

# STUDY ON HIGH FERTILITY TREND AND MATERNAL HEALTH IN INDIA

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**Abstract:** India's population will surpass China's, if the China does not alter its current fertility policy. But India's population will also be more youthful than China's and will not face a budget-straining situation of population aging. Fertility and family planning have received a serious attention in India since 1996 when the reproductive and child health approach was introduced under the Family Welfare Programme.

The study is based on the various sources of data from the Health Management Information System (HMIS), National Family Health Surveys (NFHSs) and District Level Household Survey (DLHS) for analysis of high fertility trend and maternal health in India. The story of population growth in India is fairly in tune with the traditional theory of demographic transition. Some of the UN agencies like; UNICEF and UNFPA support at national and regional levels of India to improve the quality and coverage of high impact maternal health services and to increase community demand for the services. Its focus is on efforts to address the needs of adolescent mothers who are more at risk of complications during pregnancy and the delivery and post-delivery periods. It is to develop evidence-based guidelines and protocols such as the Maternal and Newborn Health Toolkit, Maternal Death Review Guidelines and technical treatment protocols. However, according to the NFHS, a large percentage of married women in India (77 percent) prefer to regulate their fertility: 26 percent do not want another child, 31 percent (or their husbands) were sterilized, and 20 percent want to postpone their next birth. The size of India's future population would largely depend upon the course of fertility decline in the highly populous north and eastern regions of the country. While clearly in the third phase of the transition, India is likely move to the fourth phase of replacement level of fertility. For the fourth phase to begin, fertility in the very large and poor Indian states will have to decline to that of an industrialized country, around two or fewer children. The initiatives undertaken by the Ministry of Health and Family Welfare are very supportive for reducing the fertility rates towards the replacement level and improving the health status of women and children in India. In particular, the impact of these initiatives would be very beneficial for the three high fertility states, Bihar, Uttar Pradesh and Jharkhand; and also for five states with the medium level of fertility such as Haryana, Uttarakhand, Chhattisgarh, Assam, and Tripura.

## Introduction

In the six decades since 1950 fertility has fallen substantially in developing countries. The high fertility which is defined as five or more births per woman over the reproductive periods (15-49 years) as characterizes in 33 countries by Kranti S. Vora and et al. in 2009. Twenty-nine of these countries are in Sub-Saharan Africa. India is on track to become the world's largest country about 10 years from now, even though fertility has declined to 2.3 children per woman, which is less than half of its 1950s level.

India's population will surpass China's, if the China does not alter its current fertility policy. But India's population will also be more youthful than China's and will not face a budget-straining situation of population aging. Countries like India in the third phase switching over to the fourth phase of demographic transition possess fertility rates that have declined significantly from previously high levels but have not reached the population-stabilizing "replacement level" of 2.1 children per woman. These countries are the residents of 38 percent of the world's 7 billion people. High fertility poses health risks for children and their mothers, detracts from human capital investment, slows economic growth, and aggravates environmental threats. In recent years demographic concerns have shifted increasingly to the consequences of fertility decline, such as population aging, and to other demographic phenomena such as urbanization. Although high fertility persists in some countries, based on global experience since 1950 there is good reason to expect that these countries too will eventually experience substantial fertility decline. But uncertainty remains as to how rapidly that decline will occur, what policies and programs can accelerate decline, and whether fertility will fall to low levels (i.e., less than 2.5 births per woman) in all countries. Fertility and family planning have received a serious attention in India since 1996 when the reproductive and child health approach was introduced under the Family Welfare Programme. India has been undertaking several initiatives to reduce the total fertility rate at the replacement level of 2.1 children per woman and to improve the health of mothers and children since beginning; but the progress has been slow in Empowered Action Group (EAG) states, particularly in Bihar, Uttar Pradesh and Jharkhand. Recognizing the detrimental consequences motivate to undertake this study.

## Materials and Methods

The data was collected from the various ways for the relevant information collection for the study purposes including secondary analysis of data from the Health Management Information System (HMIS). Data were also drawn from the National Family Health Surveys (NFHSs) and District Level Household Survey (DLHS). Information regarding health infrastructure and human resources was collected from the DLHSs, facility surveys, and national government documents/website.

## Results

### Population Growth in India since 1901

Trends in population growth since 1901 have been presented in Table 1. A close look at this table shows that there has been significant demographic segregation as far as trends in population growth are concerned. The major changing points are the census years 1921, 1951 and 1981. Thus the demographic transition of India can be classified into following four distinct periods such as a) stagnation population period (1901-1921), b) steady growth period (1921-1951), c) rapid high growth period (1951-1981) and d) slowing down of high growth period (1981-2011).

#### a) Stagnation population period (1901-1921)

The population growth during this period can be termed more or less stagnant when compared to the growth rates observed during the consequent periods. The high birth rate was compensating by high death rate. The progressive growth rate in 1921 over 1901 was only 5.4 per cent. In fact, the census year 1921 registered a negative growth rate of 0.31 per cent. Until 1921, India's population had been growing very slowly owing to the heavy toll from famines, epidemics and war. According to census reports, the population of the country declined between 1911 and 1921, from 252.1 to 251.3 million because of the high mortality caused by the influenza pandemic of 1918-19. It is estimated that about 5 percent of the country's population, about 13 million persons died in the epidemic (Srinivasan, K: 1998). In addition, thousands of Indian soldiers lost their lives during the World War I (1914-18) also.

#### b) Steady growth period (1921-51)

The population of India increased from 251 million to 361 million during 1921-51. This duration of 30 years has thus registered a growth of 43.8 per cent. This period may be called as the period of steady growth rate. The mortality rate started showing downward trend as a result of improvement in general health condition after 1921. The crude death rate which stood at a high of 47 per thousand in 1921 declined to 27 per thousand in 1951. The crude birth rate continued to stay at an abnormally high level and decline only to 40 per thousand in 1951 as against 48 per thousand in 1921. In view of the fact that crude death rate declined considerably and crude birth rate remained very high, the population growth during this period is called mortality induced growth. For the first time, since the initiation of a systematic population census in 1881, India's population increased slightly by more than 10 percent, (or by 27.7 million) in a decade, with the 1931 enumerating a population of 279 million (Hutton, 1932).

#### c) Rapid high growth period (1951-81)

After 1951, there was a decline in the mortality rate but the fertility remained high. Therefore, this period experienced very high rate of population growth and is often referred to as the period of population explosion. The birth rate increased from 40 per thousand in 1951 to 42 per thousand in 1961 and maintained at 37 per thousand in 1981. However, it declined to 25 per thousand in 2001 while death rate declined rapidly from 27 per thousand in 1951 to 8 per thousand in 2001. The total population of the country increased from 361.09 million in 1951 to 683.3 million in 1981 as such it is an increase of 89.23 per cent in a period of thirty years. This unprecedented growth rate was due to the death rates declined faster than the birth rates and the living conditions of the people improved enormously. This situation resulted in high natural increase. It may be called fertility induced growth.

#### d) Slowing down of high growth period (1981-2011) and onwards

The period between Census years 1981 to 2001 may be known as the period of slowing down high growth period. It started declining after 1981. The highest growth rate of 2.22 per cent was recorded in 1971 which continued in 1981 also. It declined to 2.14 per cent in 1991 and further to 1.97 per cent in 2001. During this period, birth rate declined rapidly from 37 per thousand in 1981 to 22 per thousand in 2011. It is found that the declining trend of death rate continued but at a slower pace.

Table 1: Birth rates, death rates and natural increase in India since 1901

Period	CBR	CDR	Natural increase
1901-1911	49.2	42.6	6.6
1911-1921	48.1	47.2	0.9
1921-1931	46.4	36.3	10.1
1931-1941	45.2	31.2	14
1941-1951	39.9	27.4	12.5
1951-1961	41.7	22.8	18.9
1961-1971	41.2	19	22.2
1971-1981	37.2	15	22.2
1981-1991	29.5	9.8	19.7
1991-2001	25.4	8.4	17
2001-2011	21.8	7.1	14.7
2012	21.6	7.0	14.6
2013	21.4	7.0	14.4
2014	21.0	7.0	14.0
2015-16	20.4	6.4	14.0

The difference between birth and death rates narrowed to about 14 in 2015-16. This declining trend is a positive indicator of the official efforts of birth control and people's own inclination to opt for smaller families.

### The Demographic Transition

The story of population growth in India is fairly in tune with the traditional theory of demographic transition. During most of the nineteenth century India witnessed a fluctuating but ultimately more or less a stagnant growth of population as shown in the twentieth century until 1921.

Thereafter, country passed through successively all the phases of demographic transition and is now widely believed to have entered the final phase which is normally characterised by rapidly declining fertility. However, it is yet to be seen as to how long will these phases extend and when India will achieve a stable population.

The demographic transition is the process of change in population of a society. It consists of the following four stages:

- (a) Stage 1. High birth and death rates, low growth rate here it supports the stagnation population period (1901-1921) and steady growth period (1921-51) of India.
- (b) Stage 2. Rapid decline in death rate continued high birth rate, very high growth rate period (1951-81) in India.
- (c) Stage 3. Rapid decline in birth rate, continued decline in death rate, growth rate begins to decline slowing down of high growth period (1981-2001).
- (d) Stage 4. Low death and birth rates, low growth rate and it appears to follow during 2001-2016 in India.

### National Population Policy

The National Population Policy (NPP) adopted by the Government of India in 2000 states that 'the long-term objective is to achieve a stable population by 2045; at a level consistent with the requirement of sustainable economic growth, social development and environment protection. The other objectives are:

- To promote and support schemes, programmes, projects and initiatives for meeting the unmet needs for contraception and reproductive and child health care.
- To promote and support innovative ideas in the Government, private and voluntary sector with a view to achieve the objectives of the National Population Policy 2000.
- To facilitate the development of a vigorous people's movement in favour of the national effort for population stabilisation.

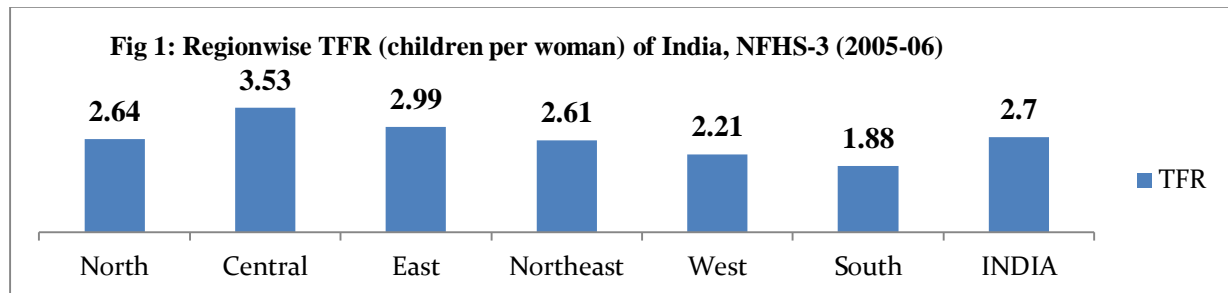
The fertility indicators considered are Crude Birth Rate, General Fertility Rate, Age Specific Fertility Rates, Total Fertility Rates and Gross Reproduction Rate. Total fertility rate defined as average number of children a woman would bear during her lifetime, assuming her childbearing conforms to her age-specific fertility rate every year of her childbearing years (typically, age 15 to 49 years). Sample Registration System (SRS) has provided year wise data for estimating various fertility measures. The crude birth rate (CBR) at all India level had declined from 36.9 in 1971 to 21.8 in 2011, registering a fall of about 41 per cent. During 1991-2013, the decline has been about 27.5 percent. It further declined from 29.5 in 1991 to 21.4 in 2013. The total fertility rate (TFR) has declined from 5.2 in 1971 to 2.2 in 2015-16 (Table 2).

Table 2: Time Series data on CBR and TFR of India

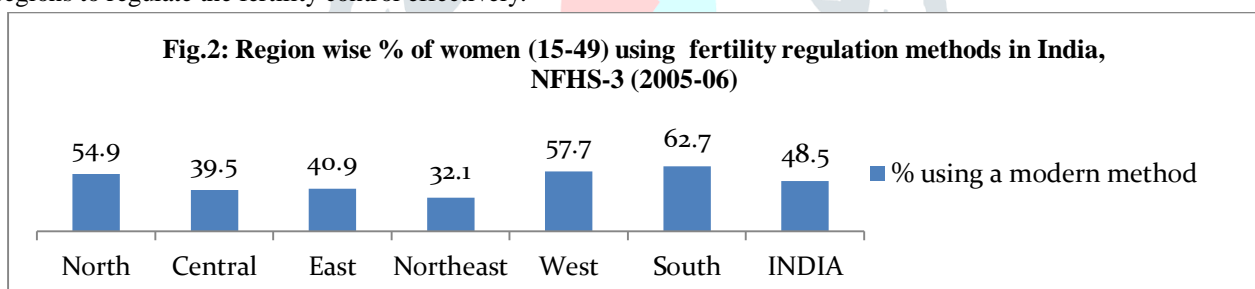
Year	CBR	CDR	IMR	TFR
1971	36.9	14.9	129	5.2
1972	36.6	16.9	139	5.2
1973	34.6	15.5	134	4.9
1974	34.5	14.5	126	4.9
1975	35.2	15.9	140	4.9
1976	34.4	15	129	4.7
1977	33.0	14.7	130	4.5
1978	33.3	14.2	127	4.5
1979	33.1	12.8	120	4.4
1980	33.3	12.6	114	4.4
1981	33.9	12.5	110	4.5
1982	33.8	11.9	105	4.5
1983	33.7	11.9	105	4.5
1984	33.9	12.6	104	4.5
1985	32.9	11.8	97	4.3
1986	32.6	11.1	96	4.2
1987	32.2	10.9	95	4.1
1988	31.5	11.0	94	4.0
1989	30.6	10.3	91	3.9
1990	30.2	9.7	80	3.8
1991	29.5	9.8	80	3.6
1992	29.2	10.1	79	3.6
1993	28.7	9.3	74	3.5
1994	28.7	9.3	74	3.5
1995	28.3	9.0	74	3.5
1996	27.5	9.0	72	3.4
1997	27.2	8.9	71	3.3
1998	26.5	9.0	72	3.2
1999	26.0	8.7	70	3.2
2000	25.8	8.5	68	3.2
2001	25.4	8.4	66	3.1
2002	25.0	8.1	63	3.0
2003	24.8	8.0	60	3.0
2004	24.1	7.5	58	2.9
2005	23.8	7.6	58	2.9
2006	23.5	7.5	57	2.8
2007	23.1	7.4	55	2.7
2008	22.8	7.4	53	2.6
2009	22.5	7.3	50	2.6
2010	22.1	7.2	47	2.5
2011	21.8	7.1	44	2.4
2012	21.6	7.0	42	2.4
2013	21.4	7.0	40	2.3
2014	21.0	7.0	40	2.3
2015-16	20.4	6.4	38	2.2

## Region wise TFR and use of fertility regulation methods in India

In the NFHS-3 study, the numbers of interviewed ever-married 15–49-year-old women were 98,923 in 2005-06. The region wise TFR is based on the survey results of NFHS-3 during 2005-06 (Fig.1). The northern region of India consists of the States namely; Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan and Uttrakhand. The central region has the States of Chhattisgarh, Madhya Pradesh and Uttar Pradesh. The East region of India consists of the States like; Bihar, Jharkhand, Orissa and West Bengal. The northeast region has the States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The west region consists of the States like; Goa, Gujarat and Maharashtra. The south region of India has the States namely; Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. The replacement level fertility (TFR=2.1) of central region is the highest of 3.53 which is followed by the north, east and northeast regions of India. The replacement level fertility is below 2.1 is in the southern region of India. The western region of India is almost near to the replacement level of fertility.



The fertility regulation methods among married women are pill, IUD, injectables, condoms (male and female), sterilization (male and female), the diaphragm, foam and jelly. The use of fertility regulation methods in northern region of India is about 55 percent (Fig.2). In the east and central regions of India, it is around 41 percent to have higher level of TFR as shown in Fig.1. The northeast region has shown the lowest level of the use of fertility regulation methods (32 percent) with the moderate level of TFR. The use of fertility regulation methods ranged from around 58 percent to 63 percent in west to south regions of India which has low level of TFR in India. Much attention is needed to be given in all the States barring of the States in the regions of South and west regions to regulate the fertility control effectively.



## Maternal Health in India

India's maternal mortality rate reduced from 212 deaths per 100,000 live births in 2007 to 178 deaths in 2012. The advance is largely due to key government interventions such as the Janani Shishu Suraksha Karyakaram (JSSK) scheme which encompasses free maternity services for women and children, a nationwide scale-up of emergency referral systems and maternal death audits, and improvements in the governance and management of health services at all levels. However, adolescent and illiterate mothers and those living in hard to reach areas still have a much greater chance of dying at the time of childbirth. Adolescent girls outside Indian cities are especially vulnerable as teenage marriage and pregnancies are very high in rural and remote areas of the country.

Some of the UN agencies like; UNICEF and Unfpa support at national and regional levels of India to improve the quality and coverage of high impact maternal health services and to increase community demand for the services. Its focus is on efforts to address the needs of adolescent mothers who are more at risk of complications during pregnancy and the delivery and post-delivery periods. It supports cross-sector efforts to improve maternal health in partnership with the organization's Nutrition, Communication for Development and Child Protection sections. Some of the way forward actions are a) Evidence for policy and planning: It is to develop evidence-based guidelines and protocols such as the Maternal and Newborn Health Toolkit, Maternal Death Review Guidelines and technical treatment protocols. These documents are the basis for setting up quality of care benchmarks at health facilities so that women can receive services with dignity. b) Maternal Death Review: It supported modelling and scale up of unique software for Maternal Death Review (MDR) in some states. The software provides timely data on the causes and location of maternal deaths. It is planned to scale up the software in all of the states in 2015 and eventually



nationwide by 2016. However, the MDR is not in progress or up to the satisfaction level as found in some of the States like; Bihar, Jharkhand and West Bengal while visited for the associated studies. However, Maternal Death Reviews have been a very good tool to support improvements in health systems by analyzing the key causes of deaths among pregnant women and those who have delivered. The Mother and Child Tracing System (MCTS) needs to be improved.

### **Some reasons for the high fertility and poor maternal health**

According to the NFHS, a large percentage of married women in India (77 percent) prefer to regulate their fertility: 26 percent do not want another child, 31 percent (or their husbands) were sterilized, and 20 percent want to postpone their next birth. Nearly 23 percent of births which took place during the 4 years period before the survey were unwanted births: 14 percent of all births were mistimed and 9 percent were not wanted at all. If there were no unwanted births in India, its TFR would have been lower by nearly three quarters of number of children. For Uttar Pradesh, avoidance of unwanted births could reduce the TFR by at least one child. A substantial portion of the total demand for family planning services remains unsatisfied. According to the NFHS, nearly 20 percent of married women in India have an unmet need for family planning: 8.5 percent want to stop having children and 11.0 percent want to postpone their next birth. Unmet need for spacing is a substantial portion of the total unmet need for family planning-most of the unmet need among younger women is for spacing. This suggests that more attention should be given to methods other than sterilization, such as condom, the pill, and IUD. Further, family welfare program should pay greater attention to temporary methods of family planning such as pill, IUD, condom, and injections which come from the responses of intended users in the future which show that the potential demand for these methods is substantial. According to the NFHS, nearly 31 percent of married women in India who intend to use family planning in the future indicate preference for temporary methods. Unmet need for family planning also varies by States. In most southern and western States, where the family planning program is considered to be more effective, unmet need is 15 percent or less. In contrast, 30 percent of women in Uttar Pradesh, or 8 million, have unmet need for family planning. Literacy and education, especially of females, affect fertility through greater access and practice of contraception and desire for smaller family size. Literacy in India has improved steadily. The adult literacy rate (ages 15 and over) has risen from 34 percent in 1971 to 52 percent in 1995. Although female literacy in India has improved at a faster rate than that of men, in 1995 women continued to have a much lower rate (38 percent) than men (66 percent). Efforts are being done to improve schooling and literacy, especially for girls and women. Many States have begun 'total literacy campaigns' to eliminate illiteracy among the disadvantaged population ages 15 to 34 (Visaria and Visaria, 1995) which would slow the growth rate of population. The short-term training for midwives and doctors on maternal health using models and dummies require to be strengthened. The capacity-building and orientation training for supportive supervision for improving maternal health is weak. The MCTS is poor particularly in the EAG States.

### **Summary**

India is on track to become the world's largest country about 10 years from now, even though fertility has declined to 2.6 children per woman, which is less than half of its 1950s level. India's population will surpass China's population, if China does not alter its current fertility policy. Countries like India is in the third phase switching over to the fourth phase of demographic transition. Fertility and family planning have received a serious attention in India since 1996 when the reproductive and child health approach was introduced under the Family Welfare Programme. India has been undertaking several initiatives to reduce the total fertility rate at the replacement level of 2.1 children per woman and to improve the health of mothers and children since beginning; but the progress has been slow in Empowered Action Group (EAG) states, particularly in Bihar, Uttar Pradesh and Jharkhand.

As trends in population growth are concerned, the major changing points are the census years 1921, 1951 and 1981. Thus the demographic transition of India can be classified into following four distinct periods such as a) stagnation population period (1901-1921), b) steady growth period (1921-1951), c) rapid high growth period (1951-1981) and d) slowing down of high growth period (1981-2011) and onwards.

The progressive growth rate in 1921 over 1901 was only 5.4 per cent. In fact, the census year 1921 registered a negative growth rate of 0.31 per cent. The population of India increased from 251 million to 361 million during 1921-51. This duration of 30 years has thus registered a growth of 43.8 per cent. After 1951, there was a decline in the mortality rate but the fertility remained high. The period (1951-81) experienced very high rate of population growth and is often referred to as the period of population explosion. The period between Census years 1981 to 2001 is known as the period of slowing down high growth period. The fertility started declining after 1981. It declined to 2.14 per cent in 1991 and further to 1.97 per cent in 2001. During this period, birth rate declined rapidly from 37 per thousand in 1981 to 22 per thousand in 2011. The difference between birth and death rates narrowed to about 14 points in 2015-16. This declining trend is a positive indicator of the official efforts of birth control and people's own inclination to opt for smaller families.

The crude birth rate (CBR) at all India level had declined from 36.9 in 1971 to 21.8 in 2011, registering a fall of about 41 per cent. During 1991-2013, the decline has been about 27.5 percent, from 29.5 in 1991 to 21.4 in 2013. The total fertility rate (TFR) has declined from 5.2 in 1971 to 2.2 in 2015-16.

According to the NFHS results, a large proportion of married women in India (77 percent) prefer to regulate their fertility: 26 percent do not want another child, 31 percent (or their husbands) were sterilized, and 20 percent want to postpone their next birth. Nearly 23 percent of births during the 4-year period before the survey were not wanted by women: 14 percent of all births were mistimed and 9 percent were not wanted at all. If there were no unwanted births in India, its TFR would be lower by nearly three quarters of a child. A substantial portion of the total demand for family planning services remains unsatisfied. According to the NFHS, nearly 20 percent of married women in India have an unmet need for family planning as 8.5 percent want to stop having children and 11.0 percent want to postpone their next birth. Unmet need for spacing is a substantial portion of the total unmet need for family planning and most of the unmet need among younger women is for spacing. This suggests that more attention should be given to methods other than sterilization, such as condom, the pill, and IUD. Further, family welfare program should pay greater attention to temporary methods of family planning such as pill, IUD, condom, and injections.

The size of India's future population would largely depend upon the course of fertility decline in the highly populous north and eastern regions of the country. While clearly in the third phase of the transition, India is likely move to the fourth phase of replacement level of fertility. For the fourth phase to begin, fertility in the very large and poor Indian states will have to decline to that of an industrialized country, around two or fewer children. The initiatives undertaken by the Ministry of Health and Family Welfare are very supportive for reducing the fertility rates towards the replacement level and improving the health status of women and children in India. In particular, the impact of these initiatives would be very beneficial for the three high fertility states, Bihar, Uttar Pradesh and Jharkhand; and also for five states with the medium level of fertility such as Haryana, Uttrakhand, Chhattisgarh, Assam, and Tripura.

### Recommendations

- The Family Welfare Program should pay greater attention to temporary methods of family planning such as oral pill, IUD, condom, and injections which show that the potential demand for these methods is substantial. As such more attention should be given to methods other than sterilization, such as condom, oral pill, and IUD.
- India needs to develop a system to accurately record all births and deaths. Reliable data about fertility and mortality can be used for improving programme inputs and to know the trends in growth rates over time up to the district level.
- The programme to alter fertility preferences of eligible couples through effective behavioural change communication (BCC) should be enhanced.
- The cross-sector efforts to improve maternal health in partnership with the organizations associated with Nutrition, Communication for Development and Child Protection.

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