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## **Introduction**

The state of Madhya Pradesh came into existence for the first time on 1 November 1956 when the erstwhile states of Bhopal, Madhya Bharat and Vindhya Pradesh and parts of the states of Rajasthan and CP and Berar were merged under the reorganization of states on linguistic basis. The state has since been divided again on 1 November 2000 into the states of Chhattisgarh and Madhya Pradesh. This paper analyses current and future demographic scenario of undivided Madhya Pradesh and discusses the strengths and weaknesses of population stabilization efforts with a policy perspective. The analysis also attempts to highlight the regional diversity in the demographic situation and the pace of demographic transition in different geo-political regions of the state. In general, the analysis presented here focuses on the undivided Madhya Pradesh as it existed before 1 November 2000. However, where possible, the situation has also been analysed and discussed for the new states of Chhattisgarh and Madhya Pradesh as they exist today.

Madhya Pradesh is regarded as one of the problem states of the Republic of India because of its unfavourable demographic scenario and slow pace of population transition. At the 2001 population census, population of the state was enumerated to be 66.14 million. Estimates prepared by the Population Foundation of India suggest that the population of the state would have crossed the 80 million mark by now (Population Foundation of India, 1999). During the decade 1981-91, the state has recorded second fastest population growth in the country, next only to Rajasthan. Even more alarming is the fact that there has been an acceleration in population growth rate in the state during the decade 1981-91 as compared to the decade 1971-81.

Efforts to control the rapid growth of population in the state have largely been confined to the centrally sponsored National Family Welfare Programme. Implementation of the Programme in the state, has been guided more by the National Population Policy than by the specific needs and requirements of the people of the state. There has been very little

state level initiative to address issues related to rapid population growth specific to the state. The state has very recently adopted a population policy which calls for achieving the replacement level fertility by the year 2011 (Government of Madhya Pradesh, 2000).

The unacceptable demographic scenario in the state is associated with unacceptable levels of social and economic development. A simple ranking exercise taking into consideration 15 major states of the country and 13 key indicators of social and economic development suggests that Madhya Pradesh ranks amongst the poorest five in 11 of the 13 indicators. In the remaining two indicators, it ranks in the middle five. There is no indicator of social and economic development in which the state ranks in the first five among the 15 major states of the country (Ranjan, 1999a). In terms of per capita income, the state ranks 12 among the 15 major states of the country while the proportion of population living below poverty line in the state is the third highest in the country. Agriculture is the mainstay of the economy of the state and accounts for nearly 41 per cent of the personal income and employs more than three fourth of the labour force. However, most of the agriculture is traditional in nature and is in poor state which can be judged from the fact that in terms of the net sown area irrigated, the state ranks 13 in the country. In terms of the use of fertilizers, the state ranks amongst the lowest among 15 major states of the country.

Industrialization in the state is confined to a few pockets only which are largely confined to the vicinity of large metropolitan towns in the state. In terms of number of registered industries per one lakh population, the state ranks 11 while in terms of average daily employment in the registered industries, it ranks 10 among 15 major states of the country.

This paper analyses the current and future demographic scenario of Madhya Pradesh and discusses strengths and weaknesses of the population stabilization efforts in the state from a policy perspective. The purpose of the analysis is to present a comprehensive picture of the

demographic situation and its different dimensions which constitute the basis for the implementation of state population policy in the state. The analysis also attempts to highlight the regional diversity in the demographic situation as well as in the pace of demographic transition during the last 50 years and analyses regional variations in the performance of population stabilization programmes and activities in the state with a view to emphasize the need for a regional approach to address population related issues and problems in the state.

### **Population Growth**

At the time of 1951 population census, 26.07 million people were enumerated in the state. This number increased to 66.14 million in 1991 meaning that in between 1951 and 1991, more than 40 million people were added to the population of the state. In other words, there has been more than 2.5 times increase in the population of the state in the 40 years between 1951 and 1991. Moreover, with the increase in population size, the net addition to the state population also increased in every decade. During 1951-61, net addition to the population of the state was 6.30 million. This number increased to 9.28 million during the decade 1961-71; to 10.51 million during 1971-81 and to almost 14 million during 1981-91. If this trend persists during the decade 1991-2001, then approximately 17.69 million people are expected to be added to the state population. This number is approximately equal to the population of the state of Haryana around the year 1995.

In terms of average annual growth rate, the population of the state increased at the rate of 2.327 per cent per year during the 40 years between 1951 and 1991. Growth of population was most rapid during 1961-71 when it grew at the rate of 2.521 per cent per year. During 1971-81, there was a considerable slow down in the growth of population as the growth rate dropped to 2.249 per cent per year but the rate increased again during 1981-91 to 2.374 per cent per year.

From a geographic and social perspective, Madhya Pradesh has been divided into seven geo-social regions (Government of India, 1996). Population growth has not been the same in all the seven geo-social regions in the 40 years between 1951 and 1991. The most rapid growth of population has been recorded in the Central region of the state where population increased by almost three times between 1951 and 1991 from 2.21 million to 6.58 million at the rate of growth of 2.723 per cent per year. This region is the only region in the state where the population growth rate had always been more than 2.5 per cent throughout the period 1951-91.

Other geo-social regions of the state where population growth during the 40 years between 1951 and 1991 was quite rapid are the Malwa region, the South-western region and the Vindhya region. In all these regions, a population growth rate of more than 2.4 per cent per year has been recorded during the period 1951-91. By contrast, population growth has comparatively been slow in the South-central and Chhattisgarh regions of the state. In the South-central region, population increased at the rate of 2.118 per cent while in the Chhattisgarh region, it increased at the rate of 2.149 per cent per year.

The erstwhile state of Madhya Pradesh has since been bifurcated in the states of Chhattisgarh and the state of Madhya Pradesh on 1 November 2000. Information available through population census indicates that the population growth in the new state of Chhattisgarh has been relatively slower than the population growth in the new state of Madhya Pradesh. In Chhattisgarh, population increased from 7.46 million in 1951 to 17.62 million in 1991 at the rate of 2.149 per cent per year. By contrast, population in the new state of Madhya Pradesh increased at the rate of 2.395 per cent per year from 18.61 million in 1951 to 48.52 million in 1991. The pattern of population growth in the two states has, however, been similar. In both the states, the population growth rate was at its peak during the decade 1961-71 followed by a slow down in the decade 1971-81 but an acceleration during the decade 1981-91. The observed slowdown

as well as acceleration in the growth rate has however been more sharp in Chhattisgarh than in the new Madhya Pradesh.

### **Future Population Growth**

Projections of future growth of the population of the undivided Madhya Pradesh have been prepared by the Expert Committee on Population Projections constituted by the Government of India (Government of India, 1996a) and by the Population Foundation of India (1999). Projections prepared by the Population Foundation of India provide estimates of future population growth in the districts of undivided Madhya Pradesh. According to the projections prepared by the Expert Committee, the combined population of undivided Madhya Pradesh is expected to increase to 81.67 million by the year 2001 and to reach 105.76 million by the year 2016 meaning that in between 1991 and 2016, nearly 40 million people are expected to be added to the population of the two states.

Population projections prepared by the Population Foundation of India, on the other hand, suggest that the combined population of the two states is expected to increase to 80.76 million by the year 2001, 102.57 million by the year 2016 and 109.56 million by the year 2021. According to these projections, approximately 36 million people are expected to be added to the population of the two states in the next 25 years.

Between the two states of Chhattisgarh and Madhya Pradesh, future population growth is expected to be more rapid in the state of Madhya Pradesh than in the state of Chhattisgarh. According to the projections prepared by the Population Foundation of India, population of Chhattisgarh is expected to increase from 17.615 million in 1991 to 27.876 million by the year 2021 at the rate of approximately 1.530 per cent per year whereas the population of Madhya Pradesh is expected to increase from 48.521 million in 1991 to 81.689 million by the year 2021 resulting in a rate of growth of 1.736 per cent per year.

In different geo-social regions of Madhya Pradesh, future population growth is expected to vary widely. In the Central and Vindhya Regions of the state, population is expected to increase at a rate of almost 2 per cent per year during the 30 years between 1991 and 2021. By contrast, in the South-central region, the rate of population growth in the next 30 years is expected to be around 1.282 per cent per year. In the Northern region also, future population growth is expected to be fairly rapid with a growth rate of 1.862 per cent per year. In fact, except the south-central region, in all regions of the state, population growth in the next thirty years is expected to remain quite rapid, averaging more than 1.5 per cent per year.

The continued rapid increase in the population of the state, expected in the coming years will be due to three factors, momentum of an increasing population which is the result of the increase in the proportion of women in the reproductive age group, slow pace of decline in marital fertility and changes in marriage patterns. As the result of prevailing high fertility, there had been very large number of live births in the past. These live births are expected to enter into the reproductive period in the coming years thereby swelling up the ranks of potential mothers and pushing up the number of live births further even if average number of children born to a woman in the reproductive age group is reduced to around three or even less than three. Total number of births in the state increased by 0.421 million from 1.983 million in 1981 to 2.404 million in 1991. This increase in the total number of live births was the net result of the population momentum, decrease in marital fertility and changes in marriage patterns. It is estimated that population momentum accounted for an increase of 0.578 million births between 1981 and 1991 whereas the decline in marital fertility accounted for a decrease of only 0.071 million births during the same period. Similarly, it is estimated that changes in the female marriage patterns accounted for a decrease of 0.111 million births between 1981 and 1991 (Ranjan, 1999b). Clearly, the decrease in the number of live births due to the decrease in marital

fertility and changes in marriage patterns had not been sufficient enough to offset the increase in the number of live births due to the population momentum. This trend is expected to continue in the coming years also meaning that despite a decline in marital fertility and an increase in the female mean age at marriage the population of the undivided Madhya Pradesh is expected to increase fairly rapidly at least in the immediate future.

### **Age and Sex Structure**

As a basic demographic variable, the age structure of the population is intertwined with all other demographic variables. Age structure of the population affects and is affected by fertility, mortality and migration. The intricacies of these interrelationships may be judged by the fact that even with a moderate gross reproduction rate, a high proportion of women in the reproductive age group makes for a high birth rate. The high birth rate, in turn, results in a high proportion of children and consequently helps to keep the future birth rate high. A young age structure working via a high birth rate thus tends to perpetuate itself. When fertility control efforts are implemented in such a population, the young age structure puts up a resistance against their effectiveness.

The age structure of the population of Madhya Pradesh may be classified as a young age structure with a large base of young age population and a thin top of old age ones. According to the 1991 population census, more than 39 per cent of the combined population of Chhattisgarh and Madhya Pradesh was below 15 years of age while only about 7 per cent was of age 60 years and more. As the result, the population of the two states had a high dependency ratio of 852 dependents (persons with age below 15 years and persons with age 60 years and more) for every 1000 persons in the working age (15-59 years). Similarly, females in the reproductive age group constituted for 23 per cent of the population of the two states. Between Chhattisgarh and

Madhya Pradesh, the population age structure is comparatively older in the former. In Chhattisgarh, population below 15 years of age constituted about 38 per cent of the total population whereas this proportion was almost 40 per cent in Madhya Pradesh. Similarly, the dependency ratio in Chhattisgarh was 804 in 1991 compared to 870 in Madhya Pradesh.

Age structure of the population varies widely in different regions of the state. The South-central region of the state has a relatively older population age structure as compared to other regions of the state. In northern, Vindhya and Central regions of the state, more than 40 per cent of the population was found to be below 15 years of age at the 1991 population census. As the result, the dependency ratio in these regions was estimated to be more than 880.

The proportion of females in the reproductive age group in the two states, however, has followed a different trend in between 1951 and 1991. This proportion was lowest, just 20 per cent, in 1961. Since then, it has increased at every census to reach 23 per cent at 1991 population census. The proportion of females in the reproductive age group in Chhattisgarh have been found to be higher than in Madhya Pradesh. Within Madhya Pradesh, highest proportion of females in the reproductive age group has been found in the South-central region and Malwa Plateau. By contrast, in the Northern region of the state, females in the reproductive age group constitute only about 21 per cent of the total population. Clearly, the propensity of the age structure of the population to slow down the birth rate decline is highest in the Chhattisgarh region and lowest in the Northern region of the state. However, the fact that more than 40 per cent of the population in the Northern region is below 15 years of age suggests that in the coming years, changes in the age structure of the population will result in the propensity to increase the birth rate. A similar situation exists in the Central, South-western and Vindhya regions also.

Like the country as a whole as well as in most of the South Asian countries, the population sex ratio of the combined population of the two

states is also unfavourable to females. At the 1991 population census, there were only 931 females for every 1000 males in the state. In between Chhattisgarh and Madhya Pradesh, the population sex ratio is particularly adverse to females in Madhya Pradesh. At the 1991 population census, there were only 912 females for every 1000 males in Madhya Pradesh compared to 985 females for every 1000 males in Chhattisgarh. Among different regions of Madhya Pradesh, the population sex ratio has been found to be very highly unfavourable to females in the Northern and Central regions. In the Northern region of the state, only 839 females for every 1000 males were enumerated at the 1991 population census while in the Central region, this proportion was 887 females for every 1000 males. In the South-central region of the state, however, the population sex ratio is relatively more balanced; there were 952 females for every 1000 males at the 1991 population census.

A population sex ratio unfavourable to females may be attributed to a host of factors including lower status of females in the society resulting in higher mortality relative to males at least up to the age 45 years. This is largely true to the feudal society in the Northern and Central region of the state where a very strong caste and kin system is associated with a very low female age at marriage, low female literacy, high fertility and high female mortality. In some districts of the Northern region, instances of female infanticide have also been cited as the reason behind abnormally unfavourable sex ratio to females.

### **Determinants of Population Growth**

The current population growth trends in the state are largely determined by the difference between the number of live births and number of deaths. In-migration and out-migration do take place but they either balance each other or the size of net migration is very small as compared to the difference in the number of live births and number of deaths. Assuming that annual net migration in a population is negligible as compared to the difference between total number of live births and

total number of deaths taking place every year, the growth of population depends upon the ratio of annual number of live births to annual number of deaths. If B denotes the number of live births in a given year and D denotes the number of deaths in that year then the population, in that year, will neither increase nor decrease if  $B/D=1$ ; it will increase if  $B/D>1$  and will decrease if  $B/D<1$ . Clearly, more the ratio  $B/D$  deviates from the limiting value of 1, the more rapid will be the increase or decrease in population in that year.

In the undivided Madhya Pradesh, the ratio of total number of live births to total number of deaths has shown an increasing trend throughout the period 1971-73 through 1995-97 according to the sample registration system. During the period 1971-73, total number of live births per year out numbered the total number of deaths per year in the state by more than 2.26 times. This ratio increased to 2.494 during the period 1981-83, to 2.688 during 1991-93 and to 2.924 during the period 1995-97. This ratio decreased marginally for a brief period 1985-87 through 1991-93 and after 1995-97.

It is possible to decompose the change in the ratio of total number of live births to total number of deaths into the change in the levels of fertility and mortality and change in the age structure effects on birth and death rates (Ranjan, 1999c). In general, changes in fertility and mortality rates and changes in age structure effects on birth and death rates behave in opposite directions; when changes in fertility and mortality levels tend to increase the ratio of total number of live births to total number of deaths, change in age structure effects on birth and death rates tend to decrease this ratio and vice versa. Moreover, in terms of magnitude, the rate of change in the age structure effects on birth and death rates has in general been higher than the rate of change in the levels of fertility and mortality implying that the trend in the ratio  $B/D$  has been determined more by the changes in population age structure than by changes in the levels of fertility and mortality.

Age structure effects on birth and death rates are the result of high fertility and mortality levels in the past and are beyond the control of policy planners and programme managers. The only way to reduce the ratio of number of live births to number of deaths, therefore, is to hasten the pace of decline in fertility and mortality levels in a manner that leads to a decrease in the ratio of total number of live births to total number of deaths. If the decrease in the ratio of total number of live births to total number of deaths as the result of the decline in the levels of fertility and mortality is not sufficient enough to offset the increase in this ratio due to changes in age structure effects on birth and death rates, then the ratio will continue to increase and the population will continue to swell.

Information available through the sample registration system indicates that both fertility and mortality levels in the state have shown a declining trend during the last 30 years. The birth rate decreased from 38.6 live births during 1971-73 to 31.1 live births per 1000 population during 1997-99, a decrease of 7.5 live births for every 1000 population over a period of 26 years. On the other hand, the death rate decreased from 17.1 deaths to 10.9 deaths per 1000 population or a decrease of 6.2 deaths for every 1000 population during the same period. As the result of a relatively slower decrease in the death rate as compared to the birth rate, the fertility and mortality induced growth rate (the difference between birth rate and death rate) decreased from 2.15 per cent during 1971-73 to 2.02 during 1997-99. This reduction in the natural growth rate, however, appears to be only a recent phenomena and both a relatively faster decline in birth rate and a relatively slower decline in the death rate after 1996 appears to have contributed to the observed slow down in the fertility and mortality induced population growth rate. However, because of the increase in the size of the population, total number of live births in the state increased from 1.64 million per year during 1971-73 to 2.43 million per year during 1997-99 whereas the total number of deaths increased from 0.73 million per year during 1971-73 to 0.85 million per year during 1997-99 with the result that net addition to the population of

the state because of the difference in birth rate and death rate increased from 0.92 million per year during 1971-73 to 1.57 million per year during 1997-99.

The birth rate and the death rate, however, are not regarded as the true indicators of fertility and mortality respectively as they are influenced by the age and sex structure of the population. More refined measures for measuring fertility and mortality are total fertility rate and life table death rate which are synthetic measures of fertility and mortality in the sense that they reflect the fertility and mortality experience of a synthetic cohort of population.

Estimates of total fertility rate and life table death rate are available through the sample registration system for the undivided Madhya Pradesh only. According to these estimates, the total fertility rate in the undivided Madhya Pradesh decreased from 5.7 children per woman during 1971-73 to 4.1 children per woman during 1995-97 whereas the life table death rate decreased from 21.9 deaths per 1000 population per year during 1970-75 to 18.52 deaths per 1000 population per year during 1989-93. The trend in total fertility rate and life table death rate suggests that a transition in the demographic scenario of the state has begun. However, the pace of transition is yet to pick up.

Information on birth and death rates is also available for different geo-social regions of the state through the sample registration system. This information indicates that both the birth rate and the death rate are higher in Madhya Pradesh as compared to Chhattisgarh. Around 1997, the birth rate in Madhya Pradesh was 30.9 births per 1000 population compared to a birth rate of 28.3 births per 1000 population in Chhattisgarh. Similarly, the death rate in Madhya Pradesh, during the same period was 10.8 deaths per 1000 population compared to 10.6 deaths per 1000 population in Chhattisgarh. This means that fertility and mortality induced population growth rate in Chhattisgarh around 1997 was 1.77 per cent per year whereas in Madhya Pradesh it was still more than 2 per cent per year.

Among rural areas of different geo-social regions within Madhya Pradesh, both the level and the trend in birth and death rates vary widely. As the result, in some regions, the fertility and mortality induced population growth rate has increased over time while in others it has decreased. In Vindhya, South-central and Northern regions of Madhya Pradesh, the fertility and mortality induced population growth rate decreased over time mainly because the decrease in birth rate during the period 1987-997 was faster than the decline in the death rate. By contrast, in Central, Malwa and South-western regions, the fertility and mortality induced population growth rate increased over time simply because the decrease in death rate in these regions was faster than the decrease in the birth rate.

### **Determinants of Fertility and Mortality**

The prevailing levels of fertility and mortality in a population are the result of the interaction of a number of factors which have been classified as proximate or direct and distant or indirect factors. In case of fertility, important proximate factors are the prevalence of contraception and the age of the female at the time of entry into socially recognized sexually active reproductive life. On the other hand, mortality in the first five years of life and female mortality due to complications associated with pregnancy and child birth are universally regarded as the main contributors to prevailing levels of mortality in a population. In view of this proximate relationship, efforts to reduce fertility are directed towards promoting the practice of contraception and increasing the female age at marriage while efforts to reduce mortality are directed towards reducing infant, child and maternal mortality.

Estimates of proximate determinants of fertility and mortality and their trends during the decade 1990-2000 are available through the National Family Health Survey which was carried out in the undivided Madhya Pradesh in 1992-93 and in 1998-99. According to these estimates, the prevailing levels of proximate determinants of fertility as well as

infant and child mortality in Madhya Pradesh continue to be abnormally poor by national standards. For example, the median age at first marriage among women of age 25-49 years has been estimated to be just 14.7 years in undivided Madhya Pradesh around the period 1998-99 which was lowest in the country and well below the national average of 16.4 years. The very low median age at marriage for females observed in Madhya Pradesh appears to be largely due to the fact that nearly 31 and 53 per cent of married women of 25-49 years of age were found to be married by exact age 13 years and 15 years respectively. On the other hand, around 44 per cent of the currently married women in the state were found to be practising some sort of contraception during the same period. This proportion, however, was the fourth lowest among the major states of the country and was less than the national average of 48.2 per cent (International Institute for Population Sciences, 2000). Clearly, poor levels of fertility are associated with poor levels of the most proximate determinants of fertility in the state.

On the other hand, exceptionally high levels of mortality in the first five years of life appear to be a major contributor to mortality in the state. According to the National Family Health Survey, the risk of death in the first five years of life, during 1998-99 was 137.6 deaths for every 1000 live births and it was highest in the country, well above the national average of 94.9 deaths per 1000 live births. Similarly, the risk of death in the first year of life has been found to be second highest in the country. Information available through the sample registration system suggests that Madhya Pradesh has the dubious distinction of having highest or second highest infant mortality rate in the country throughout the period 1971-73 through 1997-99. Latest estimates from the sample registration system suggest an infant mortality rate of 91 infant deaths for every 1000 live births in 1999. This rate was second highest in the country and well above the national average of 70 infant deaths for every 1000 live births. Although, infant mortality in the state decreased from 145 infant deaths per 1000 live births during 1971-73 to 94 infant deaths per 1000 live births

during 1997-99 implying a decrease of 51 absolute points over a period of 26 years, yet this decline has been slower than the decline in the country as a whole where the infant mortality rate declined by 63 absolute points between 1971-73 and 1997-99.

Information on the proximate determinants of fertility and mortality for different regions of the state is not available through the National Family Health Survey. However, information related to the patterns of marriage is available for the districts of the state through the 1991 population census (Government of India, 1997) whereas information related to the practice of contraception is available from the recently conducted district level reproductive and child health survey. At the same time, information about the risk of death in the first year of life for different geo-social regions is available through the sample registration system.

The unweighted average of the female mean age at marriage for different districts of Madhya Pradesh obtained through the 1991 population census indicates that female mean age at marriage is higher in Chhattisgarh than in Madhya Pradesh. Among different regions of the state, the female mean age at marriage has been found to be lowest in the Vindhya region and highest in the south-western region of Madhya Pradesh. On the other hand, the contraceptive prevalence rate has been found to be higher in Madhya Pradesh than in Chhattisgarh. Within Madhya Pradesh, the contraceptive prevalence rate has been found to be lowest in the Vindhya Region and highest in the South-central region; there is a whopping gap of more than 17 absolute points in the contraceptive prevalence rates of the two regions.

Information available from the sample registration system, on the other hand, indicates a very wide gap between the Chhattisgarh and Madhya Pradesh in terms of the risk of death in the first year of life. In Chhattisgarh, the rural infant mortality rate has been estimated to be about 90 infant deaths for every 1000 live births around the year 1991, the corresponding figure for Madhya Pradesh being almost 126. Within

Madhya Pradesh also, the infant mortality rate appears to vary widely, being lowest in the south-central region and highest in the northern region of the state.

The relationship between the proximate determinants with prevailing levels of fertility and mortality in different regions of Madhya Pradesh should now be clear. In the Vindhya and Northern regions of Madhya Pradesh, the levels of proximate determinants are poorest. These regions, incidentally, have the highest birth rate and highest death rate amongst all regions of the state. On the other hand in South-western and south-central regions of the state, prevailing levels of proximate determinants are the best in the state. In these regions, both the birth rate and death rate are lowest in the state. The Malwa region and the Central region, on the other hand, lie between these two extremes in terms of both proximate determinants and prevailing levels of fertility and mortality.

### **Population Stabilization Efforts in Madhya Pradesh**

Efforts to regulate and ultimately stabilize the growth of population in Madhya Pradesh have primarily been directed towards modifying the proximate determinants of fertility and mortality through a set of programme interventions and activities. These interventions including universal primary education including education for girls, delivery of family planning services and supplies, immunization of children against vaccine preventable diseases and delivery of basic reproductive health services. It is possible to assess the progress of these interventions during the decade 1990-2000 on the basis of the information available through the National Family Health Survey. The first round of the National Family Health Survey was organized in the state during 1992-93 while the second one was organized during 1998-99.

A comparison of a set of indicators that reflect the performance of various intervention directed towards population stabilization indicates that the progress of the efforts directed to regulate the growth of

population in the state has not been encouraging. In case of indicators related to interventions directed to reduce fertility - demand for family planning, contraceptive prevalence rate, unmet need for family planning, median age at first marriage, etc. - there has been only a marginal improvement during the period between the two rounds of the National Family Health Survey. Similarly, there has been some improvement in the performance of reproductive health services but in case of indicators related to child survival such as immunization, the performance appears to have gone down over time with the result that the risk of death during infancy as well as in the first 5 years of life appears to have increased over time.

Little is currently known about the reasons for the observed, very slow, improvement in the performance of various activities and interventions directed to modify the proximate determinants of fertility and mortality. In fact, an assessment of the efficiency and adequacy of different activities and interventions have never been carried out in the state. Efforts for regulating the growth of population in the state have almost entirely been guided by the National Population Policy and the activities sponsored by the government of India under the National Family Welfare Programme which continues to be the mainstay of the framework for the implementation of the National Population Policy throughout the country. It is only very recently that the state has adopted a population policy of its own but a framework for the implementation of the state population policy is still to be put in place. It is still premature to assess the impact of the State Population Policy on demographic transition in the state.

It is possible to have a comparative view of the performance of different activities and interventions across different geo-social regions of the state on the basis of the district level reproductive and child health survey, 1998-99. Between the state of Chhattisgarh and the state of Madhya Pradesh, the comparative situation appears to be mixed; some indicators are better in Chhattisgarh while some are better in Madhya

Pradesh. On the other hand, within Madhya Pradesh, the relative performance is along the expected lines: the best performance is in the south-west and the south-central regions while the worst performance remains in the Vindhya and Northern regions of the state while the Malwa and the Central regions fall in between the two. A comparison of the demographic situation with the performance of the efforts clearly indicate a direct relationship between the two.

One of the many reasons behind the poorer than expected performance of population stabilization efforts in Madhya Pradesh is that these efforts are almost entirely based on government initiative and investments. Involvement of the non-government sector in population stabilization efforts in the state has been virtually insignificant. Outside the National Family Welfare Programme, there are little infrastructure, facilities and resources that have specifically been created in the state to promote the use of family planning methods in the state. According to the National Family Health Survey 1998-99, programme contraception in Madhya Pradesh accounted for almost 87 per cent of the total contraceptive use whereas this proportion in Kerala, the state with highest contraceptive prevalence rate and lowest fertility in the country was only 63 per cent (International Institute for Population Sciences and ORC Macro, 2000). Clearly, there is little non-programme contraception in the state. One noticeable example of the involvement of the non-government sector in population stabilization efforts in the state is the Small Family by Choice Project which was launched by the Family Planning Foundation of India in three districts of the state - Bhopal, Vidisha and Sagar - in 1995. The project evolved a community based model of family planning services delivery to the community. However, the recent reproductive and child health survey carried out in all districts of Madhya Pradesh does not reveal any significant improvement in the practice of contraception in the three districts which may specifically be attributed to the project. Very recently, non-government organizations like *Janani* and *Pariar Sewa Sanstha* have also launched their innovative

projects in the state which, in one way or the other, address the population related issues. However, the scope of these projects is very small to have a telling impact on the demographic situation in the state. In the corporate sector, Lupin Laboratories has also launched a project in the state which is primary focussed on health but which has some population stabilization dimensions but this project has also been launched on a very small scale.

An important factor in the observed regional variations in the demographic situation as well as in the programme performance is the very marked socio-cultural diversity among different regions of the state. Broadly, the state can be divided in three regions in terms of basic characteristics of society and cultural: the region north of river Narmada, the region south of river Narmada and the south east region which now constitutes the state of Chhattisgarh. The region north of Narmada is well known for its very strong social structures based on kin and caste and a feudal society in which the roles and responsibilities of men and women are very clearly defined and these roles and responsibilities put females at a receiving end in terms of western social traditions and literally force them to remain confined to the home. On the other hand, the region south of river Narmada and the Chhattisgarh region is dominated by the tribal population which has entirely different social and cultural customs and norms. The impact of the social and cultural diversity on the demographic situation and programme performance is very much clear. In a recent study carried out in three development blocks, one each in the Northern, Malwa and Chhattisgarh regions of the state, the practice of family planning methods have been found to be directly affected by the institutional factors, factors that operate at the level of the family and the society (Ranjan, 2000). However, there is little evidence of incorporating this diversity in the implementation of the efforts directed towards population stabilization but a review of the performance of different activities and programme interventions clearly suggest that the socio-cultural diversity definitely influence the demand generation and

utilization of different components of reproductive and child health services.

Like the involvement of non-government sector, there is little involvement of women's organizations as well as religious, minorities and denominational organizations in population stabilization efforts in the state. One reason is that the state government has rarely paid a sincere thought to expand the scope of population stabilization efforts beyond a government sponsored activity. Although the population policy of the state calls for active involvement of these organization to achieve population stabilization, yet a clear framework for involvement is yet to be evolved. However, informal discussions carried out with a sample of these organizations do indicate that these organizations have a positive approach towards population related issues and can play a very positive role in population stabilization in the state. The other reason is that because of poor level of social and economic development, there is very limited, extremely small in scale, philanthropic activity in the state.

Madhya Pradesh was the first state in the country to implement the 73<sup>rd</sup> and 74<sup>th</sup> amendment of the Constitution of the Republic of India and in transferring power to democratically elected representatives of the people, one third of which are women. The state has also been first to introduce the concept of district government and village government. In the context of establishing the Panchayat Raj institutions and delegating powers to the people through the Panchayat Raj institutions, the state has gone a long way. However, there has been little systematic attempt to train the democratically elected representatives under the Panchayat Raj in issues related to population stabilization. Similarly, there has been little attempt to clearly define the roles and responsibilities of the representatives of the people in hastening the pace of demographic transition in the state. There was an initiative, in 1997-98 to involve all Gram Panchayats where the Sarpanch was a female in the organization of Gram Panchayat level Health Mela in which an attempt was made to deliver a package of basic health and family welfare services to the people

at the Gram Panchayat level. In this innovative approach, more than 14 thousand Health Mela were organized at the Gram Panchayat level in just one year and there was involvement of members of Gram Panchayat of a very high level. This initiative also included training and orientation of members of Gram Panchayat in local level health and family welfare issues (Government of Madhya Pradesh, 1999). The initiative demonstrated an operationally viable model of actively involving the community and its elected representatives through the institution of Gram Panchayat in addressing population related issues. The initiative, however, could not get the bureaucratic support and soon lost in the oblivion. In an effort to empower the Panchayat Raj Institutions, the state government has delegated powers related to the monitoring and supervision of the implementation of health and family welfare activities at the village, sub-health centre, primary health centre and community health centre levels. At the same time, a sub-committee on health has also been constituted in all Panchayat Raj institutions but specific roles and responsibilities of these sub-committees remains ill-defined.

There is little decentralization of the population stabilization activities in the state. The State Population Policy calls for a decentralized approach for implementing population stabilization efforts by constituting a Population and Development Committee in every district of the state but there has so far been little progress in this regard. There is a need for organizing training and orientation programme for the district level bureaucracy but no such programme has ever been organized in the state.

Media has largely remained indifferent to population related issues either at the state or at the regional level. The coverage of population related issues in the popular media has, at best, been cosmetic in contents as well as in the scope. There has been some attempt at the official level to secure the cooperation and support of the public media in propagating population related issues but there has been little headway. Whatever coverage of population related issues by the popular media is there, it has

mostly created a negative image of the government sponsored population stabilization efforts. A positive role of popular media in propagating population related issues is sadly missing in the state. In order to strengthen information, education and communication activities related to population stabilization, the state government established a separate Information Education Communication Bureau in 1995 but after the initial enthusiasm, the Bureau has gone into a limbo.

Realizing the importance of population stabilization in the process of social and economic development, the government of Madhya Pradesh announced, for the first time, a state specific population policy on 11<sup>th</sup> May 2000. The Policy calls for improving the quality of life of the people of the state by attaining a balance between population, resources and environment. It recognizes that in order to stabilize population and to improve the quality of life of the people, an accelerated reduction in fertility and mortality levels is a must. Since the adoption of the Population Policy, the erstwhile state of Madhya Pradesh has been divided into the states of Chhattisgarh and the new state of Madhya Pradesh. A comparison of the demographic situation in the two states suggests that the demographic scenario in the new Madhya Pradesh is poorer than the demographic scenario of the undivided Madhya Pradesh. This implies that achieving the goals of the Population Policy in the new Madhya Pradesh is going to be an even more daunting task. Unfortunately, there has been little sensitization in this regard at the government level. There is little indication, as yet, of any changes in the health and rural development policies and governance that may facilitate the implementation of the state Population Policy. The state Population Policy has suggested a multi-sectoral administrative framework for its implementation which include involvement of private sector also in the implementation of population stabilization efforts. This framework includes constitution of an apex level Population and Development Council headed by the Chief Minister of the state, an apex level Population Policy Implementation Committee headed by the Chief

Secretary of the state and Population and Development Committee at the district level. There is however very slow progress so far in operationalizing the administrative and organizational framework suggested in the Population Policy document with the result that even after nearly one year of its announcement, a detailed plan for the implementation of the Population Policy is yet to be developed.

The state Population Policy also calls for designing a set of incentives and disincentives for promoting the concept of small family norm. Although, only a few incentives and disincentives have been outlined in the state Population Policy, yet, it appears that the political leadership in the state is positive to evolving a set of incentives and disincentives for the implementation of the Population Policy. At the level of the bureaucracy, however, there is a divergence of opinion about the need of incentives and disincentives for the implementation of the state population policy. As the result, a concrete shape of the set of incentives and disincentives is yet to emerge. The state legislature has, however, passed a resolution which bars a person having more than two children after a fixed date to seek election for Panchayat Raj Institutions. However, the state legislature is yet to pass any such resolution for the members of the state legislature also.

The Population Policy of Madhya Pradesh also calls for strengthening the community based distribution of family planning methods and supplies through social marketing. The existing experience with social marketing of family planning methods in the state is extremely limited. There are only two experiences that are worth reporting. The first one the Contraceptive Social Marketing Programme launched by the Hindistan Latex Family Planning Promotion Trust in the rural areas of three districts of the state. The other is the social marketing of conventional contraceptive initiated by the Family Planning Association of India as part of their Small Family by Choice Project in Sagar, Vidisha and Bhopal. An evaluation of the Contraceptive Social Marketing Programme has concluded that the programme has a good

potential for promoting spacing methods of contraception (Singh and Verma, 2000).

### **Issues in Population Stabilization in Madhya Pradesh**

It is possible to identify key issues regarding population stabilization in Madhya Pradesh that have relevance to the implementation of the state population policy. An elaboration of these issues is expected to help in the development of a concrete plan of action for the implementation of the state population policy.

The first and perhaps the most critical issue in population stabilization in Madhya Pradesh is to evolve a regional approach for planning and implementation of population stabilization efforts. An analysis of population growth trends in different regions of the state highlights the very contrasting patterns and determinants of population growth in different socio-cultural regions of the state. Given these patterns and determinants, a uniform approach for the implementation of the state population policy may not be very effective in addressing local population issues and to incorporate regional social and cultural milieu in planning and implementation of population stabilization efforts. In order to ensure that population stabilization efforts are oriented to the people and to their reproductive and fertility regulation needs, it is imperative that local social and cultural contexts are imbedded into planning and implementation of population stabilization efforts. Such embedding is not possible if a normative, uniform approach is adopted for the planning and implementation of these efforts.

Another imperative for accelerating population stabilization efforts in Madhya Pradesh is the recognition of the fact that government initiatives and efforts in general and the National Family Welfare Programme in particular are not adequate enough for universalizing small family norm. If the case of Kerala is any example, then it is clear that promoting family planning out side government initiatives and efforts is critical to the success of population stabilization efforts in the state.

Promoting family planning outside the bureaucratic system is equivalent to converting a government sponsored programme into a people's programme. In Kerala, the social and cultural environment, incidently, has been conducive to a low fertility regime since ages. The state has universal literacy, a very high female age at marriage and an abnormally high status of females in the society. Unfortunately, such a conducive social and cultural environment does not exist in Madhya Pradesh where the process of social and economic development remains tardy. This means that the Kerala model cannot be replicated in Madhya Pradesh. Madhya Pradesh, therefore, will have to evolve its own model of transforming the government sponsored population stabilizing efforts into a people's movement. This process of transformation, to be successful and self sustainable, must take into consideration the prevailing social and cultural environment which, incidently, varies drastically, in different geo-social regions of the state. It is important that any such initiative must be owned by the people and their representatives. Government initiatives and efforts, at best, should facilitate this transformation process by creating appropriate conducive environment for promoting people's action.

A third imperative for population stabilization in Madhya Pradesh is that population stabilization efforts should not be limited to the promotion of the use of family planning methods alone as has been the case so far. It is important that population stabilization efforts have a broader canvas. Population stabilization efforts need to be given a development orientation rather than a demographic emphasis. A development orientation to population stabilization efforts requires that issues related to rapid population growth are discussed and debated in the broader development perspective and should not be confined to the narrow sphere of the delivery of contraceptive services and supplies. One way to ensure this is to integrate population factors in the social and economic development planning process. Currently, population stabilization efforts are planned and implemented almost independent of

the social and economic development processes. In such an environment, giving a development orientation to population stabilization efforts is an extremely difficult proposition.

Integrating population factors into the social and economic development planning process may also be helpful in broad-basing population stabilization efforts by securing active involvement of other government departments and non-government institutions and organizations. With the introduction of Panchayat Raj and the concept of district governance, appropriate political and administrative frameworks for such integration already exist in the state. What is needed is the development of an operational framework that can ensure this integration right up to the grass roots level.

In the context of integration of population factors into social and economic development planning process, it is important to remark here that a certain threshold of social and economic development is also necessary for the efficiency and effectiveness of population stabilization efforts. This relationship between the performance of population stabilization efforts and the level of social and economic development provides the necessary impetus for developing a broad, development based approach of implementation of population stabilization efforts. The population policy adopted by the Government of Madhya Pradesh calls for constituting the State Population and Development Council, State Population Policy Implementation Committee and District Population and Development Committee to promote participation of different government and non-government agencies. However, the policy document is silent about specific framework of participation. Integration of population factors in the social and economic development planning process may help in developing such a framework. Another advantage of this integration will be increased awareness of the people and their representatives about the seriousness and complexity of population related issues in the state.

The fourth imperative for the implementation of the state population policy is improving the organizational efficiency and administrative capacity of the National Family Welfare Programme in the state. Given the state of affairs, and the prevailing social, economic and cultural environment, there is little doubt that, in the years to come, the National Family Welfare Programme will continue to be the mainstay of population stabilization efforts in the state. As such, a complete re-engineering of the administrative and managerial processes of the programme is immediately required so as to make the programme people oriented and to make it professional and competitive. The earlier this re-engineering is engineered the greater will be its impact on population transition.

One approach of re-engineering the current organization of the National Family Welfare Programme may be replacing the current hierarchical administrative structure of the programme planning and programme management with independently functioning units having necessary professional skills and competency in different components of the programme implementation and linked to each other through a common plan of action to achieve a common goal - achievement of the replacement level fertility in the state by the year 2011. The existing National Family Welfare Programme organization in the state may thus be restructured into the following independently functioning units each having necessary professional skills and expertise

- a. Strategic planning and impact assessment unit
- b. Family planning services delivery unit
- c. Logistics management unit
- d. Human resource development unit
- e. Social mobilization and people's action unit

Each of these units may be linked to each other through a common framework of implementation for achieving the goals outlined in the state population policy and may develop their specific plan of implementation in conjunction with the common implementation framework with clear

specification of what is to be done, how is to be done, when is to be done, resources needed and means of verification. In other words, a federal organizational structure of the National Family Welfare Programme, in place of the existing top-down, bureaucratic hierarchical administrative structure appears to be necessary to give a professional, competitive edge. Such an administrative and organizational structure is expected to address majority of current anomalies and organizational deficiencies in the implementation of the Programme in the state.

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Table 1: Geo-social regions of Madhya Pradesh

Region	Districts included in the region
Chhattisgarh	Surguja, Raigarh, Bilaspur, Rajnandgaon, Durg, Raipur, Bastar
Vindhya	Tikamgarh, Chhatarpur, Panna, Satna, Rewa, Shahdol, Sidhi
Central	Bhopal, Sehore, Vidisha, Raisen, Sagar, Damoh
Malwa	Indore, Dewas, Dhar, Jhabua, Ujjain, Ratlam, Mandasaur, Shajapur, Rajgarh
South-central	Jabalpur, Narsimhapur, Chhindwara, Mandla, Seoni, Balaghat
South-west	West Nimar, East Nimar, Betul, Hoshangabad
Northern	Morena, Bhind, Gwalior, Datia, Shivpuri, Guna

Source: Government of India (1996b)

Table 2: Population growth in Madhya Pradesh: 1951-2021.

State/Region	Population (million)							
	Estimates					Projections		
	1951	1961	1971	1981	1991	2001	2011	2021
Madhya Pradesh (undivided)	26.07	32.37	41.65	52.16	66.14	80.76	95.15	109.57
Chhattisgarh	7.46	9.16	11.64	14.01	17.62	21.25	24.66	27.88
Madhya Pradesh	18.61	23.22	30.02	38.15	48.52	59.51	70.49	81.69
<i>Vindhya</i>	3.41	4.25	5.41	6.86	8.91	11.18	13.52	16.01
<i>Central</i>	2.22	2.89	3.93	5.09	6.58	8.24	9.99	11.91
<i>Malwa</i>	4.23	5.30	6.90	8.84	11.30	13.89	16.49	19.17
<i>South-central</i>	3.71	4.49	5.71	7.08	8.65	10.18	11.52	12.70
<i>South-western</i>	2.24	2.86	3.71	4.71	5.91	7.12	8.53	9.35
<i>Northern</i>	2.81	3.44	4.35	5.57	7.18	8.92	10.70	12.55

Source: Estimated from different population census.

Table 3: Population growth rates: 1951-2021.

State/Region	Population (million)						
	1951-61	1961-71	1971-81	1981-91	1991-01	2001-11	2011-21
Madhya Pradesh (undivided)	2.164	2.521	2.249	2.374	1.998	1.640	1.411
Chhattisgarh	2.051	2.400	1.856	2.289	1.874	1.491	1.225
Madhya Pradesh	2.209	2.568	2.398	2.405	2.042	1.692	1.475
<i>Vindhya</i>	<i>2.202</i>	<i>2.408</i>	<i>2.378</i>	<i>2.616</i>	<i>2.265</i>	<i>1.906</i>	<i>1.685</i>
<i>Central</i>	2.656	3.079	2.587	2.571	2.240	1.935	1.756
<i>Malwa</i>	2.264	2.644	2.476	2.450	2.065	1.719	1.504
<i>South-central</i>	1.911	2.418	2.139	2.003	1.630	1.237	0.979
<i>South-western</i>	2.411	2.611	2.405	2.254	1.863	1.490	1.241
<i>Northern</i>	1.998	2.364	2.456	2.543	2.174	1.821	1.592

Source: Estimated from Table 2.

Table 4: Indicators of age and sex structure of the population of undivided Madhya Pradesh: 1951-1991.

Indicator	1951	1961	1971	1981	1991
Population (0-14) <i>Per cent</i>	38.26	42.53	43.70	41.24	39.31
Population (15-59) <i>Per cent</i>	56.60	52.09	50.51	52.31	54.00
Population (60 and above) <i>Per cent</i>	5.14	5.38	5.79	6.45	6.69
Child women ratio <i>Per 1000 women</i>	548	850	747	609	599
Dependency ratio (Young) <i>Per 1000 persons (15-59)</i>	676	816	865	789	728
Dependency ratio (Old) <i>Per 1000 persons (15-59)</i>	91	103	115	123	124
Dependency ratio (All) <i>Per 1000 persons (15-59)</i>	767	920	980	912	852
Females (15-49) <i>Per cent</i>	24.10	20.05	21.47	22.25	23.00
Sex ratio (F/M) <i>Per 1000</i>	967	953	641	841	931

Source: Estimated from 1991 census data.

Table 5: Indicators of age and sex structure of population for different regions of Madhya Pradesh, 1991.

State/Region	Population (0-14)	Population (15-59)	Population (60 and above)	Child woman ratio	Dependency ratio	Females (15-49)	Sex ratio
Madhya Pradesh (undivided)	39.31	54.00	6.69	599	852	23.00	931
Chhattisgarh	37.83	54.00	6.69	562	804	24.19	985
Madhya Pradesh	39.85	53.47	6.68	613	870	22.57	912
<i>Vindhya</i>	<i>40.72</i>	<i>52.79</i>	<i>6.49</i>	<i>652</i>	<i>894</i>	<i>22.28</i>	<i>910</i>
<i>Central</i>	<i>40.56</i>	<i>53.13</i>	<i>6.31</i>	<i>631</i>	<i>882</i>	<i>22.05</i>	<i>887</i>
<i>Malwa</i>	<i>39.17</i>	<i>53.92</i>	<i>6.91</i>	<i>570</i>	<i>855</i>	<i>23.14</i>	<i>934</i>
<i>South-central</i>	<i>38.00</i>	<i>55.20</i>	<i>6.80</i>	<i>562</i>	<i>812</i>	<i>23.66</i>	<i>952</i>
<i>South-western</i>	<i>40.98</i>	<i>52.00</i>	<i>6.93</i>	<i>642</i>	<i>920</i>	<i>22.28</i>	<i>939</i>
<i>Northern</i>	<i>40.50</i>	<i>52.99</i>	<i>6.51</i>	<i>667</i>	<i>887</i>	<i>21.43</i>	<i>839</i>

Source: Estimated from 1991 census data.

Table 6: Estimates of total number of births and total number of deaths in undivided Madhya Pradesh: 1971-99

Period	Birth rate (0/00)	Death rate (0/00)	Difference (0/00)	Total births (million)	Total deaths per year (million)	Net increase per year (million)
1971-73	38.6	17.1	21.53	1.64	0.73	0.92
1972-74	37.8	17.1	20.63	1.65	0.75	0.90
1973-75	38.1	17.1	21.03	1.70	0.76	0.94
1974-76	38.9	16.9	21.97	1.77	0.77	1.00
1975-77	39.5	17.6	21.83	1.84	0.82	1.02
1976-78	38.4	16.5	21.93	1.83	0.79	1.05
1977-79	37.8	16.1	21.67	1.84	0.79	1.06
1978-80	37.4	15.2	22.17	1.86	0.76	1.11
1979-81	37.5	15.7	21.80	1.91	0.80	1.11
1980-82	37.7	15.6	22.17	1.97	0.81	1.16
1981-83	38.2	15.3	22.87	2.04	0.82	1.22
1982-84	38.0	14.5	23.43	2.08	0.80	1.28
1983-85	38.3	14.3	23.97	2.14	0.80	1.34
1984-86	37.8	14.0	23.83	2.17	0.80	1.37
1985-87	37.7	13.7	23.97	2.21	0.80	1.41
1986-88	36.9	13.7	23.13	2.22	0.83	1.39
1987-89	36.3	13.5	22.80	2.24	0.83	1.40
1988-90	36.5	13.3	23.27	2.30	0.84	1.47
1989-91	36.1	13.1	23.03	2.33	0.85	1.49
1990-92	35.9	13.1	22.83	2.38	0.87	1.51
1991-93	35.2	13.1	22.10	2.38	0.89	1.50
1992-94	34.3	12.4	21.90	2.38	0.86	1.52

Period	Birth rate (0/00)	Death rate (0/00)	Difference (0/00)	Total births (million)	Total deaths per year (million)	Net increase per year (million)
1993-95	33.7	11.8	21.90	2.39	0.84	1.56
1994-96	32.8	11.3	21.53	2.39	0.82	1.57
1995-97	32.5	11.1	21.37	2.42	0.83	1.59
1996-98	31.6	11.1	20.53	2.41	0.85	1.57
1997-99	31.1	10.9	20.17	2.43	0.85	1.57

Table 7: Estimates of birth and death rates for different gro-social regions of Madhya Pradesh: 1987-97.

State/Region	Indicator	1987	1992	1997	Absolute change
Chhattisgarh	Birth rate	34.0	31.6	28.3	5.7
	Death rate	12.0	12.5	10.6	1.4
	Difference	22.0	19.1	17.7	
Madhya Pradesh	Birth rate	37.4	37.0	30.9	6.5
	Death rate	14.7	13.9	10.8	3.9
	Difference	22.7	23.1	20.1	
<i>Vindhya</i>	<i>Birth rate</i>	<i>42.1</i>	<i>39.9</i>	<i>33.9</i>	<i>8.2</i>
	<i>Death rate</i>	<i>16.5</i>	<i>15.1</i>	<i>13.0</i>	<i>3.5</i>
	<i>Difference</i>	<i>25.6</i>	<i>24.8</i>	<i>20.9</i>	
<i>Central</i>	<i>Birth rate</i>	<i>38.2</i>	<i>41.4</i>	<i>32.8</i>	<i>5.4</i>
	<i>Death rate</i>	<i>17.8</i>	<i>16.1</i>	<i>11.3</i>	<i>6.5</i>
	<i>Difference</i>	<i>20.4</i>	<i>25.3</i>	<i>21.5</i>	
<i>Malwa</i>	<i>Birth rate</i>	<i>36.8</i>	<i>38.8</i>	<i>31.6</i>	<i>5.2</i>
	<i>Death rate</i>	<i>16.3</i>	<i>13.6</i>	<i>9.8</i>	<i>6.5</i>
	<i>Difference</i>	<i>20.5</i>	<i>25.2</i>	<i>21.8</i>	
<i>South-central</i>	<i>Birth rate</i>	<i>36.1</i>	<i>33.4</i>	<i>27.5</i>	<i>8.6</i>
	<i>Death rate</i>	<i>13.0</i>	<i>13.5</i>	<i>9.7</i>	<i>3.3</i>
	<i>Difference</i>	<i>23.1</i>	<i>19.9</i>	<i>17.8</i>	
<i>South-western</i>	<i>Birth rate</i>	<i>45.4</i>	<i>39.8</i>	<i>30.4</i>	<i>2.4</i>
	<i>Death rate</i>	<i>17.0</i>	<i>13.2</i>	<i>9.0</i>	<i>4.4</i>
	<i>Difference</i>	<i>28.4</i>	<i>26.6</i>	<i>21.4</i>	
<i>Northern</i>	<i>Birth rate</i>	<i>45.4</i>	<i>42.0</i>	<i>30.9</i>	<i>6.5</i>
	<i>Death rate</i>	<i>17.0</i>	<i>15.7</i>	<i>10.8</i>	<i>3.9</i>
	<i>Difference</i>	<i>28.4</i>	<i>26.3</i>	<i>20.1</i>	

Source: Sample Registration System.

Table 8: Estimates of total fertility rate and life table death rate for Madhya Pradesh: 1971-97.

Total Fertility Rate		Life Table Death Rate	
Period	Total fertility rate	Period	Life table death rate
1971-73	5.7	1970-75	21.19
1977-79	5.4	1976-80	20.41
1982-84	5.2	1981-85	19.38
1987-89	4.7	1986-90	18.87
1990-92	4.7	1989-93	18.52
1995-97	4.1		

Source: Sample Registration System

Table 9: Proximate determinants of fertility and mortality in Madhya Pradesh.

Indicator	1992-93	1999-98
Female singulate mean age at marriage	17.4	18.9
Median age at first marriage of females	14.5	14.7
Contraceptive prevalence rate (All methods)	36.5	44.3
Contraceptive prevalence rate (Modern methods)	35.5	42.6
Unmet need for family planning	20.5	16.2
Demand for family planning	57.1	60.5
Infant mortality rate	85.2	86.1
Under 5 mortality rate	130.3	137.6

Source: International Institute for Population Sciences and ORC March (2000)

Table 10: Proximate determinants of fertility and mortality for different regions of Madhya Pradesh.

State/Region	Female mean age at marriage 1991	Contraceptive prevalence rate 1998-99	Infant mortality rate 1990-92
Chhattisgarh	17.0	40.2	90.3
Madhya Pradesh	16.4	46.3	125.9
<i>Vindhya</i>	<i>16.0</i>	<i>35.5</i>	<i>137.4</i>
<i>Central</i>	<i>16.3</i>	<i>48.0</i>	<i>139.6</i>
<i>Malwa</i>	<i>16.4</i>	<i>48.6</i>	<i>131.2</i>
<i>South-east</i>	<i>16.9</i>	<i>53.0</i>	<i>108.4</i>
<i>South-west</i>	<i>17.3</i>	<i>52.7</i>	<i>97.9</i>
<i>Northern</i>	<i>16.0</i>	<i>42.9</i>	<i>154.7</i>

Source: Derived from 1991 population census, Reproductive and Child Health Survey and Sample Registration System

Table 11: Performance of population stabilization efforts in Madhya Pradesh.

Indicator	1992-93	1999-98
Female literacy rate	34.3	44.5
Literacy rate of females (15-49)	25.6	31.5
Females (15-49) having at least high school level education	7.3	9.4
Births with parity 3 and more	49.8	52.7
Source of modern contraceptive methods	89.2	86.6
Unmet need for family planning	20.5	16.2
Proportion of children 12-23 months of age fully immunized	29.2	22.4
Proportion of females receiving tetanus toxoid at the time of pregnancy	42.8	55.0
Proportion of institutional deliveries	15.9	20.1
Proportion of deliveries assisted by health professionals	30.0	29.7

Source: International Institute for Population Sciences and ORC Macro (2000)

Table 12: Performance of population stabilization efforts in different regions of Madhya Pradesh.

State/Region	Proportion of pregnant women receiving full Antenatal Care	Proportion of pregnant women receiving two doses of tetanus toxoid	Proportion of institutional deliveries	Children 12-23 months of age fully immunized
Chhattisgarh	32.39	47.84	12.66	58.67
Madhya Pradesh	27.43	53.44	23.33	47.18
<i>Vindhya</i>	<i>12.53</i>	<i>40.94</i>	<i>13.70</i>	<i>32.03</i>
<i>Central</i>	<i>33.40</i>	<i>54.63</i>	<i>24.02</i>	<i>48.68</i>
<i>Malwa</i>	<i>30.72</i>	<i>60.36</i>	<i>31.03</i>	<i>45.67</i>
<i>South-east</i>	<i>34.23</i>	<i>57.08</i>	<i>17.53</i>	<i>66.25</i>
<i>South-west</i>	<i>45.15</i>	<i>56.23</i>	<i>24.75</i>	<i>59.48</i>
<i>Northern</i>	<i>15.22</i>	<i>50.97</i>	<i>27.23</i>	<i>38.37</i>

Source: Reproductive and child health survey.