The data shows that the increase in prevalence of disability is an emerging concern across almost all the States and districts. Only 11 districts are reporting a

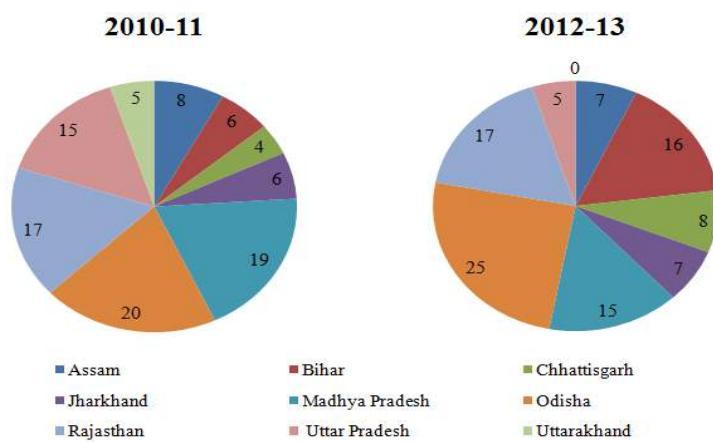
reduction in prevalence of disability between 2010-11 and 2012-13. In Bihar, Chhattisgarh, Jharkhand and Rajasthan all the districts have reported a rise in the prevalence of disability per 100,000 population. Assam has the maximum number of four districts reporting a decrease in the prevalence of any disability, followed by 2 each in Odisha, Uttar Pradesh and Uttarakhand.

Table 9.5: District-wise trends in Disability

The number of districts in each State when the direction of change in levels of prevalence of disability per 100,000 population is categorized as decrease, no change or increase in 2012-13 with reference to 2010-11 estimates

State	Prevalence of any disabilities		
	Increase	No change	Decrease
Assam	19	0	4
Bihar	37	0	0
Chhattisgarh	16	0	0
Jharkhand	18	0	0
Madhya Pradesh	44	0	1
Odisha	28	0	2
Rajasthan	32	0	0
Uttar Pradesh	68	0	2
Uttarakhand	11	0	2

Figure 9.2: State-wise distribution of 100 districts with highest prevalence of any disabilities per 100,000 population in 2010-11 and 2012-13



9.11 Figure 9.2 illustrates the State-wise distribution of 100 districts with highest prevalence of disabilities per 100,000 population in the year 2010-11 and 2012-13. In both the terms, maximum districts were reported from

Odisha at 20 and 25 for 2010-11 and 2012-13. In Bihar too, the number of districts with high prevalence increased from 6 (2010-11) to 16 (2012-13). Over the years, there has been a considerable reduction in the number of districts

in Uttar Pradesh reporting high prevalence of disabilities in the 100 districts list: from 15 (2010-11) to 5 (2012-13). Uttarakhand was the only State with no district in the list in 2012-13. While its 5 districts were in the list in 2010-11. Table 9.6 lists the names of the 100 districts with the highest prevalence of any disability. Rajasthan

has districts with both highest (Dungarpur) and lowest prevalence (Dausa). Table 9.5 also lists the names of 100 districts with the highest number of persons receiving treatment for severe injuries in 2012-13. The highest on the list is from Cachar in Assam and the lowest from Mathura in Uttar Pradesh.

Table 9.6: List of 100 districts with highest prevalence of disabilities and highest number of Injured Persons by Treatment received for severe injury (Per 100,000 Population), 2012-13

No.	Prevalence of disabilities		Treatment For severe Injury	
	State	District	State	District
1	Rajasthan	Dungarpur (4603)	Assam	Cachar (1190)
2	Rajasthan	Banswara (4099)	Assam	Hailakandi (1063)
3	Rajasthan	Pali (4064)	Chhattisgarh	Kawardha (1046)
4	Rajasthan	Jalor (3657)	Jharkhand	Pakaur (1044)
5	Odisha	Kalahandi (3408)	Bihar	Rohtas (908)
6	Rajasthan	Bhilwara (3402)	Jharkhand	Kodarma (844)
7	Madhya Pradesh	Chhindwara (3301)	Bihar	Begusarai (842)
8	Odisha	Gajapati (3237)	Jharkhand	Chatra (841)
9	Assam	Cachar (3200)	Bihar	Nawada (835)
10	Odisha	Jajapur (3196)	Bihar	Banka (823)
11	Assam	Karimganj (3136)	Bihar	Sheikhpura (810)
12	Rajasthan	Sirohi (3099)	Bihar	Kaimur (Bhabua) (798)
13	Assam	Hailakandi (3011)	Jharkhand	Hazaribagh (770)
14	Madhya Pradesh	Vidisha (2989)	Madhya Pradesh	Shajapur (767)
15	Rajasthan	Barmer (2970)	Bihar	Nalanda (726)
16	Odisha	Debagarh (2887)	Jharkhand	Godda (725)
17	Madhya Pradesh	Katni (2835)	Bihar	Gaya (717)
18	Rajasthan	Jhalawar (2817)	Madhya Pradesh	Guna (705)
19	Jharkhand	Ranchi (2808)	Jharkhand	Sahibganj (701)
20	Rajasthan	Dhaulpur (2752)	Bihar	Bhojpur (682)
21	Odisha	Sundargarh (2738)	Bihar	Jamui (682)
22	Madhya Pradesh	Mandla (2705)	Jharkhand	Giridih (673)
23	Odisha	Ganjam (2705)	Bihar	Buxar (667)
24	Odisha	Kandhamal (2693)	Bihar	Lakhisarai (648)
25	Bihar	Nawada (2676)	Jharkhand	Deoghar (634)
26	Odisha	Balangir (2669)	Bihar	Bhagalpur (629)
27	Bihar	Gaya (2651)	Uttar Pradesh	Sitapur (618)
28	Rajasthan	Rajsamand (2629)	Madhya Pradesh	Neemuch (613)
29	Madhya Pradesh	Sagar (2618)	Madhya Pradesh	Rajgarh (593)
30	Madhya Pradesh	Chhatarpur (2616)	Bihar	Aurangabad (572)
31	Odisha	Dhenkanal (2572)	Madhya Pradesh	Morena (572)
32	Bihar	Nalanda (2570)	Madhya Pradesh	Sehore (535)
33	Rajasthan	Chittaurgarh (2568)	Chhattisgarh	Janjgir-Champa (529)
34	Odisha	Anugul (2524)	Jharkhand	Palamu (492)
35	Uttar Pradesh	Bijnor (2514)	Bihar	Munger (487)
36	Madhya Pradesh	Dindori (2511)	Bihar	Patna (462)
37	Rajasthan	Tonk (2500)	Uttar Pradesh	Kanpur Dehat (451)
38	Odisha	Sambalpur (2495)	Odisha	Nayagarh (445)
39	Assam	Nagaon (2483)	Bihar	Jehanabad (443)
40	Bihar	Sheikhpura (2482)	Uttar Pradesh	Banda (442)
41	Jharkhand	Bokaro (2455)	Madhya Pradesh	Ujjain (436)
42	Rajasthan	Sawai Madhopur (2439)	Assam	Jorhat (435)
43	Bihar	Bhagalpur (2430)	Uttar Pradesh	Baghpat (432)
44	Chhattisgarh	Kawardha (2428)	Madhya Pradesh	Dewas (421)

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45	Odisha	Cuttack (2426)	Madhya Pradesh	Narsimhapur (411)
46	Rajasthan	Karauli (2408)	Odisha	Jagatsinghpur (391)
47	Chhattisgarh	Janjgir-Champa (2399)	Chhattisgarh	Raigarh (385)
48	Odisha	Bhadrak (2388)	Madhya Pradesh	Shivpuri (382)
49	Odisha	Baleshwar (2381)	Odisha	Cuttack (377)
50	Jharkhand	Dhanbad (2344)	Uttar Pradesh	Kanpur Nagar (367)
51	Jharkhand	Gumla (2324)	Madhya Pradesh	Indore (363)
52	Odisha	Mayurbhanj (2319)	Odisha	Dhenkanal (359)
53	Jharkhand	Purba Singhbhum (2311)	Madhya Pradesh	Rewa (352)
54	Odisha	Kendujhar (2299)	Chhattisgarh	Kanker (350)
55	Madhya Pradesh	Narsimhapur (2292)	Chhattisgarh	Korba (350)
56	Odisha	Rayagada (2290)	Jharkhand	Garhwa (346)
57	Odisha	Bargarh (2286)	Rajasthan	Bundi (346)
58	Bihar	Aurangabad (2284)	Rajasthan	Bhilwara (338)
59	Jharkhand	Lohardaga (2282)	Uttar Pradesh	Jhansi (336)
60	Madhya Pradesh	Rewa (2260)	Madhya Pradesh	Panna (330)
61	Bihar	Banka (2257)	Rajasthan	Tonk (329)
62	Madhya Pradesh	Bhind (2250)	Madhya Pradesh	East Nimar (325)
63	Bihar	Jehanabad (2244)	Madhya Pradesh	Sheopur (323)
64	Chhattisgarh	Rajnandgaon (2239)	Odisha	Puri (321)
65	Chhattisgarh	Bilaspur (2229)	Madhya Pradesh	Bhind (321)
66	Odisha	Kendrapara (2228)	Bihar	Katihar (315)
67	Odisha	Baudh (2213)	Bihar	Madhubani (315)
68	Rajasthan	Bundi (2207)	Madhya Pradesh	Chhindwara (312)
69	Chhattisgarh	Raigarh (2196)	Madhya Pradesh	Dhar (307)
70	Bihar	Lakhisarai (2183)	Chhattisgarh	Dhamtari (304)
71	Odisha	Jharsuguda (2174)	Uttar Pradesh	Hathras (302)
72	Rajasthan	Baran (2173)	Uttarakhand	Rudraprayag (298)
73	Madhya Pradesh	Balaghat (2163)	Odisha	Jajapur (297)
74	Madhya Pradesh	Tikamgarh (2154)	Assam	Lakhimpur (294)
75	Odisha	Koraput (2152)	Uttarakhand	Champawat (292)
76	Bihar	Jamui (2141)	Madhya Pradesh	Ratlam (291)
77	Odisha	Sonapur (2140)	Assam	Nalbari (291)
78	Bihar	Munger (2138)	Uttar Pradesh	Budaun (291)
79	Bihar	Rohtas (2100)	Madhya Pradesh	Harda (289)
80	Chhattisgarh	Koriya (2099)	Chhattisgarh	Dantewada (285)
81	Madhya Pradesh	Damoh (2098)	Madhya Pradesh	Barwani (282)
82	Madhya Pradesh	Betul (2069)	Madhya Pradesh	Bhopal (282)
83	Bihar	Pashchim Champaran (2068)	Uttar Pradesh	Lucknow (280)
84	Odisha	Jagatsinghpur (2066)	Madhya Pradesh	Mandsaur (278)
85	Odisha	Nayagarh (2063)	Uttarakhand	Nainital (278)
86	Jharkhand	Dumka (2062)	Uttar Pradesh	Ghaziabad (278)
87	Chhattisgarh	Dhamtari (2062)	Odisha	Anugul (277)
88	Madhya Pradesh	Hoshangabad (2053)	Uttar Pradesh	Unnao (277)
89	Bihar	Khagaria (2052)	Rajasthan	Banswara (276)
90	Bihar	Begusarai (2050)	Chhattisgarh	Jashpur (273)
91	Uttar Pradesh	Mainpuri (2043)	Rajasthan	Sirohi (273)
92	Assam	Karbi Anglong (2036)	Madhya Pradesh	West Nimar (271)
93	Assam	Goalpara (2031)	Bihar	Supaul (269)
94	Assam	Nalbari (2021)	Madhya Pradesh	Datia (268)
95	Uttar Pradesh	Saharanpur (2016)	Bihar	Khagaria (263)
96	Uttar Pradesh	Bareilly (2016)	Uttar Pradesh	G B Nagar (261)
97	Bihar	Darbhanga (2014)	Odisha	Baleshwar (257)
98	Uttar Pradesh	Firozabad (2013)	Uttar Pradesh	Meerut (257)
99	Chhattisgarh	Jashpur (1996)	Odisha	Ganjam (254)
100	Rajasthan	Dausa (1994)	Uttar Pradesh	Mathura (253)

9.3. Inter-District Disparities

Figure 9.3: Comparison between the levels of severe and major injuries across rural-urban and male-female population (2012-13)

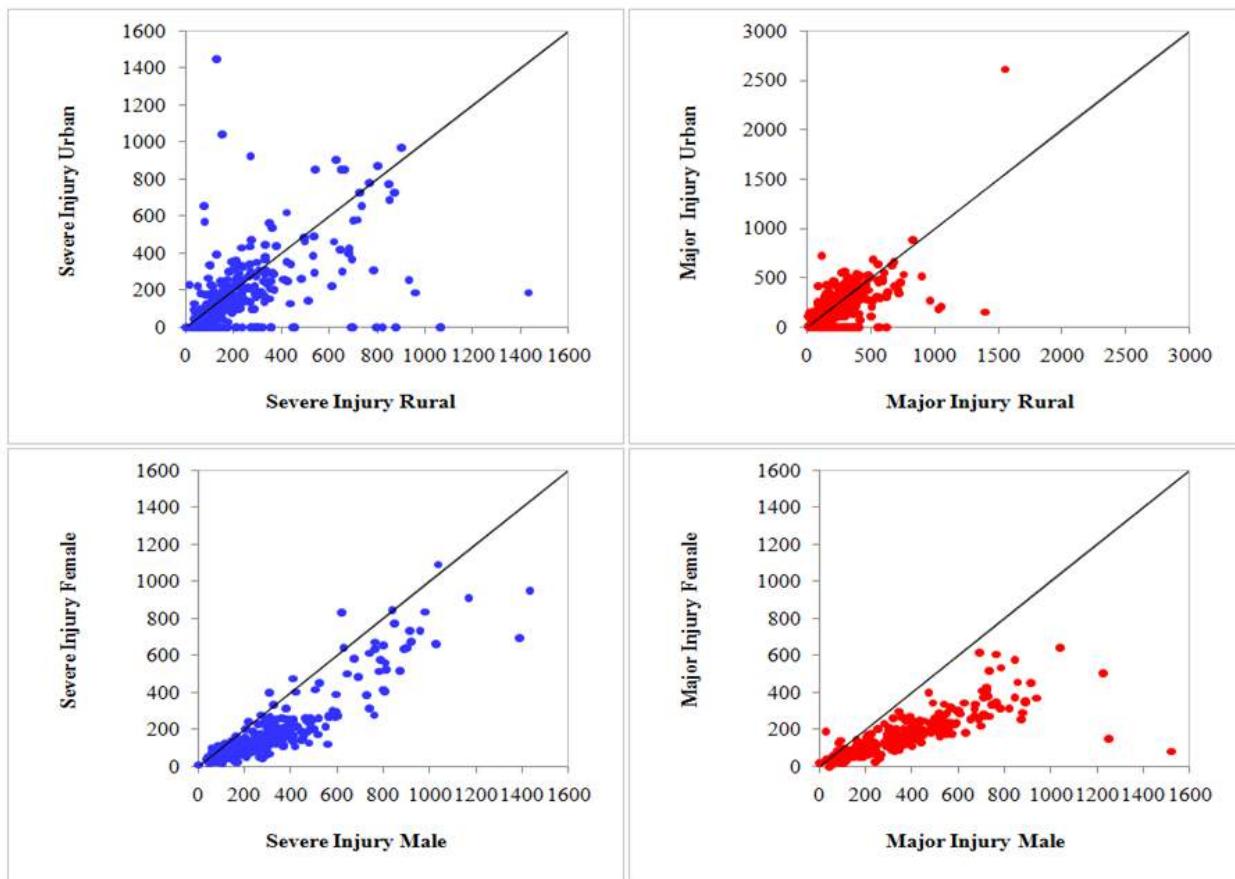
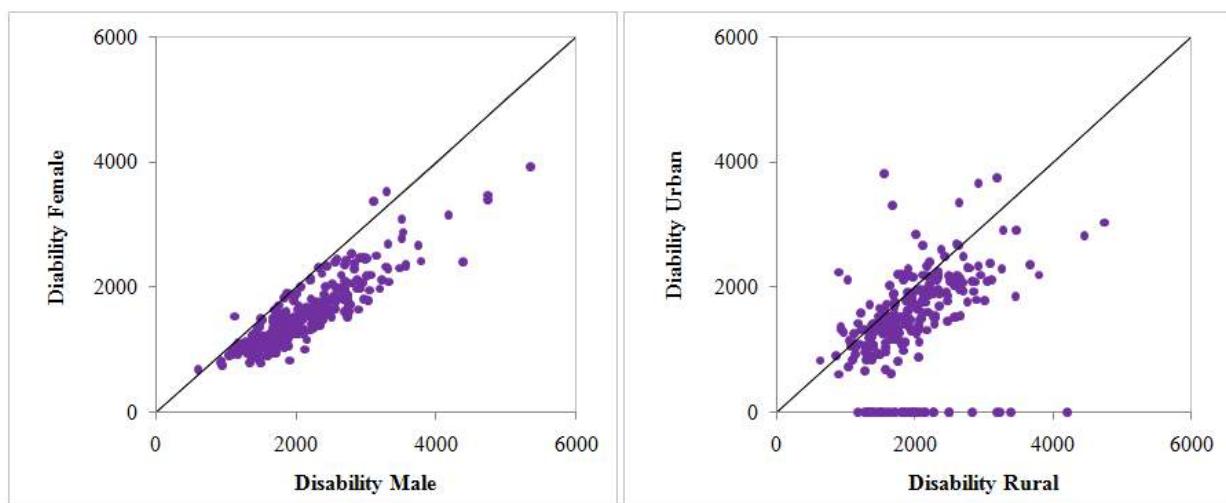


Figure 9.4: Comparison between the prevalence of disability among male-female and rural-urban population (2012-13)

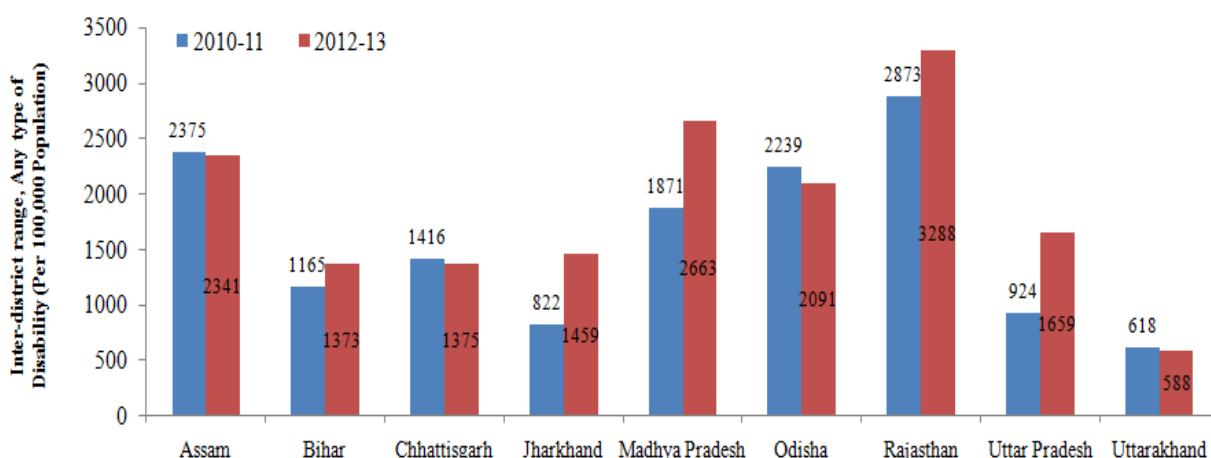


9.12 Figure 9.3 shows that rural areas recorded relatively higher cases of severe injuries than urban areas and males reported a significantly higher percentage of cases than females. Similarly Figure 9.4 reveals that rural areas of the AHS States recorded remarkably higher occurrences of disabilities than the urban areas, with poor health conditions serving as one of the factors for the dismal performance. Male showed

higher cases of disabilities than females in most of the districts. Figure 9.5 shows the State-wise inter-district range with regard to the occurrence of cases of any disability per 100,000 population for the year 2010-11 and 2012-13. In 2012-13, the least inter-district range in prevalence of disabilities was in Uttarakhand (588 per 100,000 population), while the maximum was in Rajasthan (3288 per 100,000 population).

Figure 9.5: District level Disparity in Disability

State-wise comparison between the inter-district range of prevalence of disability per 100,000 population in 2010-11 and 2012-13



9.4. Key Findings

- Odisha recorded the highest occurrence of cases of disability in 2012-13 at 2,358 per 100,000 population, while Uttar Pradesh recorded the lowest at 1,496 per 100,000 population. The prevalence of disability increased considerably across States between 2010-11 and 2012-13.
- Jharkhand recorded the highest cases of severe injuries at 376, Uttarakhand reported the lowest at 184. The maximum cases of major injuries were seen in Odisha at 284, while Bihar recorded the lowest at 185. The maximum cases of minor injuries too can be seen in Odisha (1735) and the lowest in Chhattisgarh (504).
- The number of people receiving treatment for injuries varies across States. Maximum cases of both major and minor injuries have been recorded from Odisha, whose share is also considerably high in terms of severe injuries. Also, major injuries and disabilities are more common among males than females across most of the districts. Prevalence of disability is also higher among rural areas.

10.1 This chapter presents multidimensional maternal and child health deprivation indices to ascertain the relative positions of the AHS districts in overall performance and to examine the changes in rankings between 2010-11 and 2012-13. The index uses a total of ten important indicators to capture the deprivations in the dimensions of maternal and child health. The index is based on a simple aggregation of the normalized indicators with equal weights being provided to each indicator and each dimension. The results focus on inter-temporal comparison of the performance of districts in both maternal and child health dimensions.

10.1. Definition of indicators

10.1.1. Maternal Health Deprivation

1. Total fertility rate is defined as the estimated number of children that would be born to a woman during the entire child bearing age, based on the current age-specific fertility rates.
2. Unmet need for contraception measures the proportion of women who don't want to have any more children or delay conceiving the next child yet doesn't use any method of contraception in spite of being sexually active.
3. Non-SBA assisted home births refers to the home-births which are conducted by persons not trained to provide even the basic and emergency medical attention required childbirth and postpartum. This indicator here does not include trained dais.
4. No full antenatal care indicates that women don't receive full medical attention during pregnancy. Full ANC includes components of three ANC visits, receipt of one tetanus

toxoid vaccine and 100 IFA tables. Non-receipt of full ANC deprives women of the chances of detecting various complications which can be addressed.

5. No postnatal care refers to the situation where women don't receive medical attention after child birth. It causes various issues such as heavy postpartum bleeding to be left untreated and poses risks to the health of the mother and child.

10.1.2. Child Health Deprivation

6. Not breastfed in first one hour after birth deprives the new born child of various health benefits. It is beneficial even for the mother
7. Incomplete immunization shows the extent to which children who are not made immune to various life-threatening diseases. It is one of the easiest and most cost-effective means to prevent various ailments.
8. Low birth weight indicates that the weight of the infant at birth was less than 2500 grams. The birth weight also affects an infant's survival chances and various other child health indicators.
9. Infant mortality rate measure the death of children before reaching the age of 1 per 1000 population. It reveals the various underlying health concerns faced by infants.
10. Diarrhoea is an indication of bacterial, viral or parasitic organisms in the intestinal tract. Contaminated food or drinking-water and poor hygiene are the causes of diarrhoea.

10.2. Maternal and Child Health Deprivation Index: Method

- 10.2 The maternal and child health deprivation index is designed to provide a summary measure

of health deprivation and draw attention towards the districts where such deprivations are higher. The index is computed for the AHS 2010-11 and 2012-13 district-level information. The index summarizes the deprivation score in each of the dimensions using a simple aggregation procedure. The districts are considered as the unit of analysis. For each district and for each indicator the normalized deprivation score for each indicator is computed using the following method: Normalized deprivation score for i^{th} district and j^{th} indicator, $I_{ij} = D_{ij}/D_{\max j}$. Here, $D_{\max j}$ is the highest value for j^{th} indicator across all districts. It is apparent that the normalized deprivations score will range from 0 to 1 with district with maximum deprivation level receiving a normalized deprivation score of 1 whereas district with no deprivation will obtain a normalized deprivation score of 0.

10.3 Following the normalization, the maternal health deprivation (MHD) index (based on 5 indicators), child health deprivation (CHD) index (based on 5 indicators) and maternal and child health deprivation (MCHD) index (based on 10 indicators) for the i^{th} district are computed as follows;

$$\text{MHD Index}_i = \sum w_j I_{ij} \text{ for } (j = 1, 2, 3, 4, 5) \\ \text{indicators related to maternal health}$$

$$\text{CHD Index}_i = \sum w_j I_{ij} \text{ for } (j = 6, 7, 8, 9, 10) \\ \text{indicators related to child health}$$

$$\text{MCHD Index}_i = \sum w_j I_{ij} \text{ for } (j = 1, 2, 3, \dots, 10) \\ \text{indicators related to maternal and child health.}$$

10.4 Where, w_j is the weight presented to the j^{th} indicator (here equal weights to all indicator i.e., weight = $j/1$) and I_{ij} is the normalized score of the j^{th} indicator for the i^{th} district. For interpretation purposes, districts with higher maternal and child health deprivation index value indicates poor performance in the selected dimensions whereas low index values suggests better performance.

10.3. Maternal and Child Health Deprivation Index: District Performance

10.5 Table 10.1 presents data of the districts of the nine AHS States that mark the highest and lowest maternal health deprivation in 2010-11 and 2012-13. In 2010-11, Sheohar district of Bihar recorded the worst performance with a maternal health deprivation index value of 0.855 as opposed to Jagatsinghpur in Odisha that registered the finest performance with an index value of 0.248.

10.6 Sheohar is again identified as the district with highest maternal health deprivation index value (0.871) even in 2012-13, while Jagatsinghpur district is again identified as the district with lowest maternal deprivation index value (0.183).

10.7 The table further shows that most districts across AHS States have retained their positions of being the best or worst performers. The inter-district disparity has been relatively high across States and has remained constant over the monitored time periods, the farthest gap being in Odisha (0.468 in 2010-11 and 0.493 in 2012-13).

Map 10.1: Maternal health deprivation index (2012-13) in AHS States (district-wise)

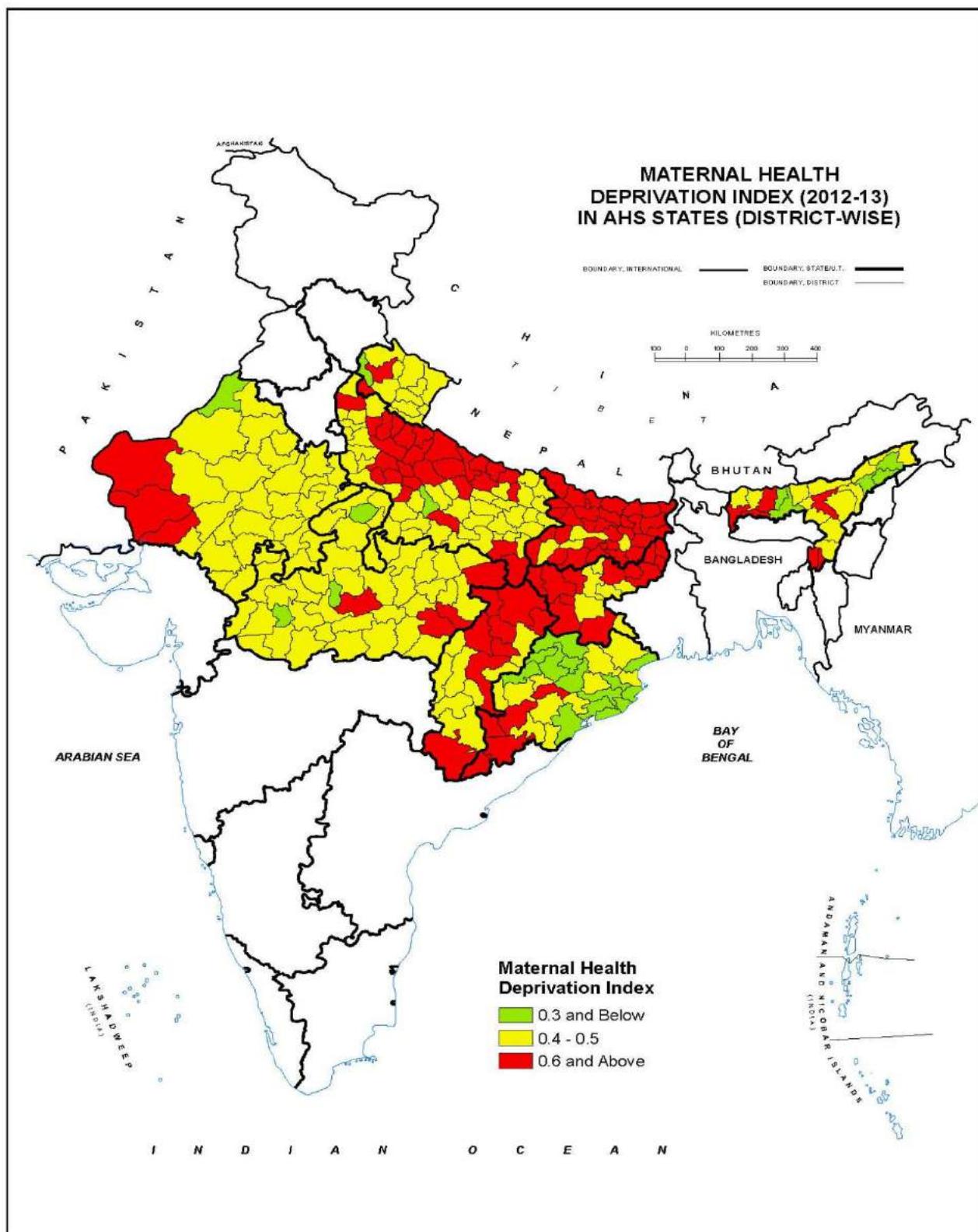


Table 10.1: Highest and Lowest Maternal Health Deprivation Index Values

State-wise comparison of the districts with the highest and lowest score on the maternal health deprivation index in 2010-11 and 2012-13

State	2010-11		2012-13	
	Highest	Lowest	Highest	Lowest
Assam	0.777	0.332	0.743	0.255
	Hailakandi	Nalbari	Karimganj	Kamrup
Bihar	0.855	0.460	0.871	0.460
	Sheohar	Patna	Sheohar	Patna
Chhattisgarh	0.731	0.421	0.718	0.387
	Surguja	Dhamtari	Surguja	Dhamtari
Jharkhand	0.766	0.455	0.761	0.426
	Gumla	Purba Singhbhum	Pakaur	Purba Singhbhum
Madhya Pradesh	0.676	0.306	0.667	0.269
	Dindori	Indore	Dindori	Gwalior
Odisha	0.716	0.248	0.676	0.183
	Nabarangapur	Jagatsinghpur	Koraput	Jagatsinghpur
Rajasthan	0.707	0.369	0.656	0.347
	Jaisalmer	Jaipur	Barmer	Ganganagar
Uttar Pradesh	0.837	0.423	0.757	0.367
	Kheri	Jhansi	Bahraich	Kanpur Nagar
Uttarakhand	0.649	0.390	0.621	0.295
	Tehri Garhwal	Nainital	Tehri Garhwal	Dehradun

Table 10.2: Highest and Lowest Child Health Deprivation Index Values

State-wise comparison of the districts with the highest and lowest score on the child health deprivation index in 2010-11 and 2012-13

State	2010-11		2012-13	
	Highest	Lowest	Highest	Lowest
Assam	0.507	0.292	0.539	0.306
	Dhubri	Lakhimpur	Karimganj	Sibsagar
Bihar	0.613	0.367	0.631	0.365
	Purba Champaran	Vaishali	Kishanganj	Vaishali
Chhattisgarh	0.450	0.236	0.434	0.207
	Jashpur	Durg	Jashpur	Kanker
Jharkhand	0.527	0.312	0.572	0.321
	Godda	Purba Singhbhum	Pakaur	Purba Singhbhum
Madhya Pradesh	0.613	0.343	0.673	0.327
	Sagar	Indore	Shahdol	Bhopal
Odisha	0.578	0.307	0.540	0.294
	Kandhamal	Baleshwar	Kandhamal	Baleshwar
Rajasthan	0.691	0.307	0.709	0.303
	Dhaulpur	Nagaur	Dhaulpur	Nagaur
Uttar Pradesh	0.880	0.256	0.731	0.278
	Budaun	Jhansi	Budaun	Jhansi
Uttarakhand	0.524	0.199	0.550	0.170
	Haridwar	Rudraprayag	Haridwar	Rudraprayag

10.8 Table 10.2 lists the districts that are at the extreme ends in terms of their performance with regard to child health deprivation index. Badaun district of Uttar Pradesh performed poorly in 2010-11 with the highest child health deprivation index value (0.880). Rudraprayag in Uttarakhand recorded the lowest child health deprivation index value in 2010-11 at 0.199. In 2012-13 too, Badaun continued to perform poorly by recording the highest child health deprivation index value of 0.731. Rudraprayag continued to be the district with the lowest child health deprivation in 2012-13. The inter-district gap in deprivation has been the highest in Uttar Pradesh for the years 2010-11 and 2012-13. While Jashpur in Chhattisgarh, Kandhamal in Odisha, Dhaulpur in Rajasthan, Badaun in Uttar Pradesh and Haridwar retained their positions of faring poorly in terms of child health, Vaishali in Bihar, Purba Singhbhum in Jharkhand, Baleshwar in Odisha, Nagaur in Rajasthan, Jhansi in Uttar Pradesh and Rudraprayag maintained their best performance.

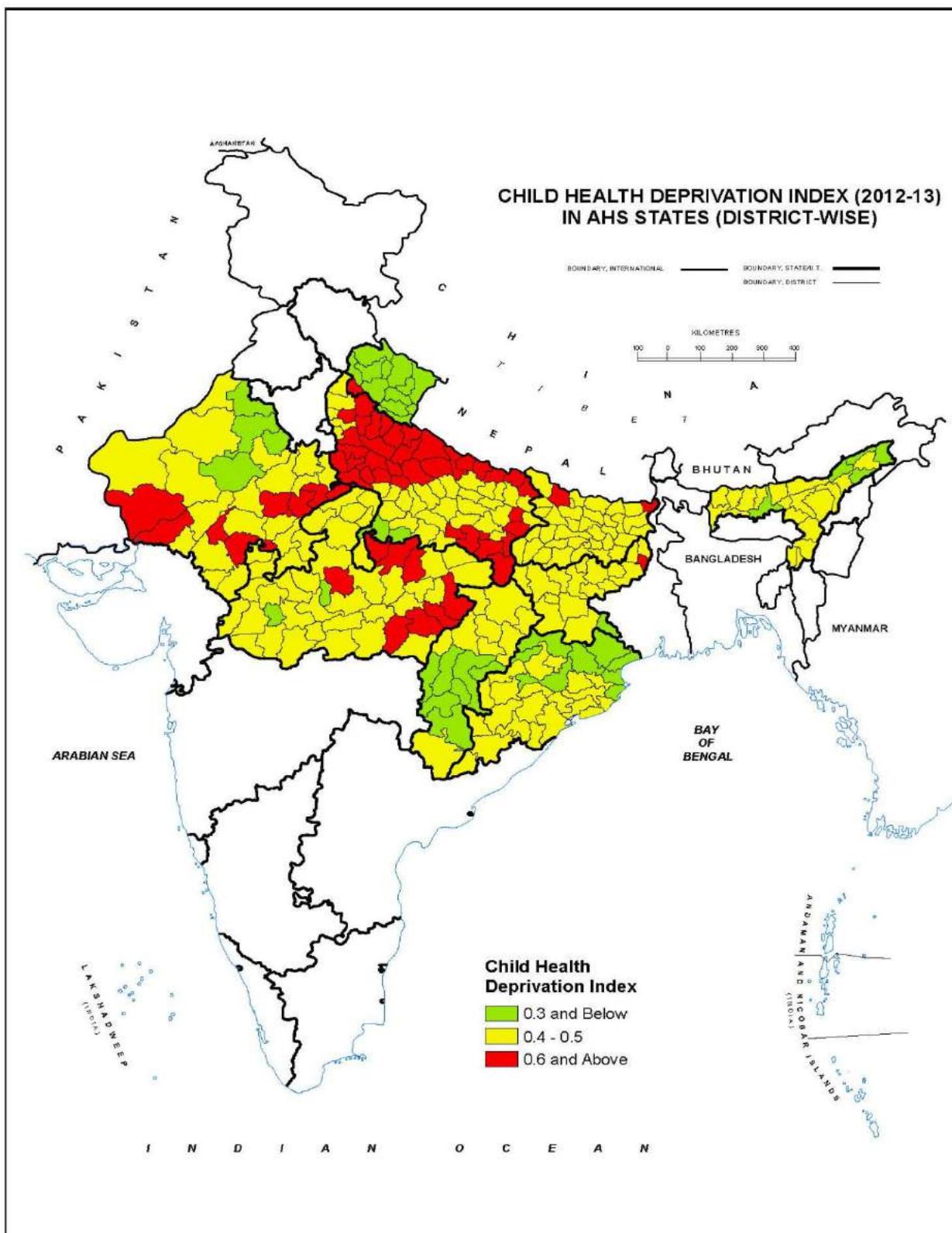
10.9 Table 10.3 denotes the districts of the nine AHS States that featured the highest and lowest child and maternal health deprivation index values. All the 10 indicators that determined child and maternal health deprivation index values are included here. The combined figures of child and maternal health denote that Badaun fared poorly in both the years. While, Jharsuguda district in Odisha emerges as the best performing district in maternal and child health with lowest index value of 0.295 and 0.256 in 2010-11 and 2012-13, respectively. It can be seen that almost all the districts that registered the highest deprivation score in 2010-11 retained their position of being the worst performers in 2012-13 and it is important to note that figures of most districts worsened in between 2010-11 and 2012-13. The inter-district disparity here too is the highest in Uttar Pradesh in 2010-11 and 2012-13 at 0.516 and 0.392. All the States, except Jharkhand and Odisha, have the same districts that have recorded the poorest figures in both the periods.

Table 10.3: Highest and Lowest Maternal and Child Health Deprivation Index Values

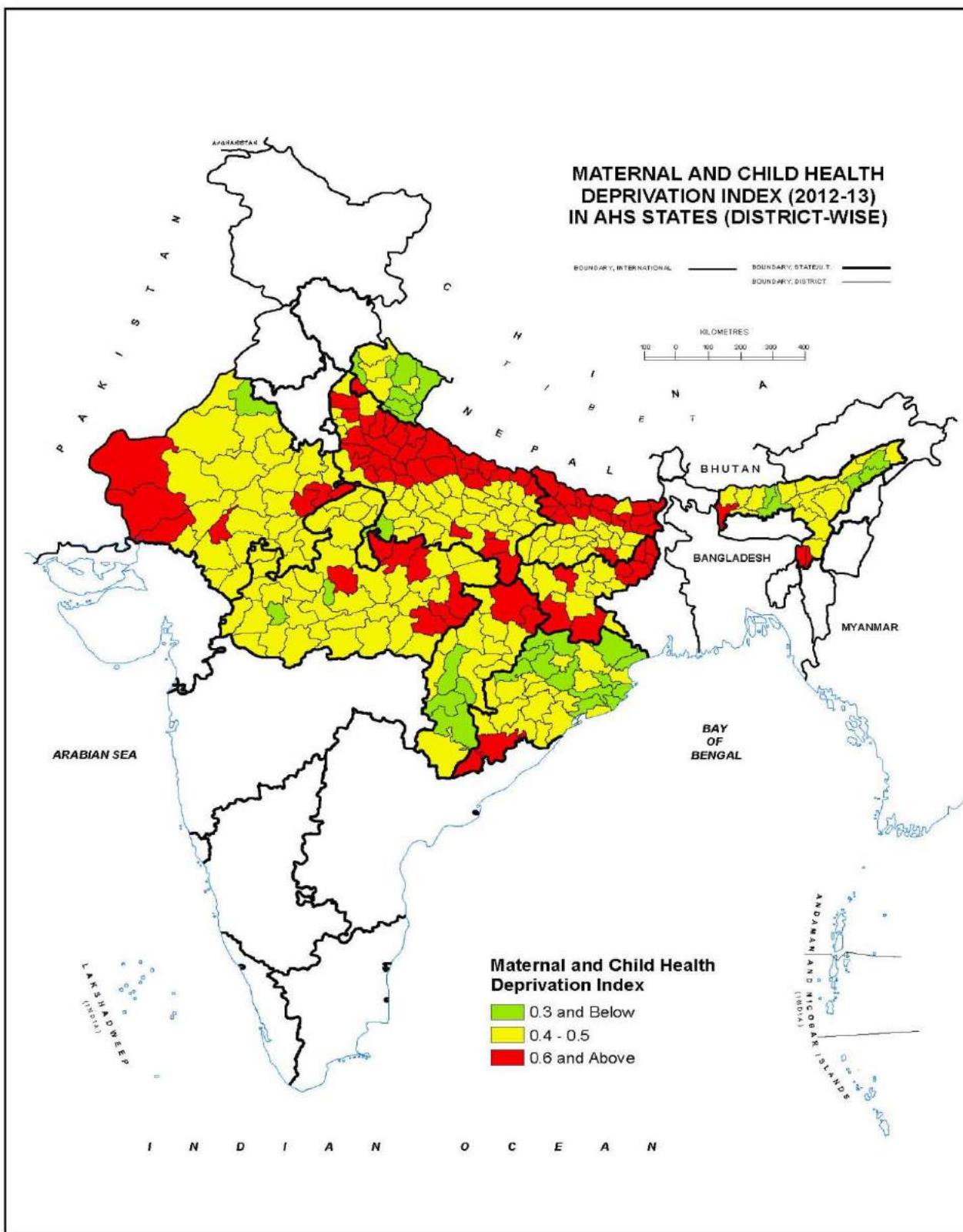
State-wise comparison of the districts with the highest and lowest score on the child and maternal health deprivation index in 2010-11 and 2012-13

State	2010-11		2012-13	
	Highest	Lowest	Highest	Lowest
Assam	0.63	0.335	0.641	0.289
	Karimganj	Nalbari	Karimganj	Kamrup
Bihar	0.713	0.456	0.736	0.413
	Purba Champaran	Patna	Purba Champaran	Patna
Chhattisgarh	0.578	0.352	0.561	0.305
	Jashpur	Durg	Jashpur	Kanker
Jharkhand	0.63	0.383	0.666	0.373
	Gumla	Purba Singhbhum	Pakaur	Purba Singhbhum
Madhya Pradesh	0.591	0.324	0.615	0.298
	Dindori	Indore	Dindori	Bhopal
Odisha	0.616	0.295	0.591	0.256
	Malkangiri	Jharsuguda	Koraput	Jharsuguda
Rajasthan	0.615	0.367	0.626	0.345
	Dhaulpur	Jaipur	Dhaulpur	Hanumangarh
Uttar Pradesh	0.856	0.34	0.729	0.337
	Badaun	Jhansi	Badaun	Jhansi
Uttarakhand	0.568	0.329	0.565	0.311
	Haridwar	Nainital	Haridwar	Nainital

Map 10.2: Child health deprivation index (2012-13) in AHS States (district-wise)



Map 10.3: Maternal and child health deprivation index (2012-13) in AHS States (district-wise)



10.10 Table 10.4 lists the 10 districts with the highest and lowest levels of maternal health deprivation index values in 2010-11 and 2012-13. It can be observed that in 2010-11, among the 10 best performing districts, 7 are from Odisha, while 6 of its districts are among the best 10 districts in 2012-13. Jagatsinghpur district is identified with lowest maternal health deprivation index value of 0.248 and 0.183 in 2010-11 and

2012-13. In 2010-11, the worst performing 10 districts are essentially from Bihar, Uttar Pradesh and Assam. The number of districts from Bihar in the list increased from 4 in 2010-11 to 7 in 2012-13, with Sheohar reporting the poorest figures at 0.855 and 0.871 in the corresponding years. Though 5 districts from Uttar Pradesh fared poorly in 2010-11, only one of them were among the worst 10 districts in 2012-13.

Table 10.4: List of 10 Districts with highest and lowest Maternal Health Deprivation Index value across AHS States, 2010-11 and 2012-13

Best 10 districts			Worst 10 districts	
S.No	State	District	State	District
Maternal Health Deprivation Index, 2010-11				
1	Odisha	0.248, Jagatsinghpur	Bihar	0.855, Sheohar
2	Odisha	0.268, Jharsuguda	Uttar Pradesh	0.837, Kheri
3	Odisha	0.291, Baleswar	Uttar Pradesh	0.831, Budaun
4	Odisha	0.294, Bargarh	Bihar	0.812, Purba Champaran
5	Madhya Pradesh	0.306, Indore	Uttar Pradesh	0.8, Hardoi
6	Madhya Pradesh	0.313, Bhopal	Bihar	0.799, Katihar
7	Odisha	0.313, Puri	Uttar Pradesh	0.798, Bahraich
8	Odisha	0.321, Khordha	Bihar	0.78, Sitamarhi
9	Odisha	0.328, Jajapur	Assam	0.777, Hailakandi
10	Assam	0.332, Nalbari	Uttar Pradesh	0.772, Sitapur
Maternal Health Deprivation Index, 2012-13				
1	Odisha	0.183, Jagatsinghpur	Bihar	0.871, Sheohar
2	Odisha	0.205, Jharsuguda	Bihar	0.847, Purba Champaran
3	Odisha	0.246, Bargarh	Bihar	0.843, Sitamarhi
4	Odisha	0.25, Jajapur	Bihar	0.789, Katihar
5	Assam	0.255, Kamrup	Bihar	0.78, Darbhanga
6	Odisha	0.256, Cuttack	Bihar	0.769, Siwan
7	Assam	0.262, Nalbari	Bihar	0.764, Araria
8	Odisha	0.268, Khordha	Jharkhand	0.761, Pakaur
9	Madhya Pradesh	0.269, Gwalior	Uttar Pradesh	0.757, Bahraich
10	Madhya Pradesh	0.27, Bhopal	Assam	0.743, Karimganj

10.11 Table 10.5 lists the highest and lowest performers in the child health deprivation index in 2010-11 and 2012-13. Uttarakhand performs better with 8 of its districts ranked among the best 10 districts with low child health deprivation

index values. Rudraprayag retained its position as the best performing district with values of 0.199 and 0.17 in 2010-11 and 2012-13, respectively. Uttar Pradesh recorded the poorest figures with 9 districts among the worst 10 performers in the

same time period. However, data points out that there are relative improvements in extreme child health deprivation in Uttar Pradesh as only 2 districts are part of the worst 10 in 2012-13. Jhansi was the only district from Uttar Pradesh to

be among the best 10 in both the years, while Badaun was the worst performer in both the years. Badaun is the only district across States to show a dismal performance in both child health and maternal health.

Table 10.5: List of 10 Districts with highest and lowest Child Health Deprivation Index value across AHS States, 2010-11 and 2012-13

Best 10 districts			Worst 10 districts	
S.No	State	District	State	District
Child Health Deprivation Index, 2010-11				
1	Uttarakhand	0.199, Rudraprayag	Uttar Pradesh	0.88, Budaun
2	Uttarakhand	0.212, Pithoragarh	Uttar Pradesh	0.777, Etah
3	Uttarakhand	0.228, Chamoli	Uttar Pradesh	0.732, Firozabad
4	Uttarakhand	0.232, Almora	Uttar Pradesh	0.697, Aligarh
5	Chhattisgarh	0.236, Durg	Rajasthan	0.691, Dhaulpur
6	Uttar Pradesh	0.256, Jhansi	Uttar Pradesh	0.679, Shrawasti
7	Uttarakhand	0.268, Nainital	Uttar Pradesh	0.676, Bahrach
8	Uttarakhand	0.275, Pauri Garhwal	Uttar Pradesh	0.663, Meerut
9	Uttarakhand	0.282, Bageshwar	Uttar Pradesh	0.656, Farrukhabad
10	Chhattisgarh	0.285, Kanker	Uttar Pradesh	0.65, Bulandshahar
Child Health Deprivation Index, 2012-13				
1	Uttarakhand	0.17, Rudraprayag	Uttar Pradesh	0.731, Budaun
2	Uttarakhand	0.176, Chamoli	Uttar Pradesh	0.718, Shrawasti
3	Chhattisgarh	0.207, Kanker	Rajasthan	0.709, Dhaulpur
4	Uttarakhand	0.225, Almora	Rajasthan	0.676, Rajsamand
5	Chhattisgarh	0.226, Durg	Madhya Pradesh	0.673, Shahdol
6	Uttarakhand	0.258, Pithoragarh	Rajasthan	0.673, Karauli
7	Uttarakhand	0.271, Nainital	Madhya Pradesh	0.653, Vidisha
8	Chhattisgarh	0.274, Bastar	Rajasthan	0.645, Sawai Madhopur
9	Uttarakhand	0.275, Pauri Garhwal	Bihar	0.631, Kishanganj
10	Uttar Pradesh	0.278, Jhansi	Madhya Pradesh	0.63, Tikamgarh

10.12 Table 10.6 lists the best and the worst performing 10 districts based on their performance in maternal and child health deprivation index in 2010-11 and 2012-13. Districts from Odisha recorded a better performance in both the examined period, while districts from Uttar Pradesh and Bihar figure prominently in the worst performing 10 districts. Jharsuguda district performed the best in both the

examined periods. The district was also among the best 10 in maternal health. In 2012-13, districts from only Odisha (6), Assam (2), Madhya Pradesh (1) and Chhattisgarh (1) were among the top 10, while districts from Bihar, Uttar Pradesh and Jharkhand made up the list of worst 10 performers. Badaun district in Uttar Pradesh has been consistently poor with regard to maternal health and child health conditions.

Table 10.6: List of 10 Districts with highest and lowest Maternal and Child Health Deprivation Index value across AHS States, 2010-11 and 2012-13

Best 10 districts			Worst 10 districts	
S.No	State	District	State	District
Maternal and Child Health Deprivation Index, 2010-11				
1	Odisha	0.295, Jharsuguda	Uttar Pradesh	0.856, Badaun
2	Odisha	0.299, Baleshwar	Uttar Pradesh	0.751, Etah
3	Odisha	0.321, Jajapur	Uttar Pradesh	0.74, Kheri
4	Madhya Pradesh	0.324, Indore	Uttar Pradesh	0.737, Bagraich
5	Uttarakhand	0.329, Nainital	Bihar	0.713, Purba Champaran
6	Odisha	0.332, Jagatsinghpur	Uttar Pradesh	0.705, Sitapur
7	Madhya Pradesh	0.333, Bhopal	Uttar Pradesh	0.7, Firozabad
8	Assam	0.335, Nalbari	Uttar Pradesh	0.693, Shrawasti
9	Uttar Pradesh	0.34, Jhansi	Uttar Pradesh	0.684, Pilibhit
10	Uttarakhand	0.348, Pithoragarh	Uttar Pradesh	0.682, Kannauj
Maternal and Child Health Deprivation Index, 2012-13				
1	Odisha	0.256, Jharsuguda	Bihar	0.736, Purba Champaran
2	Odisha	0.286, Baleshwar	Uttar Pradesh	0.729, Badaun
3	Odisha	0.287, Kendrapara	Uttar Pradesh	0.708, Shrawasti
4	Assam	0.289, Kamrup	Bihar	0.707, Sheohar
5	Odisha	0.29, Jagatsinghpur	Uttar Pradesh	0.67, Bagraich
6	Assam	0.292, Sibsagar	Jharkhand	0.666, Pakaur
7	Madhya Pradesh	0.298, Bhopal	Uttar Pradesh	0.663, Siddharthnagar
8	Odisha	0.3, Bargarh	Bihar	0.661, Kishanganj
9	Odisha	0.302, Jajapur	Uttar Pradesh	0.661, Sonbhadra
10	Chhattisgarh	0.305, Kanker	Uttar Pradesh	0.657, Balrampur

10.13 Table 10.7 ranks all the districts of the nine AHS States based on maternal and child health deprivation index in 2012-13. A cumulative assessment of all the components governing maternal health and child health deprivation was undertaken to derive the figures. Jharsuguda district in Odisha exhibited the finest conditions of maternal and child health among all the AHS States with the index value of 0.256. Various districts of Odisha fared well in 2012-13, indicating high levels of health conditions.

10.14 On the contrary, a majority of districts with lower index values and ranks are from Uttar Pradesh and Bihar, with Purba Champaran

district showing the highest maternal and child health deprivation in the year with index value of 0.736. The high levels of maternal and child health deprivations in these States call for increased policy attention to reduce further harm that can dent the health system across these States. With regard to maternal health, Purba Champaran performed extremely poor with high total fertility rate and low levels of antenatal care, while in the case of child health; deplorable conditions were recorded with regard to children not breastfed within an hour of birth and incomplete immunization. Sheohar presented a dismal performance in 2012-13 in both child and maternal health, was ranked 281 in the list of 284.

Table 10.7: Ranking of Districts on the Maternal and Child Health Deprivation Index (2012-13)

District	State	Index	Rank	District	State	Index	Rank
Jharsuguda	Odisha	0.256	1	Jhunjhunun	Rajasthan	0.353	36
Baleshwar	Odisha	0.286	2	Debagarh	Odisha	0.358	37
Kendrapara	Odisha	0.287	3	Lakhimpur	Assam	0.358	38
Kamrup	Assam	0.289	4	Ganganagar	Rajasthan	0.361	39
Jagatsinghpur	Odisha	0.29	5	Purba Singhbhum	Jharkhand	0.373	40
Sibsagar	Assam	0.292	6	Nagaur	Rajasthan	0.376	41
Bhopal	MP	0.298	7	Kanpur Nagar	UP	0.38	42
Bargarh	Odisha	0.3	8	Tinsukia	Assam	0.381	43
Jajapur	Odisha	0.302	9	Puri	Odisha	0.384	44
Kanker	Chhattisgarh	0.305	10	Pauri Garhwal	Uttarakhand	0.385	45
Nainital	Uttarakhand	0.311	11	Sonapur	Odisha	0.386	46
Anugul	Odisha	0.312	12	Dhenkanal	Odisha	0.388	47
Dehradun	Uttarakhand	0.319	13	Sonitpur	Assam	0.39	48
Indore	MP	0.321	14	Dhemaji	Assam	0.393	49
Sambalpur	Odisha	0.328	15	Sikar	Rajasthan	0.393	50
Sundargarh	Odisha	0.329	16	Mahasamund	Chhattisgarh	0.396	51
Cuttack	Odisha	0.33	17	Kendujhar	Odisha	0.396	52
Dhamtari	Chhattisgarh	0.333	18	Dewas	MP	0.398	53
Rudraprayag	Uttarakhand	0.334	19	Ganjam	Odisha	0.398	54
Pithoragarh	Uttarakhand	0.334	20	Uttarkashi	Uttarakhand	0.399	55
Dibrugarh	Assam	0.334	21	Ratlam	MP	0.402	56
Jhansi	UP	0.337	22	Dhar	MP	0.406	57
Nalbari	Assam	0.337	23	Hoshangabad	MP	0.406	58
Jorhat	Assam	0.338	24	Golaghat	Assam	0.407	59
Mayurbhanj	Odisha	0.339	25	Betul	MP	0.408	60
Chamoli	Uttarakhand	0.341	26	North Cachar Hills	Assam	0.408	61
Durg	Chhattisgarh	0.342	27	Kota	Rajasthan	0.409	62
Khordha	Odisha	0.344	28	Balangir	Odisha	0.41	63
Almora	Uttarakhand	0.344	29	Alwar	Rajasthan	0.413	64
Champawat	Uttarakhand	0.344	30	Balaghat	MP	0.413	65
Hanumangarh	Rajasthan	0.345	31	Patna	Bihar	0.413	66
Bastar	Chhattisgarh	0.348	32	Ujjain	MP	0.414	67
Udham Singh Nagar	Uttarakhand	0.35	33	Jaipur	Rajasthan	0.414	68
Gwalior	MP	0.35	34	Churu	Rajasthan	0.415	69
Bhadrak	Odisha	0.352	35	Sehore	MP	0.415	70

Table 10.7: Ranking of Districts on Maternal and Child Health Deprivation Index (2012-13) contd...

District	State	Index	Rank	District	State	Index	Rank
Mahoba	UP	0.418	71	Hamirpur	UP	0.463	106
Mandsaur	MP	0.418	72	Jhalawar	Rajasthan	0.465	107
Bharatpur	Rajasthan	0.421	73	Chhindwara	MP	0.465	108
West Nimar	MP	0.421	74	Baghpat	UP	0.466	109
Narsimhapur	MP	0.421	75	Bikaner	Rajasthan	0.467	110
Bongaigaon	Assam	0.424	76	Kodarma	Jharkhand	0.467	111
Nayagarh	Odisha	0.424	77	Dhanbad	Jharkhand	0.468	112
Neemuch	MP	0.426	78	Banswara	Rajasthan	0.469	113
Rajgarh	MP	0.426	79	Kokrajhar	Assam	0.469	114
Dausa	Rajasthan	0.427	80	Gorakhpur	UP	0.472	115
Bageshwar	Uttarakhand	0.428	81	Rohtas	Bihar	0.472	116
Bokaro	Jharkhand	0.428	82	Chittaurgarh	Rajasthan	0.473	117
Guna	MP	0.429	83	East Nimar	MP	0.474	118
Lucknow	UP	0.431	84	Bundi	Rajasthan	0.475	119
Nuapada	Odisha	0.432	85	Barpeta	Assam	0.475	120
Ranchi	Jharkhand	0.434	86	Kanpur Dehat	UP	0.476	121
Katni	MP	0.435	87	Kawardha	Chhattisgarh	0.477	122
Rajnandgaon	Chhattisgarh	0.435	88	Jhabua	MP	0.478	123
Shajapur	MP	0.436	89	Goalpara	Assam	0.479	124
Ajmer	Rajasthan	0.439	90	Dantewada	Chhattisgarh	0.481	125
Raipur	Chhattisgarh	0.443	91	Ghaziabad	UP	0.481	126
Marigaon	Assam	0.443	92	Tehri Garhwal	Uttarakhand	0.481	127
Bhind	MP	0.443	93	Shivpuri	MP	0.482	128
Hazaribagh	Jharkhand	0.445	94	Sirohi	Rajasthan	0.484	129
Datia	MP	0.446	95	Banda	UP	0.484	130
Baran	Rajasthan	0.447	96	Darrang	Assam	0.484	131
Jehanabad	Bihar	0.448	97	Aurangabad	Bihar	0.485	132
Jabalpur	MP	0.45	98	Kalahandi	Odisha	0.486	133
Harda	MP	0.452	99	Sultanpur	UP	0.488	134
Karbi Anglong	Assam	0.453	100	Umaria	MP	0.488	135
Gajapati	Odisha	0.453	101	Bhojpur	Bihar	0.488	136
Lalitpur	UP	0.453	102	Cachar	Assam	0.488	137
Raigarh	Chhattisgarh	0.453	103	Nalanda	Bihar	0.49	138
Munger	Bihar	0.454	104	Kaimur (Bhabua)	Bihar	0.491	139
Jodhpur	Rajasthan	0.458	105	Faizabad	UP	0.491	140

Table 10.7: Ranking of Districts on Maternal and Child Health Deprivation Index (2012-13) contd...

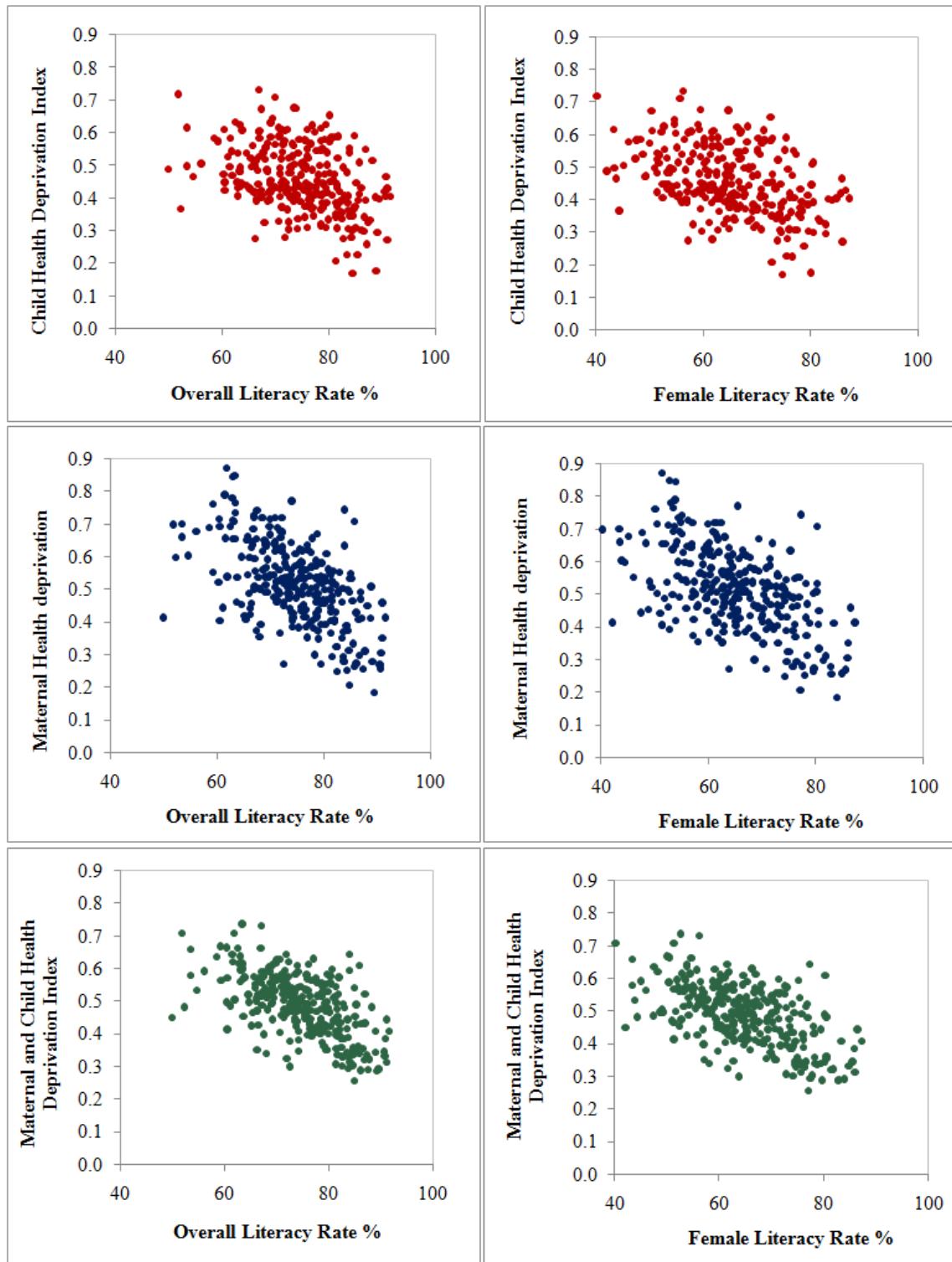
District	State	Index	Rank	District	State	Index	Rank
Morena	MP	0.491	141	Sagar	MP	0.52	176
Varanasi	UP	0.492	142	Pratapgarh	UP	0.521	177
Sheikhpura	Bihar	0.494	143	Fatehpur	UP	0.524	178
Janjgir-Champa	Chhattisgarh	0.495	144	Damoh	MP	0.524	179
Etawah	UP	0.495	145	Chandauli	UP	0.525	180
Barwani	MP	0.495	146	Bilaspur	Chhattisgarh	0.527	181
Bhilwara	Rajasthan	0.496	147	Garhwa	Jharkhand	0.527	182
Rayagada	Odisha	0.496	148	Allahabad	UP	0.527	183
Rae Bareli	UP	0.496	149	Jaunpur	UP	0.528	184
Deoria	UP	0.497	150	Palamu	Jharkhand	0.528	185
Korba	Chhattisgarh	0.499	151	Auraiya	UP	0.53	186
Koriya	Chhattisgarh	0.499	152	Ghazipur	UP	0.533	187
Dungarpur	Rajasthan	0.499	153	Satna	MP	0.533	188
Kandhamal	Odisha	0.503	154	Basti	UP	0.533	189
Buxar	Bihar	0.503	155	Nabarangapur	Odisha	0.533	190
Sheopur	MP	0.503	156	Tonk	Rajasthan	0.534	191
Banka	Bihar	0.508	157	Khagaria	Bihar	0.534	192
Saharanpur	UP	0.509	158	Raisen	MP	0.535	193
Lakhisarai	Bihar	0.509	159	Sidhi	MP	0.537	194
Chitrakoot	UP	0.51	160	Sant Kabir Nagar	UP	0.537	195
Ambedkar Nagar	UP	0.512	161	Udaipur	Rajasthan	0.537	196
Pali	Rajasthan	0.513	162	Begusarai	Bihar	0.538	197
Seoni	MP	0.513	163	Lohardaga	Jharkhand	0.539	198
Nagaon	Assam	0.513	164	Agra	UP	0.54	199
Ballia	UP	0.514	165	Supaul	Bihar	0.541	200
Jalaun	UP	0.515	166	Mau	UP	0.543	201
Baudh	Odisha	0.515	167	Mathura	UP	0.543	202
Rewa	MP	0.515	168	Gaya	Bihar	0.544	203
Unnao	UP	0.516	169	Bijnor	UP	0.545	204
Bhagalpur	Bihar	0.516	170	Barabanki	UP	0.546	205
Azamgarh	UP	0.516	171	Giridih	Jharkhand	0.547	206
Nawada	Bihar	0.518	172	Chhatarpur	MP	0.551	207
Samastipur	Bihar	0.519	173	Maharajganj	UP	0.551	208
Vaishali	Bihar	0.52	174	Deoghar	Jharkhand	0.552	209
G B Nagar	UP	0.52	175	SR Nagar (Bhadoli)	UP	0.553	210

Table 10.7: Ranking of Districts on Maternal and Child Health Deprivation Index (2012-13) contd...

District	State	Index	Rank	District	State	Index	Rank
Dhubri	Assam	0.554	211	Koraput	Odisha	0.591	248
Surguja	Chhattisgarh	0.555	212	Rampur	UP	0.591	249
Meerut	UP	0.555	213	Mainpuri	UP	0.592	250
Bulandshahar	UP	0.555	214	Pilibhit	UP	0.593	251
Kushinagar	UP	0.556	215	Pashchim Champaran	Bihar	0.594	252
Muzaffarnagar	UP	0.557	216	Godda	Jharkhand	0.595	253
Madhubani	Bihar	0.558	217	Kannauj	UP	0.596	254
Dumka	Jharkhand	0.56	218	Araria	Bihar	0.599	255
Jashpur	Chhattisgarh	0.561	219	Muzaffarpur	Bihar	0.602	256
Mandla	MP	0.562	220	Hailakandi	Assam	0.607	257
Jalor	Rajasthan	0.563	221	Shahdol	MP	0.608	258
Chatra	Jharkhand	0.564	222	Gonda	UP	0.611	259
Saharsa	Bihar	0.564	223	Sahibganj	Jharkhand	0.614	260
Haridwar	Uttarakhand	0.565	224	Darbhanga	Bihar	0.614	261
Panna	MP	0.566	225	Dindori	MP	0.615	262
Mirzapur	UP	0.567	226	Bareilly	UP	0.619	263
Jamui	Bihar	0.567	227	Barmer	Rajasthan	0.62	264
Jaisalmer	Rajasthan	0.567	228	Dhaulpur	Rajasthan	0.626	265
Sawai Madhopur	Rajasthan	0.568	229	Sitapur	UP	0.627	266
Purnia	Bihar	0.57	230	Etah	UP	0.628	267
Aligarh	UP	0.57	231	Farrukhabad	UP	0.633	268
Kaushambi	UP	0.572	232	Sitamarhi	Bihar	0.637	269
Tikamgarh	MP	0.572	233	Karimganj	Assam	0.641	270
Firozabad	UP	0.572	234	Katihar	Bihar	0.642	271
Madhepura	Bihar	0.573	235	Shahjahanpur	UP	0.642	272
Gumla	Jharkhand	0.573	236	Kheri	UP	0.643	273
Gopalganj	Bihar	0.573	237	Hardoi	UP	0.655	274
Saran	Bihar	0.574	238	Balrampur	UP	0.657	275
Pashchimi Singhbhum	Jharkhand	0.575	239	Sonbhadra	UP	0.661	276
Vidisha	MP	0.576	240	Kishanganj	Bihar	0.661	277
Malkangiri	Odisha	0.579	241	Siddharthnagar	UP	0.663	278
Moradabad	UP	0.579	242	Pakaur	Jharkhand	0.666	279
J P Nagar	UP	0.58	243	Bahraich	UP	0.67	280
Hathras	UP	0.581	244	Sheohar	Bihar	0.707	281
Rajsamand	Rajasthan	0.581	245	Shrawasti	UP	0.708	282
Karauli	Rajasthan	0.587	246	Budaun	UP	0.729	283
Siwan	Bihar	0.588	247	Purba Champaran	Bihar	0.736	284

10.4. Association with Developmental Indicators

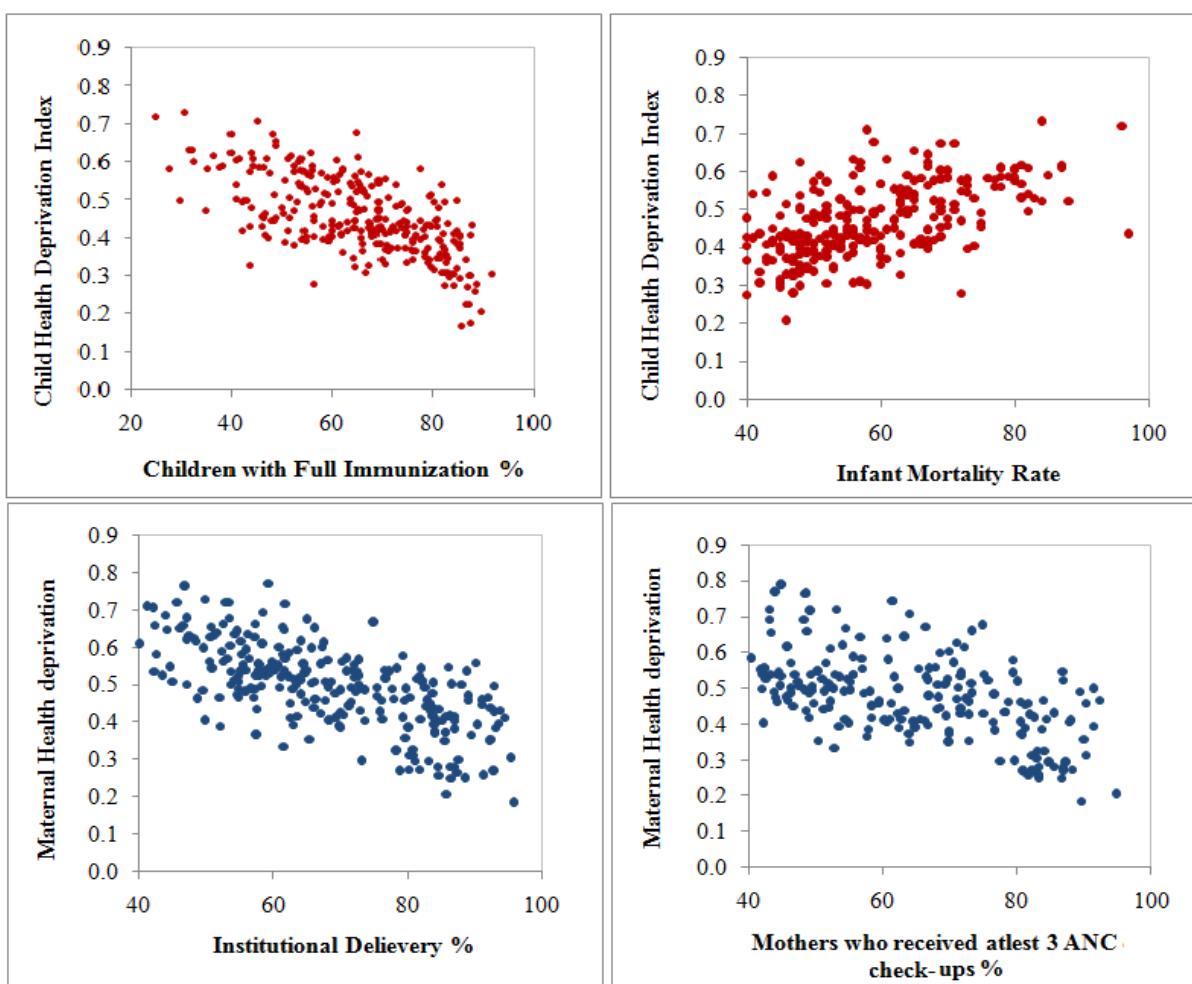
Figure 10.1: Association of maternal and child health deprivation with literacy rates



10.15 Figure 10.1 shows the association of Child Health Deprivation Index (CHDI) and Maternal health deprivation index (MHDI) with overall literacy rates and female literacy rates. It shows that CHDI is negatively related to the overall literacy rate, as districts with higher overall literacy tend to have a lower score on CHDI, indicating lower deprivation. The same relationship is observed in case of CHDI and

female literacy levels across the districts. Districts where female literacy levels are low have higher levels of CHDI, indicating low levels of child health. Thus drawing a direct parallel between the two as greater levels of literacy can lead to improvements in maternal and child health. A similar association is observed in case of maternal and child health deprivation index in the districts.

Figure 10.2: Association of deprivation index with selected health indicators



10.16 Figure 10.2 shows district level association of CHDI to constituent indicators such as child immunization and infant mortality rates. The districts that displayed higher levels of score on child deprivation index have low levels of full

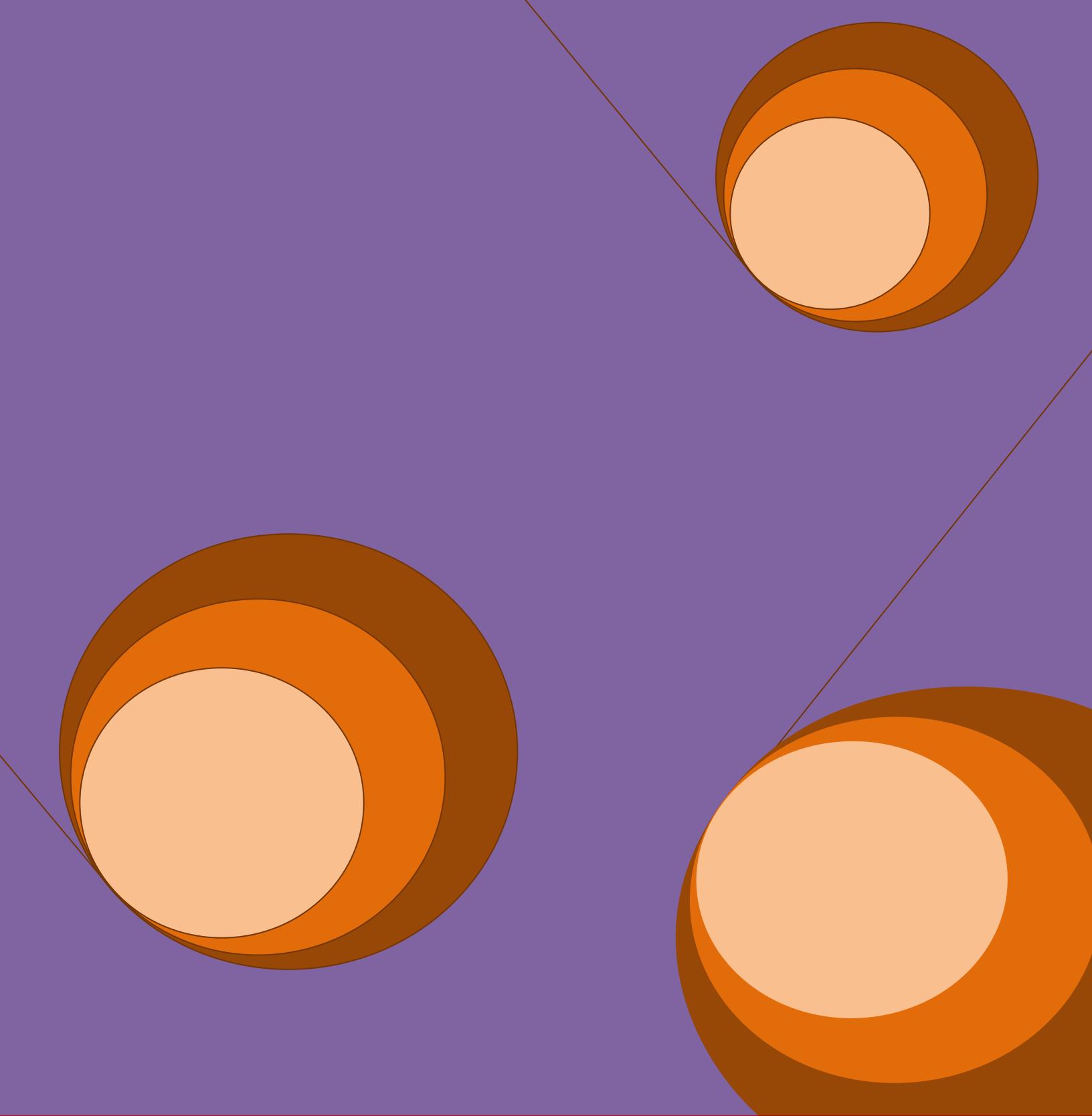
immunization too, indicating a direct link. The association between CHDI and infant mortality rate in a district is clearly positive, which denotes that district where infant mortality rate is high, CHDI level too displays a dismal condition.

10.17 A similar association is observed between MHDI and constituent indicators such as institutional delivery and three ANC check up. The child deprivation index and maternal health

deprivation index correlates to the combined child and maternal index as areas with higher levels of CHDI and MHDI rank high in the combined index too.

10.5. Key Findings

- The summary index of overall maternal and child health deprivations across the AHS districts reveal that there are wide inter-State and inter-district disparities. In particular, several districts of Uttar Pradesh and Bihar have very high levels of deprivation across districts.
- It can be seen that in 2010-11, 7 districts from Odisha made it to the list of best 10 districts with lowest levels of maternal and child health deprivation. Odisha performed well in 2012-13 too as 6 of its districts were among the best 10 districts.
- With regard to maternal health deprivation, Bihar's Sheohar district recorded the poorest conditions of maternal health at 0.855 as opposed to Jagatsinghapur in Odisha that emerged with best performance and had the lowest derivation index value of 0.248 in the 2010-11. In 2012-13 too, Sheohar retained its position as the worst performing district, while Jagatsinghapur district maintained its rank as the best performing district.
- Child health deprivation is another area of grave concern as index values of most districts of States such as Uttar Pradesh and Bihar indicates major gaps in provision of child health care services.
- Collective assessment of maternal and child health deprivation too suggests that the States performing poorly in terms of maternal health have also shown a dismal performance in child health conditions. Badaun district in Uttar Pradesh has been consistently poor with regard to maternal health and child health conditions individually and also combined data. Though districts of Uttarakhand showed the highest levels of child health conditions, none of its districts were among the best 10 districts when data of maternal and child health was collated.
- A negative association is observed between child and maternal health deprivation and literacy rates, as districts with higher overall and female literacy rates tend to have higher deprivations in both maternal and child health.
- Districts like Purba Champaran and Sheohar in Bihar, and Badaun in Uttar Pradesh displayed the worst conditions of both maternal and child health care. A focus on districts with high level of deprivation is necessary to secure rapid improvements in health status of women and children across these high focus districts.



INSTITUTE OF ECONOMIC GROWTH
DELHI UNIVERSITY ENCLAVE, NORTH CAMPUS
DELHI 110007

