BIHAR

Health Goals for India: 12th Five-Year Plan

- Reduction in Infant Mortality Rate to 25.
- Reduction of Maternal Mortality Ratio to 100.
- Reduction of Total Fertility Rate to 2.1.
- Prevention and reduction of anaemia among women ages 15–49 years to 28 per cent.
- Raising child sex ratio in the 0–6 age group from 914 to 950.

Photos: Satvir Malhotra© Futures Group

Population Projections and Expected Levels of Achievement for Family Planning Programme in Bihar

India has witnessed a steady decline in its population growth rate over the last four decades (1971–2011). The fertility rates have fallen by 2.7% per annum (2.8 to 2.5) over the 2006–10 period. Despite this steady decline, India has missed and postponed its fertility goals time and again. The goal of achieving the replacement level of fertility has now been deferred to 2017. As per the latest Sample Registration System (SRS), 2012 estimates 21 states and union territories (UTs) have achieved the replacement level of fertility, though fertility remains high in several states, highlighting different stages of demographic transition among the states, leading to difference in their timelines to achieve population stabilisation.

Seven states with high fertility rates are Bihar (3.6), Uttar Pradesh (UP) (3.4), Madhya Pradesh (MP) (3.1), Rajasthan (3.0), Jharkhand (2.9), Chhattisgarh (2.7), and Assam (2.4), of which all except Assam are empowered action group (EAG) states. All EAG states and Assam collectively account for the highest number of births, as well as highest infant, under-five, and maternal deaths in the country, bringing focus on poor maternal and child health (MCH) indicators and their correlation with high fertility rate.

Reducing maternal and child mortality are integral to the National Rural Health Mission (NRHM) and the Reproductive, Maternal, Child and Adolescent Health (RMNCH+A), which provide a framework of comprehensive strategies and interventions, and funding. The government has made strategic investments to improve the MCH indicators in the country, with a specific focus on high-fertility states. Family planning is being seen as a key strategy to address not just the issue of population stabilisation but also socioeconomic development, and improving the health indicators for women, mothers and children alongside.

In keeping with the emphasis on family planning this brief focuses on Bihar, and presents the changing fertility dynamics, and the population projections and expected levels of achievement (ELAs) to meet the unmet need for family planning in Bihar.

This brief has been developed from a Technical Report that was commissioned by the Ministry of Health and Family Welfare (MOHFW) to the Health Policy Unit, under the guidance of Dr R K Srivastava, Sr. Policy Analyst, (ex Director General of Health Services, MOHFW), at the National Institute of Health and Family Welfare (NIHFW). NIHFW constituted an expert group under the Chairmanship of Dr Arvind Pandey, Director, National Institute of Medical Statistics (NIMS), with experts from various technical organisations to provide technical directions to estimate the population projections and ELAs to meet the unmet need for family planning.

Data analysed and presented have been collated from various sources, including Census publications, Sample Registration System (SRS) Bulletins, three rounds of National Family Health Surveys (NFHS), District Level Household and Facility Surveys (DLHS), Annual Health Survey (AHS), and Family Welfare Statistics in India (of MOHFW), and other published materials.

The widely-used Spectrum Suite of computer models, in particular DemProj and FamPlan, have been used to project the population, and family planning requirements needed to reach the national goals to address unmet need.

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The population projections presented in this brief will chart the future course of population dynamics, estimate the resources required for family planning, and highlight the state's contribution to the achievement of the country's replacement level of fertility.

Rapid population growth poses a great challenge to Bihar's development

Today, Bihar is on an economic growth trajectory with a vision to transform itself into a developed state. The state recorded the highest state domestic product of over 14 percent in 2012–2013. The state through the Twelfth Five Year Plan (2012–2017) aims to sustain the growth by investing in agriculture, infrastructure and industrialization, by emphasizing on development of social sector, reduction of poverty and equitable regional development. However, in the last decade Bihar recorded the highest population growth rate of 25.1 percent and added over 20 million people to its population which is now at 104.1 million. This is almost at par with the population of Mexico (110 million) and in the next two five-year plan periods it will increase to 127. 8 million. This increase in growth rate will make sustainable development as desired by Bihar unattainable.

The well-being of its citizens will be affected as there would be more pressure on the already scarce resources. According to the Census of India more than half of Bihar's population (53 percent) still lives below poverty line with very few having access to water and toilet facilities. The government has been able to provide access to tap water to only 15.1 percent households in urban areas and 1.6 percent in rural areas, and toilet facilities to only 23 percent of households. The increasing population has also increased the population density and currently Bihar has the highest density of population with over 1100 people living per sq.km.

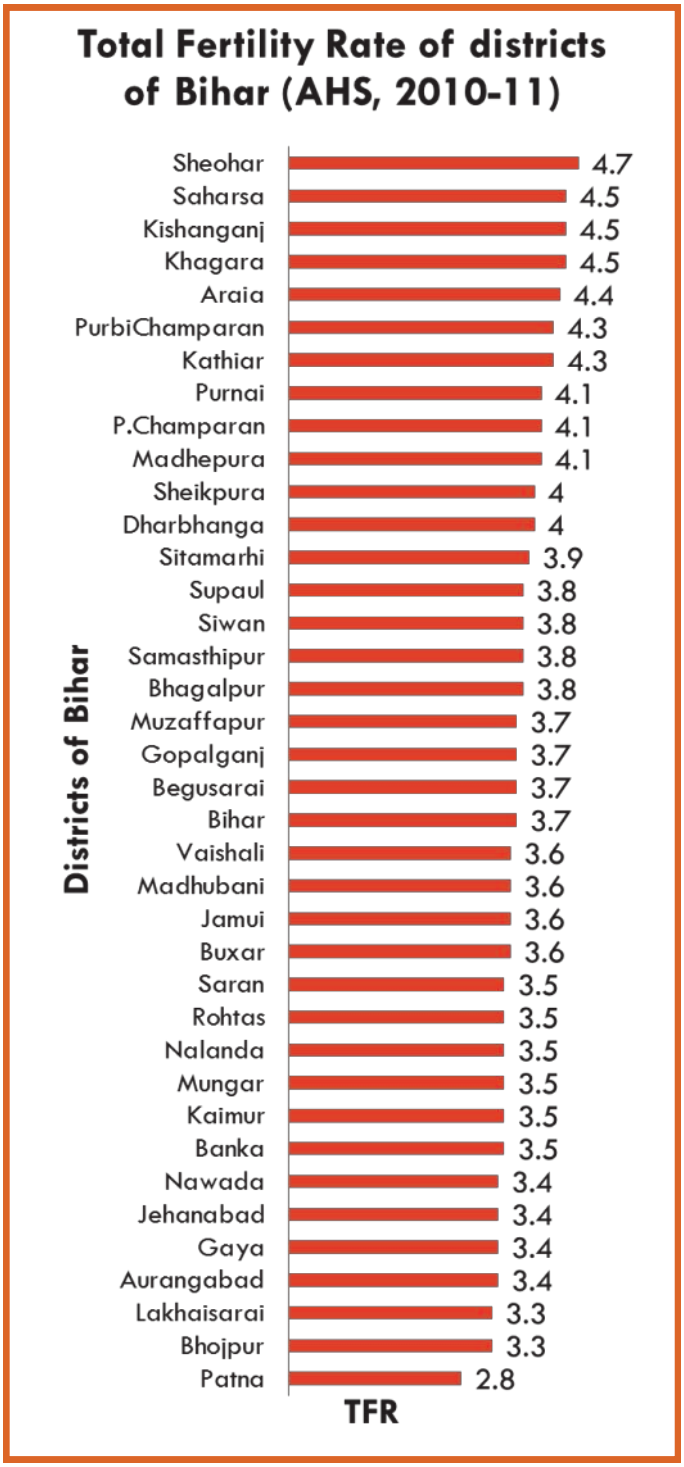
Pregnancy-related complications are a leading cause of maternal and infant deaths in Bihar. Maternal deaths in Bihar have decreased to 219 per 100,000 live births. While this is a notable achievement, efforts will need to be intensified to meet the goal of reducing maternal deaths to 109 per 100,000 live births by 2017.

Population and Fertility	National Level	In Bihar
Crude Birth Rate (CBR) (births per 1,000 population	2.4 for India in 2011 (Census, 2011), declined more than 53%, from 5.2 in 1971.	Bihar has a TFR of 3.5 (SRS, 2012).
Total Fertility Rate (TFR)	Fertility of the younger age group, 15–19, has declined more than 69% between 1971 and 2011.	37.7% in the 15–19 age group (SRS, 2012).
Age-specific Fertility Rates	Dropped from 43% in 1991 to 39% in 2001 and further, to 27.6%, in 2011.	50.6% in 2005 to 43% in 2011.
Birth Order - Ranking of a newborn baby in relation to all of the mother's previous live births	Mean age at marriage in India is 21.2, which has risen moderately from 20.2 in 2005 (SRS, 2012).	Bihar has a slightly lower mean age at marriage, at 20.8 (SRS, 2012).
Age at marriage - Determines the risk of pregnancy: has bearing on birth rates; fertility & health profile	22% (DLHS-3, 2007–08).	46% (DLHS-3).
%age of women married before the age of 18 years	Increased from 22% in 1980 to 40%, in 2011 (Family Welfare Statistics, MOHFW, 2011).	Increased from 14% in 2005 to 17% in 2011 (Family Welfare Statistics, MOHFW, 2011).
Couple protection rate - Couples currently and effectively protected by family planning methods	Overall contraceptive use in India, for any modern method, increased from 36.5% in 1992–93 (NFHS-1) to 42.8% in 1997–98 (NFHS-2) to 48.5% in 2005–06 (NFHS-3).	CPR in Bihar increased from 27% (DLHS-2, 2002–04 to 38% (AHS, 2010–11).
Contraceptive Prevalence Rate (CPR)	3/4th of the users of modern contraceptives in India have adopted female sterilisation, with a little over 2% using male sterilisation (DLHS-3). The proportion of limiting method users has hardly changed over the years.	Female sterilisation accounted for about 88% of modern method use, while spacing methods accounted for 11% (AHS, 2010–11).
Contraceptive Method Mix	13% of currently married women in India have an unmet need for family planning (NFHS-3), a marginal decline from 15.8% in 1997–98. The decline in the unmet need for spacing was 2.1% (8.3% to 6.2%); and for limiting methods 0.9% (7.5% to 6.6%) (NFHS-2 and NFHS-3).	39% unmet need, that hasn't changed much (AHS, 2010–11).
Unmet Need for Contraception	13% of currently married women in India have an unmet need for family planning (NFHS-3, 2005–06), a marginal decline from15.8% in 1997–98. The decline in the unmet need for spacing was (8.3%% to 6.2%); for limiting methods 7.5% to 6.6%. (NFHS-2,1997–98; NFHS-3, 2005–06.	39% unmet need, that hasn't changed much (AHS, 2010-11)

- The doctor-patient ratio in Bihar is one doctor for 3500 people compared to the national ratio of one doctor per 1700 people.
- 42 out of 1000 infants born in Bihar die within one year of birth.
- 219 per 100,000 mothers die due to pregnancy or childbirth related problems and less than 5 percent of women avail full antenatal services.
- On an average a women in Bihar has 3.5 births, as compared to 2.4 births nationally.
- Demand for FP services (39 percent) is high but only 38 percent of couples in Bihar use any modern method of contraception highlighting the issue of supply side challenges.

Socio-cultural factors such has literacy rate and age of marriage are critical factors that affect fertility and mortality

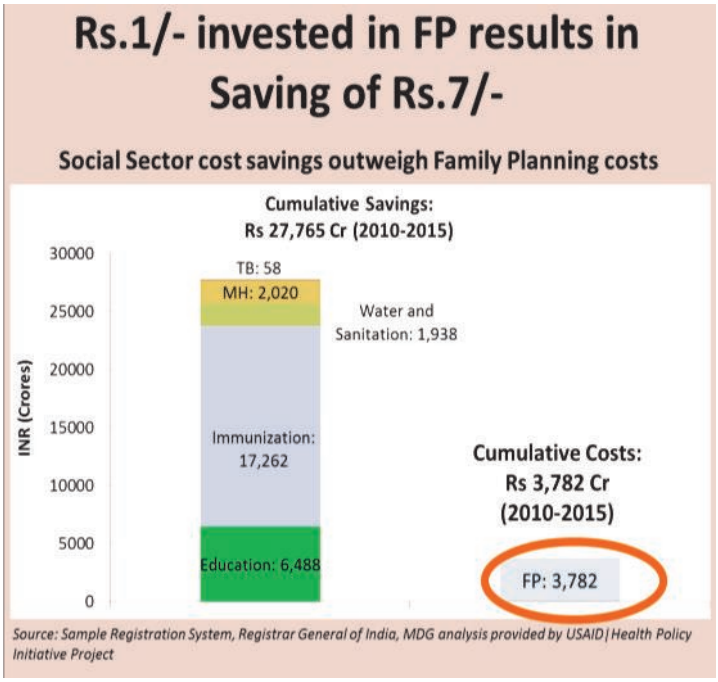
Forty-six percent of girls get married before the legal age of marriage of 18 years and 8.2 percent of teenage girls who are pregnant are already mothers before the age of 18 years. It is important to note that all these marriages are illegal since they are below the age of 18 years.



This chart above shows district-wise TFR in Bihar which ranges from 2.8 in Patna to 4.7 in Seohar. More than 30% of the districts have a TFR higher than 4 and 50% have a TFR of more than 3.5 according to the AHS, 2010-11. This indicates an urgent need to adopt strategies in a mission mode to control population growth, address unmet need, increase age of marriage and first birth, and engage multiple stakeholders in increasing access to quality family planning services.

TFR (AHS, 2010-11)	# of Districts	%
above 4	12	31.6
3.5-3.9	19	50.0
3.0-3.4	6	15.8
2.5-2.9	1	2.6
TOTAL	38	100

Greater investments in FP has a positive effect on health and development



FP saves lives by helping women prevent unintended pregnancies, delay early childbearing, and space births at least two years apart. Bihar has a large unmet need for FP, which is also an opportunity. A closer look at these populations tells us that young, rural women deserve special attention given that they are likely to marry early and begin their reproductive life much sooner than women in urban areas. For example, unmet need is higher among rural women compared to urban women, 40 percent and 30 percent, respectively. Thus states need to ensure:

- Age of marriage not before 18 years and delaying of the first child
- Promote spacing and postpartum contraception
- Motivate men to participate in and adopt FP
- Reduce the unmet need of contraception by increased access to contraceptives
- Increase the basket of contraceptives by providing more methods at multiple points
- Strengthen FP service delivery and quality
- Prioritize efforts in eight districts with high unmet need for FP (in the range 40-60%)
- Strengthen door-door delivery of spacing methods to as well as. sterilization method (which comprises 82% of contraceptive prevalence rate)
- Scale up postpartum intrauterine contraceptive device given that 51.9 percent deliveries are at CHC/PHCs (AHS, 2011–12).

Population Projections and Expected Levels of Achievement for India and Bihar

Reduction in fertility and population growth rate remain a challenge for policymakers and planners in the EAG states, including Bihar.

Inputs and Assumptions

- To compute the population projections, the universally accepted "Component Method" has been used. As per the method the population growth of a given geographic location is determined by three components: fertility, mortality, and migration.
- SPECTRUM Suite, a software package developed by Futures Group, was used to compute population projections and ELAs. In particular two models—DemProj and FamPlan—have been used to project the population, and family planning requirements, needed to reach the national goals to address the unmet need.
- In view of the two subsequent plan periods (12th and 13th five-year plans), the projection period has been determined as 2011–22.

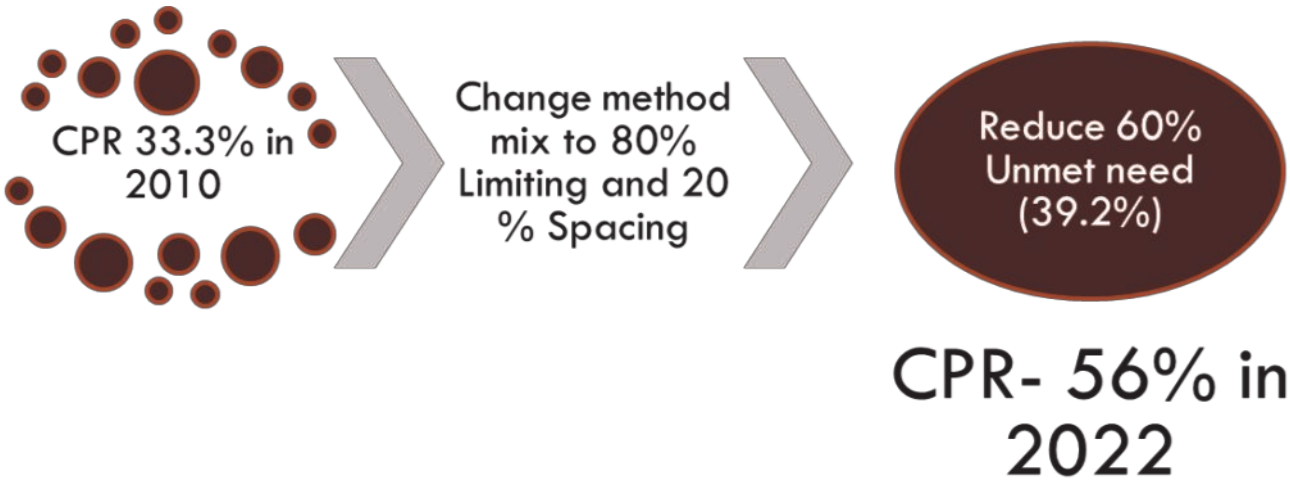
Goal Setting

The goal of reaching unmet need for contraception has been fixed while keeping in mind the estimates of reaching the TFR of 2.1 provided by the Expert Committee on Projections, 2005–-2006 (Office of the Registrar General of India, 2006).

Assumption

It is assumed that unmet need for contraception will not fall beyond 4.7% (Andhra Pradesh's level, NFHS-3, 2005–06), which has been the lowest in the country. Currently, in Bihar the method mix is 89.2 per cent (at the AHS, 2010–11 level) for limiting methods against 21.2 per cent for spacing methods. If Bihar has to reduce 60% of its current unmet need (39.2 per cent, AHS, 2010-11) the CPR will need to increase from the current 33.3 per cent (AHS. 2010-11) to 56 per cent in 2022 (projected figures). There are two scenarios through which this can be achieved.

- Scenario A: **Change in method mix** proposed (based on the state's current level) for the projection period (2011–22) i.e. Limiting 80 per cent and spacing 20 per cent.
- Scenario B: **Unchanged method mix** during the projection period (2011–2022) i.e. 89 per cent Limiting and 11 per cent spacing.



Method mix

- The unchanged or uniform method mix Scenario B, by keeping 89.2 per cent (at the AHS, 2010–11 level) for limiting methods against 21.2 per cent for spacing methods through the projection period, i.e., from 2012–2022, would result in increasing the number of acceptors of limiting methods from 5.2 lakhs in 2012 to nearly three times that—14.4 lakhs—in 2022. In looking at the human resources and health facilities available to the state government, achieving this number from the 2012 level will be an enormous task. Thus, it has been decided to create another scenario that propagates a balanced method mix.
- The proportion of limiting methods changed from 89.2 per cent in 2011 to 79.2 per cent in 2022.
- Scenario A (the changed method mix) was constructed by looking at various datasets (NFHS, DLHS, and AHS). While looking at these datasets, no clear trend has emerged for the method mix for Bihar, except that both limiting and spacing methods have similar proportions, at about 80 per cent to 20 per cent, respectively. Unmet need for family planning in the state is more tilted towards spacing methods, at more than 54 per cent, per AHS, 2010–11. This provides an opportunity to create a second scenario by assuming 1 per cent per year reduction in the proportion of limiting methods, contributing to a 1 per cent per year increment in the proportion of spacing methods, resulting in an approximate reduction of 10 per cent in the proportion of limiting methods by the year 2022, pegged at 78.8 per cent. A much slower increase in the number of acceptors of limiting methods was noticed while calculating the number of acceptors for the projection period using this assumption. The number of acceptors of limiting methods increased from 5.2 lakhs in 2012 to 11.3 lakhs in 2022, almost twice the current estimate.

Projected number of Acceptors for Spacing methods: Scenario A, if states change the method mix												
Numbers (Millions)												
State	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bihar	0.69	0.75	0.86	0.99	1.13	1.28	1.47	1.68	1.91	2.18	2.48	2.82
India	31.04	32.52	33.12	33.74	34.34	34.89	35.42	35.97	36.49	36.98	37.44	37.92
Projected number of Acceptors for Spacing methods: Scenario B, if states continue as today												
Bihar	0.69	0.73	0.77	0.82	0.86	0.92	0.98	1.05	1.14	1.23	1.33	1.43
India	31.6	32.7	33.7	34.7	35.7	36.6	37.6	38.6	39.6	40.6	41.6	42.5

Projected number of Acceptors for Limiting methods: Scenario A, if states change the method mix												
Numbers (million)												
State	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bihar	0.52	0.6	0.62	0.64	0.73	0.82	0.92	1.03	1.15	1.19	1.33	1.44
India	5.14	4.85	5.07	5.1	5.12	5.12	5.36	5.38	5.41	5.46	5.5	5.63
Projected number of Acceptors for Limiting methods: Scenario B, if states continue as today												
Bihar	0.41	0.5	0.6	0.75	0.7	0.73	0.82	0.84	0.87	0.98	1.18	1.28
India	0.52	0.6	0.62	0.64	0.73	0.82	0.92	1.03	1.15	1.19	1.33	1.44

Bihar shows a declining trend in IMR from 44 to 36. Improving the use of contraception will definitely help Bihar to improve the IMR status further. It seems that along with India, **Bihar will short fall in achieving millennium development Goal for IMR 28 per 1,000 live births by 2015.** The declining rate of Under5mortality is also approaching.

State	IMR			UNDER-5 MORTALITY		
	2012	2017	2022	2012	2017	2022
Bihar	44.2	36.7	29.6	56.8	46.1	36.1
Andhra Pradesh	44.5	38	32.4	57	47.1	39.8
Tamil Nadu	33.1	26.2	20.1	40.7	31.6	23.7
India	41.3	34.1	27.3	52.1	42	33.1

SCENARIOS A and B MWRA

	Numbers (Millions)											
State	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bihar	21	21.6	22.1	22.7	23.2	23.7	24.1	24.5	24.9	25.2	25.5	25.8
Andhra Pradesh	18.3	18.5	18.7	18.8	18.9	19	19.1	19.1	19.2	19.2	19.3	19.3
Tamil Nadu	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.6	14.6
India	237.7	242.2	246.6	250.8	254.8	258.6	262.1	265.5	268.6	271.5	274.3	277

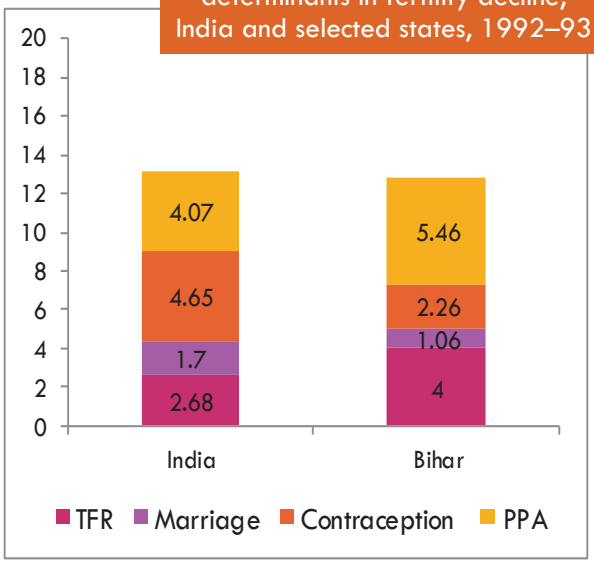
The **number of married women in the reproductive age group (MWRA) will increase over time.** These women will require contraceptives, thus Bihar will have to ensure access to a wide range of quality contraceptive products and services as the table suggests.

Proximate Determinants of Fertility

Observed variations in the fertility levels of populations are due to variation in one or more of the proximate determinants. The four important proximate determinants under study are the following:

1. proportion of married women of reproductive age– early age at first marriage in a population is usually associated with a longer period of exposure to the risk of pregnancy, and thus higher fertility levels.
2. proportion of couples using contraception- especially modern methods with less failure rates
3. extent of induced abortion- regulates fertility and abortion ends a pregnancy, but given the stigma attached to reporting it, data is also low
4. the length of lactation infecundability- breastfeeding is the principal determinant of postpartum amenorrhoea that protects women from conception.

Contribution of proximate determinants in fertility decline, India and selected states, 1992–93



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Increasing access to information and services through Public-Private Partnership

The public sector is not enough to meet the need for health and family welfare services, and it is critical to leverage the private sector. In the context to FP, the public sector provides limiting services to 67 percent of population in Bihar but 88 percent of the spacing needs are met by the private providers. There is an urgent need to tap the private sector, especially in reaching the population in the lowest wealth quintile where inequities are the highest. Some examples are:

Project Ujjwal, implemented by a consortium led by the Futures Group, and supported by UKAID, facilitates rapid scale-up of quality FP and reproductive health services for the poor, young, low parity and socially excluded couples, women and men through the private sector in all 38 districts across Bihar. The focus is on expanding choice of sites and increasing access to FP products and services through the private sector and social marketing; public private partnerships; capacity building of privat e providers; improvements in quality; and demand generation.

The MerryGold Health Network (MGHN), a social franchising model under public-private partnership aimed at offering high quality and affordable maternal and child health services including FP in Uttar Pradesh. The hub and spoke model developed three-tier structures of: Merrygold Hospitals which are 20-bedded facilities with qualified Obstetrician (MD/DGO); Merry Silver Facilities, which are 5–10 bedded facilities with MBBS/AYUSH doctors; Merrytarang members who are community-based workers and referral networks which provide services including obstetric/gynecological care and FP at costs 50-60 percent lower than the average market price.

RECOMMENDATIONS FOR BIHAR

Population proportion of the eight EAG states, including Bihar is likely to exceed the population proportion of all other 26 states in India by 2020–22. In UP, change in use of contraception seems to have the lowest impact in fertility decline. This prompts the state functionaries to focus on expanding access to family planning services and address the unmet need for family planning. Some recommendations to address population growth in Bihar are:

1. There is a marginal fall in projected population of India under the "Scenario A" of method mix compared as per the state circumstances. Thus, Bihar needs to focus more on improved delivery of and access to limiting methods.
2. Bihar has not been able to achieve the expected numbers for sterilisation and spacing in the recent years, the state has a long way to go with a more focused approach to achieve the state's net replacement of fertility levels. BIHAR has to implement high-impact strategies to achieve the ELAs on various family planning methods to realise the ambitious state-specific goals (CPR [65.0%] and TFR [2.7]) for the 12th Five-Year Plan period by 2016–17.
3. Findings from the multivariate analysis have highlighted the impact of socioeconomic factors on fertility reduction- women's age at marriage, contraceptive use, experience of infant and child mortality, and women's education are strong predictors of women moving on to higher parities. Government should focus not only on family planning programmes but also on other activities to increase women's age at marriage, address activities related to improving infant and child health programmes and increase girls' education to achieve sustainable and long-term fertility goals.
4. Findings from the decomposition analysis on impact of proximate determinants on fertility suggest that fertility reduction in India is largely determined by change in contraceptive practices and changes due to delayed marriages with little impact of induced abortion and postpartum infecundability.
5. Bihar needs to focus on improving access to contraception. More than five per cent of Tamil Nadu's fertility decline has been attributed to changes due to induced abortion, which points to state Government's prioritisation and improvement of abortion-related services.

Way Forward and Policy Action

- The public facilities in Bihar are under resourced with few providers who are trained to provide quality FP services. There are issues of supplies and availability of FP products and the private provider's data is not integrated within government health management information system.
- Bihar has a network of rural medical practitioners who can be engaged in increasing access of FP services, but will require ensuring training and supplies for FP.
- Need to build an enabling environment for public-private partnerships. Currently there are delays in accreditation of facilities under the Clinical Establishment Act and the reimbursements for the services offered. Janani highlighted that reimbursements remain pending for years, creating distrust.
- The Rashtriya Swasthya Bima Yojna should include reimbursement for FP services.
- Need for mobile outreach services in public facilities to increase access to priority districts.
- Teaching institutions and medical colleges need to be on board with emerging strategies and policies of Government of India to be able to communicate accordingly with graduate and post-graduate students.
- The issue of prioritization of FP should be taken up by the political and administrative leadership in Bihar.

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