



APPRAISAL OF PROGRESS OF MILLENNIUM DEVELOPMENTAL GOAL-5 IN INDIA

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Abstract: Since the launch of the Millennium Development Goals at the Millennium Summit in New York September 2000, the MDGs have become the most widely accepted yardstick of development efforts by government. The main objective of present study is appraising the Millennium Developmental Goal 5 indicator -1 i.e. to reduce the maternal mortality ratio by 75 percent. The study is divided into two periods. First period dates back from 1990-2001. The second period covers decade of 2003-2012. During the first period, there was no strategy in place to achieve these goals. But in the second period, state put the designed strategy in place to attain these goals in the time bound framework. The study find out that the Historic Rate Change of reduction of Maternal Mortality Ratio for India in the period 1990-2001 was 2.94 per cent and accelerating more than three time in with HRC 8.8 per cent for the period 2003–2015. The significant improvement in the second period (2003-15) in maternal health services in India as follow the MDG initiative and it had a substantial impact on reducing maternal deaths over the past decades. The Actual Annuls Rate of Progress (AARP) of India made in reduction of MMR 2.81 percent while required rate is 3 per cent between 1990 and 2015 to achieve the target. The states of West Bengal with AARP of 3.39 per cent, Kerala with AARP of 3.34 per cent, Bihar/ Jharkhand with AARP of 3.1 per cent and Utter Pradesh with AARP of 3.06 per cent are achieve their respective state level MMR targets by 2015.

Keywords- Millennium Development Goals, Maternal Mortality Ratio

INTRODUCTION

In 2000, 189 Heads of State and government at the UN Millennium Summit and historically signed the Millennium Declaration. They agreed to “free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty, to which more than a billion of them are currently subjected.” Less developed countries pledged to strengthen policies and governance mechanisms; richer countries pledged to provide aid and resources. For the first time, governments on a national level and international institutions on a global level, e.g. the World Bank, the International Monetary Fund, regional development banks, admitted accountability for ensuring progress towards achieving these goals¹. Since the launch of the Millennium Development Goals at the Millennium Summit in New York September 2000, the MDGs have become the most widely accepted yardstick of development efforts by governments. The MDGs are a set of numerical and time-bound targets related to key achievements in human development. Almost all the countries in the world, including India, have committed themselves to attaining the targets embodied in the Millennium Declaration by 2015². The present study is focus on the Millennium Development Goal-5 which is related to maternal health.

Women health is very important so, in any country status of women can be measured through their education and health³. Maternal health is a function of both poverty eradication and focused food and nutrition security of all women in the reproductive age including in particular the pregnant and nursing⁴. Deaths due to pregnancy and child birth are potential threats to women in the reproductive age groups. The toll that unsafe motherhood takes on the lives and health of women, and hence, on their families and communities, becomes really tragic as it is mostly preventable. Reduction of mortality of women has thus been an area of major concern and governments across the globe have set time bound targets to achieve it. Maternal death is an important indicator of the reach of effective clinical health services to the poor, and in turn acts as one of the composite measure to assess the country’s progress⁵.

The Millennium Developmental Goal -5 concentrate on the improvement in Maternal Health. Achieving MDG 5 is not only an important goal by itself, it is also central to the achievement of the other MDGs: reducing poverty, reducing child mortality, stopping HIV and AIDS, providing education, promoting gender equality, ensuring adequate food, and promoting a healthy environment. Women's health during the reproductive or fertile years (between the ages of 15 and 49 years) is relevant not only to women themselves, but also has an impact on the health and development of the next generation. Many of the health challenges during this period are ones that only young girls and women face. For example, complications of pregnancy and childbirth are the leading cause of death in young women aged between 15 and 19 years old in developing countries⁶. The MDGs Goal-5 targets on reduce by three quarters, between 1990 and 2015, Maternal Mortality Ratio. The reduction in MMR reflects the overall development and well being of the society. Maternal deaths are affected by various factors, including general health status, education and service during the pregnancy and child birth. Most of the deaths can be avoidable, as the birth-care solution to prevent and manage the complications. There are two indicators defined to monitor progress toward achieving targets under MDG-5:

1. To reduce the maternal mortality ratio by 75 percent

2. To achieve universal access to reproductive health.

The main objective of present study is appraising the Millennium Developmental Goal 5, indicator -1 i.e. to reduce the maternal mortality ratio by 75 percent.

Maternal Mortality Ratio

The maternal mortality ratio is defined as the number of deaths of women related to pregnancy, miscarriage, childbirth, and puerperal conditions per 1,00,000 live births. Pregnancy-related death is defined as the death of a woman while pregnant until 42 days of termination of pregnancy, irrespective of the cause of death⁷. Improving maternal health is key to saving the lives of more than half a million women who die as a result of complications from pregnancy and childbirth each year. Almost all these deaths could be prevented if women in developing countries had access to adequate diets, safe water and sanitation facilities, basic literacy and health services during pregnancy and childbirth⁸.

Improving maternal health is critical to saving the lives of hundreds of thousands of women who die due to complication from pregnancy and childbirth each year. Over 90 percent of these deaths could be prevented if women in developing regions had access to sufficient diets, basic literacy and health services, and safe water and sanitation facilities during pregnancy and childbirth⁹. As for as, women health is concerned, mainly in the developing countries, including India, the situation is very depressing. The experience of economic progress, political developments and social transformation of the last 50 years, indicate that although women of India have made major gains in terms of decline in maternal mortality and rise in life expectancy, increase in female literacy and employment, mobilization through self help groups and representation at the grassroots level democracy etc³. Maternal deaths assume importance, not just for health reasons but also when the woman dies there are significant social and economic losses. Children who lose their mothers suffer the most. The risk of death for children under five years increases if the mother dies¹⁰. A majority of maternal deaths occur in Asia (253,000) and Africa (251,000). Thirteen countries account for 67% of all maternal deaths. India has the dubious distinction of having the highest estimated number of maternal deaths in any country (136,000). Developed countries in contrast have a maternal mortality ratio of around 20 per 100,000 live births¹¹. If we seen globally development in reduction of MMR, the total number of maternal deaths decreased by 45% from 523 000 in 1990 to 289 000 in 2013. Similarly, global MMR declined by 45% from 380 maternal deaths per 100 000 live births in 1990 to 210 in 2013 yielding an average annual decline of 2.6%. Worldwide MMR declined annually by 3.3 % between 2005 and 2013, faster than the 2.2% average annual decline observed between 1990 and 2005¹². In spite of this progress, every day hundreds of women die during pregnancy or from childbirth-related complications. In 2013, most of these deaths were in the developing regions, where the maternal mortality ratio is about 14 times higher than in the developed regions. Many developing regions have made steady progress in improving maternal health, including the regions with the highest maternal mortality ratios¹³. As the MDG-5 stipulate that MMR levels be reduce by three fourths between 1990 and 2015. In India MMR was estimated 437 per 1,00,000 live births in 1990. In order to meet the MDG 5 target, the MMR should be reduced to 109 per 1,00,000 live births by 2015. India is committed to achieve the Targets under the MDGs by 2015. Incidentally certain targets have been set under the National Population Policy 2000 (NPP-2000), National Health Policy 2002 (NHP-2002), National AIDS Prevention and Control Policy 2004, and the Tenth Five Year Plan. Ensuring safe motherhood is one of the biggest challenges faced in India. WHO estimates show that out of 529,000 maternal deaths globally each year 136,000 (25.7%) are contributed by India. This is the highest burden for any single country in the world. Women in the reproductive age group of 15 - 49 years are more vulnerable to maternal mortality and morbidity due to causes related to pregnancy and childbirth¹⁴. The study is divided into two periods. First period dates back from 1990-2001. The second period covers decade of 2003-2012. During the first period, there was no strategy in place to achieve these goals. But in the second period, state put the designed strategy in place to attain these goals in the time bound manner / framework.

SOURCE OF DATA:

A research design is a plan according to which observation is made and data is assembled. It provides the empirical and logical basis for drawing conclusions and gaining knowledge. For accomplishing the objectives of the study; secondary data have been utilized. The study is mainly based on secondary data collected from various sources including administrative records, data compiled by Central Ministries/ Departments/ Organizations and information gathered from periodic national. The main sources of data are: The National Family Health Survey & Sample Registration System (SRS)

RESEARCH METHODOLOGY:

The methodology for tracking the MDGs in this work is the one prescribed by the UNSD for developing countries. This methodology is characterized by the simplicity of its formulation and ease of interpretation. The indicators in India's MDG framework are mostly direct indicators which obviates the need for imputation or indirect derivation of the measures of the identified indicators. This simplifies the review exercise and eliminates the need to depend on assumptions. Following is the schematic description of the tracking methodology adopted for the review exercise of this work. For the purpose both historical rate of change and required rate of change have not been calculated explicitly in order to avoid confusion regarding proper interpretation and mathematical calculations involved in using the rates for deriving the actual measures of the indicators for the year 2015, for that matter for any other time point. For better comprehension of laymen, the actual projected values of the indicators for future time points are more acceptable than the rates of change of different indicators.

In the statistical tracking of MDGs, the estimation of the likely achievement for the year 2015 is required for the indicators which have explicit target for 2015. The underlying assumption of the estimation procedure in the MDG tracking is that, the rate of change in a indicator values slows down with improvement in the level of the condition that the indicator measures and consequentially the indicator follows an exponential pattern over time. The target value for the year 2015 is determined by applying the MDG definition of the target on the indicator value for the year 1990. The 2015 value of the indicator is projected on the basis of observed values of the indicator at various time points. Thus, the historical rate of change is used to project the likely achievement for the year 2015 of the indicator.

Estimate Historical Rate of Change¹⁵

$$X_t = ae^{bt} \quad \text{where } X_t \text{ is indicator value for year } t, \text{ which gives for } t=0,$$

$$X_0 = a$$

Again,

$$\ln X_t = \ln a + bt$$

Taking natural logarithm of both sides of equation above

$$= \ln X_0 + bt \dots\dots (1)$$

$$\text{i.e. } (b^{\wedge}) = (\ln X_t - \ln X_0)/t \dots\dots (2)$$

In terms of historical rate of change, r

$$X_t = X_0 (1+r)^t$$

$$\text{i.e. } \ln X_t - \ln X_0 = t \ln(1+r)$$

$$\text{or, } (\ln X_t - \ln X_0)/t = \ln(1+r)$$

$$\text{or, } (1+r) = \exp[(\ln X_t - \ln X_0)/t]$$

$$\text{or, } r = \exp[(\ln X_t - \ln X_0)/t] - 1 \dots\dots (3)$$

Using relation (2) in (3) we get

$$r = \exp(b^{\wedge}) - 1 \text{ where } r \text{ is historical rate of change}$$

State-wise and national estimates of the indicators at observation time points have been subjected to the relationship (1) to arrive at their logarithmic values. These values being linear in time series provide the logarithmic values of the measure corresponding to future points of time, from which the estimates at the given point of future time may be derived by anti-log calculation.

Calculate required rate of change¹⁶:**The Actual Annual Rate of Progress (AARP)**

Some of the selected indicators are positively linked to development while others are negatively related. The indicators which are negatively related to development, the desirable value is close to 0, while it is 100 for others. The indicators for which the desirable value is close to 0 are poverty, hunger and under five year mortality while for school education, gender equality in education, sanitation and drinking water, it is 100.

The methodology to be used for computing the AARP for those variables where the desirable value is 0 is:

$$\frac{(X_{t_1} - X_{t_0} / X_{t_0})}{t_1 - t_0}$$

Where,

t_0 is the year 1990 (or year closest to 1990 for which data are available)

t_1 is the most recent year for which data are available, and

X_{t_0} and X_{t_1} are the values of the indicator for base year and end year respectively.

For the net primary enrolment ratio gender equality in education and the proportion of population with access to safe water and sanitation, for which the most desirable value is 100%, progress is expressed as Shortfall reduction according to the following formula.

$$\text{Actual Annual Rate of Progress} = \frac{(x_{t_1} - x_{t_0}) / (100 - x_{t_0})}{t_1 - t_0}$$

Required Annual Rate of Progress (RARP)

The required annual rate of progress is the rate which is necessary to reach the MDG. It is calculated as:

$$\frac{\alpha}{t_{\text{mdg}} - t_0}$$

Where α is -1/2 for poverty and hunger, 12 for safe water and sanitation, -2/3 for under five mortality and 1 for primary enrolment and gender equality in education.

t_{mdg} is the year by which the target is to be met, and t_0 is the year closest to 1990 for which data are available.

RESULTS AND DISCUSSION:

MATERNAL MORTALITY RATE 1990 TO 2001

The millennium development goals (MDG) have set the target of achieving 200 maternal deaths per 1,00,000 live births by 2007 and 109 by 2015. After the International Conference on Population and Development (ICPD) held at Cairo in 1994, India adopted the reproductive and child health programme at the national level. Maternal health is a problem of serious proportions in India, where an estimated 1,36,000 women die needlessly each year from causes related to pregnancy, childbirth and abortion. The three countries, India, Pakistan and Bangladesh account for 28 per cent of the world's births and 46 per cent of its maternal deaths¹⁷. Maternal deaths are affected by various factors, including general health status, education and services during pregnancy and childbirth. Most maternal deaths are avoidable, as the health-care solutions to prevent or manage complications are well known. Improving access to ante natal care in pregnancy, skilled care during childbirth, and care and support in the weeks after childbirth will reduce maternal deaths significantly. As reduction in Maternal Mortality Ratio (MMR) is dependent on various health care factors, the MMR is also used as a measure of the quality of a health care system. The National Health Policy(1982) aimed at reducing the maternal mortality in India from the over 400 per 100,000 live births to less than 200 per 100,000 live births by the end of year 2000. We, even in 2005, are far from this target¹⁸. According to RGI estimates for the year 2000, maternal mortality rate for India was 407 per 100,000 live births. The trend has not changed significantly in the last 5 years. This means more than 100,000 women die each year in India due to pregnancy related causes¹⁹. The Table no 1.1 shows the trends of Maternal Mortality rate from 1990 to 2001.

Table No 1.1- TRENDS IN MATERNAL MORTALITY RATE 1990 TO 2001

S.No	State	1990	1997	1998	2001	HRC ¹
1	Andhra Pradesh	298	154	197	220	3.08
2	Assam	544	401	568	398	3.17
3	Bihar\ Jharkhand	736	451	531	400	6.29
4	Gujarat	308	N.A		202	4.31
5	Haryana	108	105	136	176	-4.77
6	Karnataka	316	195	245	266	1.74
7	Kerala	279	195	150	149	6.47
8	Madhya.Pradesh\Chhattisgarh	603	498	441	407	4.01
9	Maharashtra	234	135	166	169	3.31
10	Orissa	482	361	346	424	1.29
11	Punjab	333	196	280	177	6.52
12	Rajasthan	725	667	508	501	3.76
13	Tamil Nadu	197	76	131	167	1.67
14	Uttar Pradesh\ Uttarakhand	855	707	606	539	4.72
15	West Bengal	667	264	303	218	11.83
	India	437	408	398	327	2.94

Source: Office of registrar General of India

The tables no. 1.1 reveal that overall maternal mortality ratio for India was about 437 in 1990, which has gone down to 327 in 2001, registering a decline of 2.94 per cent of Historic Rate of Change (HRC) during this period. Overall progress in reduction in maternal mortality in India has been uneven, inequitable, and unsatisfactory. The ratio of maternal deaths to live births measures the risk of dying as a result of pregnancy. In case of India, with an MMR of 327, a woman's chance of dying each time she becomes pregnant is about 1 in 327. If she becomes pregnant three times, her lifetime risk is 1 in 109. Looking at a risk, it is necessary to understand the factors responsible for maternal mortality so as to plan efficient interventions that would help reducing mortality²⁰. The table No-1.1 shows high inter- state variation in MMR in India from 1990 to 2001, indicating that high MMR occurs in state Assam (398), Bihar/ Jharkhand (400), Madhya Pradesh / Chhattisgarh (407), Orissa (424), Rajasthan

(501)and Uttar Pradesh / Uttarakhand (539) were the major contributor in the total MMR of country. Except, Haryana MMR reduced in almost all the state as well as in the country as a whole from 1990 to 2001. However, there was found to be a large difference in the level of mortality across the states. As the maternal mortality ratio was relatively much lower in some states like Kerala (149), Tamil Nadu (167), Maharashtra (169), Haryana (176) and Punjab (177) as the national average. The states, which seem to have done considerably well in arresting incidence of maternal deaths were West Bengal with Historic Rate of Change (HRC) of 11.83 per cent, Punjab with HRC of 6.52 per cent, Kerala with HRC of 6.47 per cent and Bihar/ Jharkhand with HRC of 6.29 per cent indicating the highest Rate of Change in MMR compared to India and other states in period between 1990 to 2001. On the other side, Haryana had negative Historic Rate of change in same period.

Table No 1.2-TRENDS IN MATERNAL MORTALITY RATE FROM 2003 TO 2015

Sr.No.	State	2002-03	2005-06	2007-09	2010-12	2011-13	2014-16	Target 2015	HRC ²
1	Andhra Pradesh	195	154	134	110	92	92	74	7.8
2	Assam	490	480	390	328	300	237	136	7.5
3	Bihar/ Jharkhand	371	312	261	219	208	165	184	8.4
4	Gujarat	172	160	148	122	112	91	77	6.6
5	Haryana	162	186	153	146	127	101	27	4.8
6	Karnataka	228	213	178	144	133	108	79	7.8
7	Kerala	110	95	81	66	61	46	70	9.1
8	Madhya Pradesh	379	335	269	230	221	173	151	8.2
9	Maharashtra	149	130	104	87	68	61	59	9.3
10	Orissa	358	303	258	235	222	180	121	7.1
11	Punjab	178	192	172	155	141	122	83	3.8
12	Rajasthan	445	388	318	255	244	199	181	8.4
13	Tamil Nadu	134	111	97	90	79	66	49	7.3
14	Uttar Pradesh	517	440	359	292	285	201	214	9.9
15	West Bengal	194	141	145	117	113	101	167	6.7
	India	301	254	212	178	167	130	109	8.8

Source: O/o registrar General of India

The Millennium Development Goal-5 was focus to reduce maternal mortality ratio by three quarters, between 1990 and 2015. The MMR of India in 1990 was 437 deaths per 100,000 live births according to the first ever national maternal mortality estimate by National Family Health Survey. So a three quarters reduction makes the 2015 MDG target 109. The table no. 1.2 reveals that at the end of MDG stipulated period, the status of all India level is at 130 in 2015 with Historic Rate of change of 8.8 between the periods of 2003 to 2015. That means despite the historical pace of decrease, India is remain 21 points behind the MDG target.

As per table no. 1.2 reveals that in the end of MDG period 2015, among the major states, Maternal Mortality Ratio is lowest in Kerala (46) and highest in Assam (237). In the states of Bihar/ Jharkhand(165), Madhya Pradesh/ Chhattisgarh(173), Orissa(180), Rajasthan(199), Uttar Pradesh/ Uttarakhand(201) and Assam(237) the Maternal Mortality Ratio were estimated higher than the national level and states Kerala(46), Maharashtra(61), Tamil Nadu(66), Gujarat(91) and Andhra Pradesh(92) reported lowest level emerging as one of the few states with a double-digit figure a of Maternal deaths for every one lakh births.

The table no. 1.1 show the present status of MMR along with the extent of progress achieved in the last one decade, give a better picture of the performance of the States in reducing maternal mortality ratio. The States which showed highest points of decline during 2003-2015 are Uttar Pradesh/ Uttarakhand declined with Historic Rate of Change (HRC) of 9.9 per cent, Maharashtra decline with HRC of 9.3 per cent and Kerala declined with HRC of 9.1 per cent more than average Historic Rate of Change of decline of India 8.8 per cent. The other better performing state reducing MMR are Rajasthan declined with HRC 8.4 per cent, Bihar/Jharkhand declined with HRC 8.4 per cent, Madhya Pradesh/ Chhattisgarh declined with HRC 8.2 per cent in the same period. In relative terms states like Karnataka, Andhra Pradesh, Assam, Orissa, Tamil Nadu, Gujarat and West Bengal have shown good progress during the MDG period, but performance has stagnated recently in some states. In Punjab and Haryana, in particular, the pace of reduction does not augur well with their developmental profile.

Table No. 1.3- Appraisal of Progress in Pre and Post Strategy Intervention Periods

Sr.No.	State	HRC ¹	HRC ²	2014-16	AARP	RARP	TV
1	Andhra Pradesh	3.08	7.8	92	2.77	3	74.5
2	Assam	3.17	7.5	237	2.26	3	136
3	Bihar/ Jharkhand	6.29	8.4	165	3.10	3	184
4	Gujarat	4.31	6.6	91	2.82	3	77
5	Haryana	-4.77	4.8	101	0.26	3	27
6	Karnataka	1.74	7.8	108	2.63	3	79
7	Kerala	6.47	9.1	46	3.34	3	69.8
8	Madhya Pradesh	4.01	8.2	173	2.85	3	150.8
9	Maharashtra	3.31	9.3	61	2.96	3	58.5
10	Orissa	1.29	7.1	180	2.51	3	120.5
11	Punjab	6.52	3.8	122	2.53	3	83.3
12	Rajasthan	3.76	8.4	199	2.90	3	181.3
13	Tamil Nadu	1.67	7.3	66	2.66	3	49.3
14	Uttar Pradesh	4.72	9.9	201	3.06	3	213.8
15	West Bengal	11.83	6.7	101	3.39	3	166.8
	India	2.94	8.8	130	2.81	3	109.3

ARP-Actual Rate of Annual Progress, RRP-Required Rate of Annual Progress,TV - Targeted Value

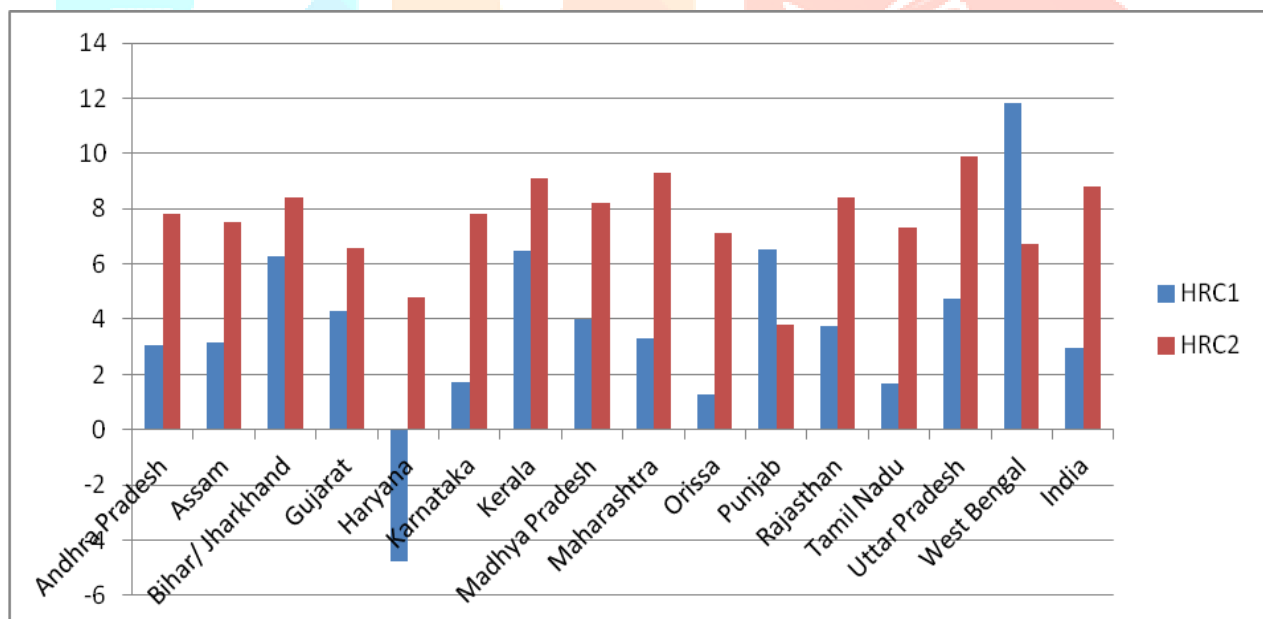


Fig-1.1- The Progress of Indian States on reduce Maternal Mortality Rate in Pre and Post Strategy Intervention Period

The table 1.1 indicates, the Historic Rate Change of reduction of MMR for the period 1990-2001 was 2.94 per cent and accelerating more than three time in with HRC 8.8 per cent for the period 2003-2015. The significant improvement in the second period (2003-15) in maternal health services in India as follow the MDG initiative and it had a substantial impact on reducing maternal deaths over the past decades. On comparing, the Historic Rate of change (HRC) within the states in pre and post strategy intervention period majority of state except West Bengal, Punjab and Haryana reducing MMR with impressive HRC in the MDG period. Although the first and second period focused substantially on reducing MMR, in MDG period, India put designed strategy in place to attain these goals and launched programme like National Rural Health Mission. The NRHM introduced in 2005 had been the major policy initiative in the health sector that has exclusively focused on accelerating the achievements of health-related MDGs in the country. Therefore, the rate of achievement with respect to the MDG health indicators would surely be expected to be higher during the NHM phase, which is from 2005 to present, compared with the pre-NHM phase²¹. The NRHM invested significantly more resources and effort into strengthening the health system than the earlier vertical programmes. Therefore, the MMR was expected to reduce faster in MDG period.

The figure 1.1 also show that pre MDG period West Bengal reduce maternal mortality with extraordinary HRC of 11.8 per cent, other best performing states were Punjab with HRC of 6.5 per cent, Kerala with HRC of 6.5 per cent and Bihar with HRC of 6.3 per cent in the period between 1990 to 2015. Haryana was the worst performance in the same period. The state of Kerala, Bihar and West Bengal performed equally well with more than 6 per cent of HRC in both the periods

in reducing maternal death. However, these Indian states have shown perceptible progress by making the right strategic choice of promoting skilled birth attendance and enabling policy environment. These states consistency performance raise hopes that it is possible to bring about favorable changes and optimally reduce maternal mortality in future.

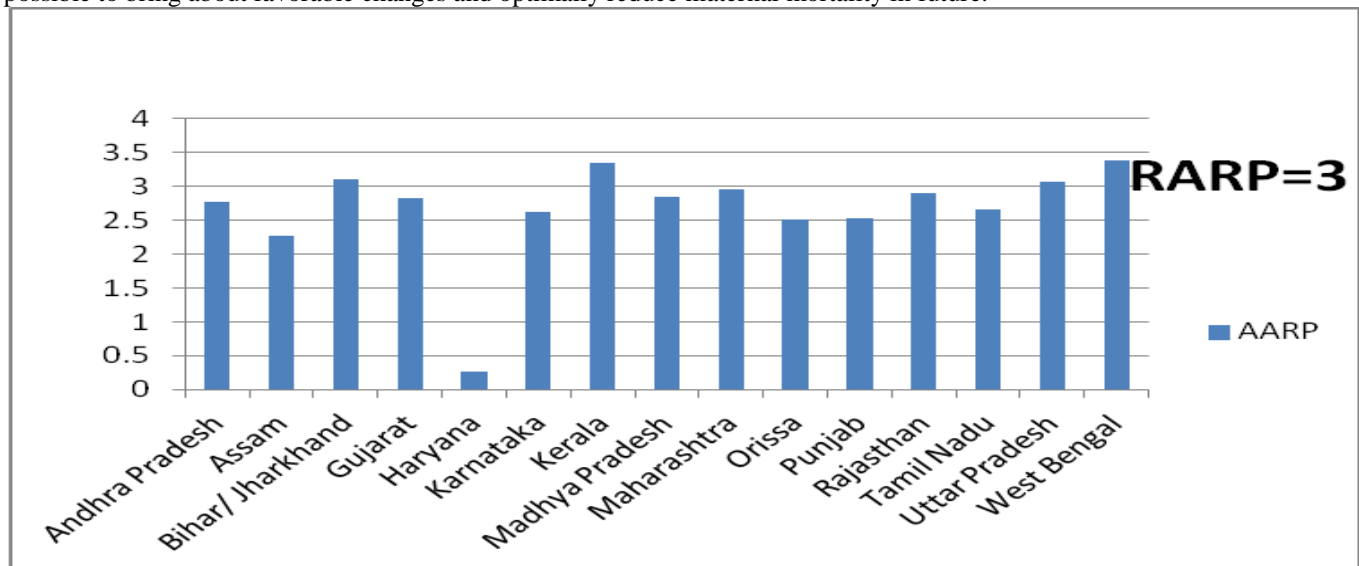


Fig.1.2 - The Actual Annual Rate of Progress (AARP) and Required Annual Rate of Progress (RARP) of India & its States on reduce Maternal Mortality Rate.

The MDG -5 to reduce the maternal mortality ratio by three quarters during 1990 and 2015. The Actual Annuls Rate of Progress (AARP) of India made in reduction of MMR 2.81 percent while required rate is 3 per cent between 1990 and 2015 is required to achieve the respective target. The figure 1.2 shown a better picture of the progress achieved by the states is obtained by comparing the state-wise MDG targets and their achievement by 2015. That means in spite of remarkable progress in reducing MMR in MDG phase, India remain far off from the respective target. Kerala, Maharashtra and Tamil Nadu are emerging as one of the few states with a double-digit figure of maternal deaths for every one lakh births. However, the figure 1.2 illustrate a better picture of the progress achieved by the states is obtained by comparing the state-wise MDG targets and their achievement by 2015. As per the figure 1.2, the states of West Bengal with AARP of 3.39 per cent, Kerala with AARP of 3.34 per cent, Bihar/ Jharkhand with AARP of 3.1 per cent and Utter Pradesh with AARP of 3.06 per cent are achieve their respective state level MMR targets by 2015. It is interesting to mention here that those state who achieve their state level target performed equally well with high Historic Rate of Change in pre and post MDG period. On the other hand the state of Assam with AARP of 2.26 per cent and specially Haryana with AARP of 0.26 per cent, are fall short of their state level targets by huge margins. The remaining states miss the target by with more than 2.50 per cent of AARP against 3 per cent of RARP. In these state particularly Maharashtra with AARP of 2.96 per cent and Rajasthan with AARP of 2.90 per cent miss their respective target marginally. Interestingly, even in the state Bihar (165) and Uttar Pradesh (201) more than national average Maternal Mortality Ratio in spite that these states achieve their respective targets. Based on these inferences, it is statistically difficult to stress that the MMR Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh is significantly below 100 fail to achieve their target. It means in an absolute view the lower base level of states such as Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh proves disadvantageous for their Millennium Development Goal-5 achievements.

Conclusion:

The analysis outline that the Historic Rate Change of reduction of MMR for India in the period 1990-2001 was 2.94 per cent and accelerating more than three time in with HRC 8.8 per cent for the period 2003-2015. The significant improvement in the second period (2003-15) in maternal health services in India as follow the MDG initiative and it had a substantial impact on reducing maternal deaths over the past decades. On comparing ,the Historic Rate of change (HRC) within the states in pre and post strategy intervention period majority of state except West Bengal, Punjab and Haryana reducing MMR with impressive HRC in the MDG period. Although the first and second period focused substantially on reducing MMR, in MDG period, India put designed strategy in place to attain these goals and launched programme like National Rural Health Mission. The NRHM introduced in 2005 had been the major policy initiative in the health sector that has exclusively focused on accelerating the achievements of health-related MDGs in the country. Therefore, the rate of achievement with respect to the MDG health indicators would surely be expected to be higher during the NHM phase, which is from 2005 to present, compared with the pre-NHM phase. The NRHM invested significantly more resources and effort into strengthening the health system than the earlier vertical programmes. Therefore, the MMR was expected to reduce faster in MDG period.

The MDG -5 India requires to reduce the maternal mortality ratio by three quarters from 437 to 109 during 1990 and 2015. The Actual Annuls Rate of Progress (AARP) of India made in reduction of MMR 2.81 percent and manages the MMR at 130 in 2015, while required rate is 3 per cent between 1990 and 2015. That means in spite of remarkable progress in reducing MMR in MDG phase, India remain far off from the respective target. Kerala, Maharashtra and Tamil Nadu are emerging as one of the few states with a double-digit figure of maternal deaths for every one lakh births. Interestingly, even in the state Bihar (165) and Uttar Pradesh (201) more than national average Maternal Mortality Ratio in spite that these states achieve their respective targets. Based on these inferences, it is statistically difficult to stress that the MMR Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh is significantly below 100 fail to achieve their target. It means in an absolute view the lower base level of states such as Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh proves disadvantageous for their Millennium Development Goal-5 achievements.

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