



# Child and Maternal Mortality: 1990-2015



2011  
Our CENSUS, Our FUTURE.

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# Millennium Development Goals (MDGs)

Set of 8 goals to address the issue of extreme poverty in its many dimension and exclusion. Goal 4 and Goal 5 are related to child mortality and maternal health.



**Goal 4: Reduce child mortality**



**Goal 5: Improve maternal health**

# Goals of child mortality and maternal health

## ■ Goal 4: Reduce child mortality

**Target:** Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

### Indicators

- **Under-five mortality rate (from 126 to 42)**

Probability of child not surviving his/her 5<sup>th</sup> birth day. Presented as per 1000 live birth

- **Infant mortality rate (from 80 to 27)**

Probability of child not surviving his/her first birth day. Presented as per 1000 live birth

- **Proportion of 1 year-old children immunized against measles**

## ■ Goal 5: Improve maternal health

**Target :** Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio

### Indicators

- **Maternal mortality ratio (from 435 to 109)**

Number of maternal deaths per lac live births

- **Proportion of births attended by skilled health personnel**



# Sample Registration System (SRS): Source of Child and Maternal Mortality estimates

- SRS initiated in 1964-65 on a pilot basis and became operational on full scale from 1969-70.
- One of the largest continuous demographic household sample survey in the world.
- It covers 1.5 million households and about 7.5 million population as per SRS 2013.
- SRS is a dual reporting system with continuous and retrospective recording of events by two independent functionaries.

# Sample Registration System (SRS): Source of Child and Maternal Mortality estimates

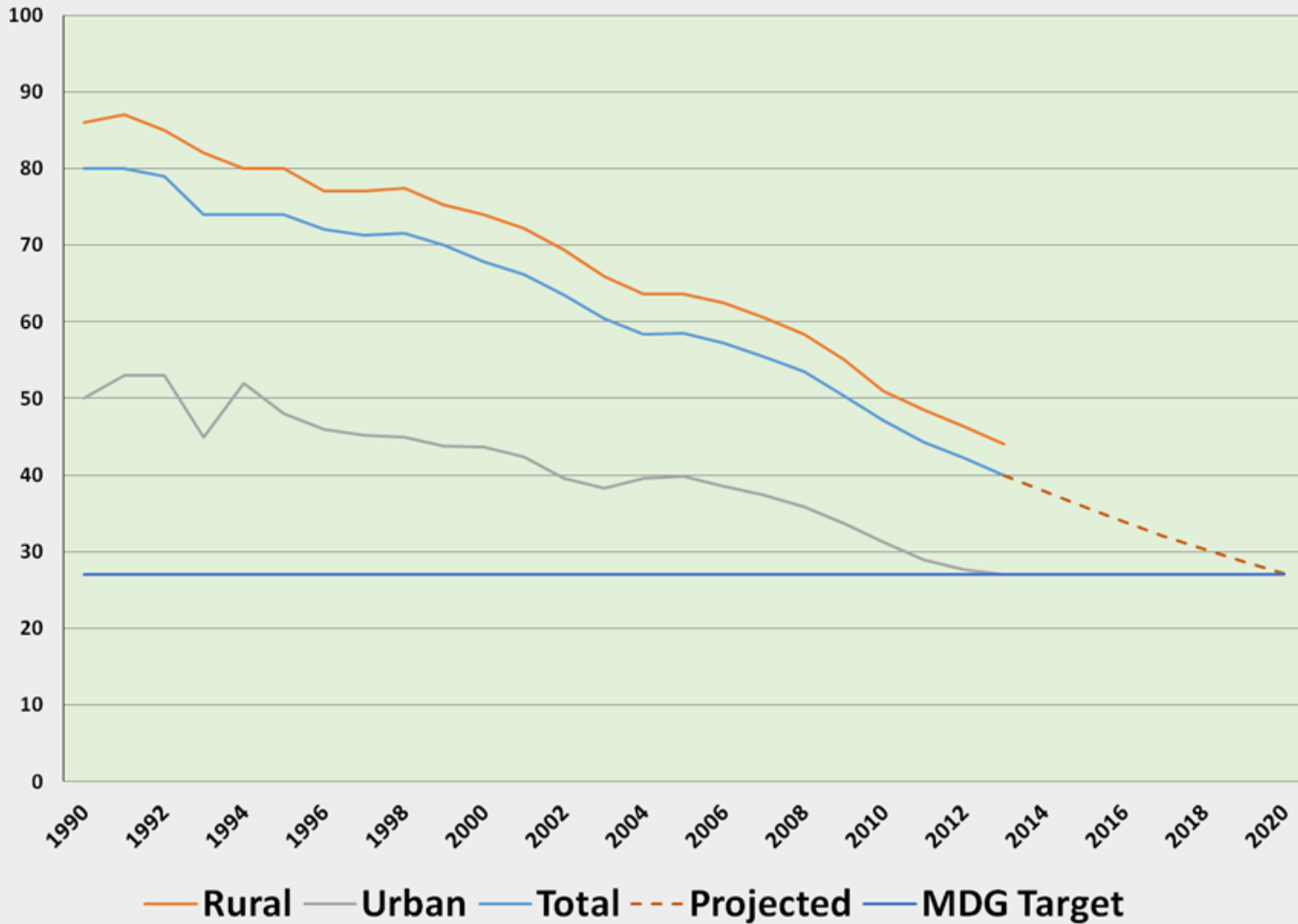
- The objective of SRS is to provide annual estimates of Infant mortality rate, birth and death rates at natural division level for rural areas and at State and National level for rural and urban areas.
- SRS also provides data for estimating components of Infant Mortality Rate (IMR), Total Fertility Rate (TFR), Maternal Mortality Rate and other measures of fertility and mortality.
- From SRS 2004, data for determining the causes of death through verbal autopsy is also collected.

# Child Mortality

- **Infant Mortality Rate**

- 50 percent decrease in the rate from 80 per thousand Live births in 1990 to 40 in 2013.
- Target of MDG stood at 27 per thousand Live births. (i.e. 1/3 of rate of 1990)
- There are Eight States which have achieved 50% or more reduction in the IMR over their respective 1990 rate.
- 47 percent decrease in the neonatal mortality rate from 53 per thousand Live births in 1990 to 28 in 2013.
- About 52 percent decrease in the post neonatal mortality rate from 27 per thousand Live births in 1990 to 13 in 2013.

### Infant Mortality Rate, India(Rural and Urban): 1990-2013



- Rural Urban divide has narrowed over the year.

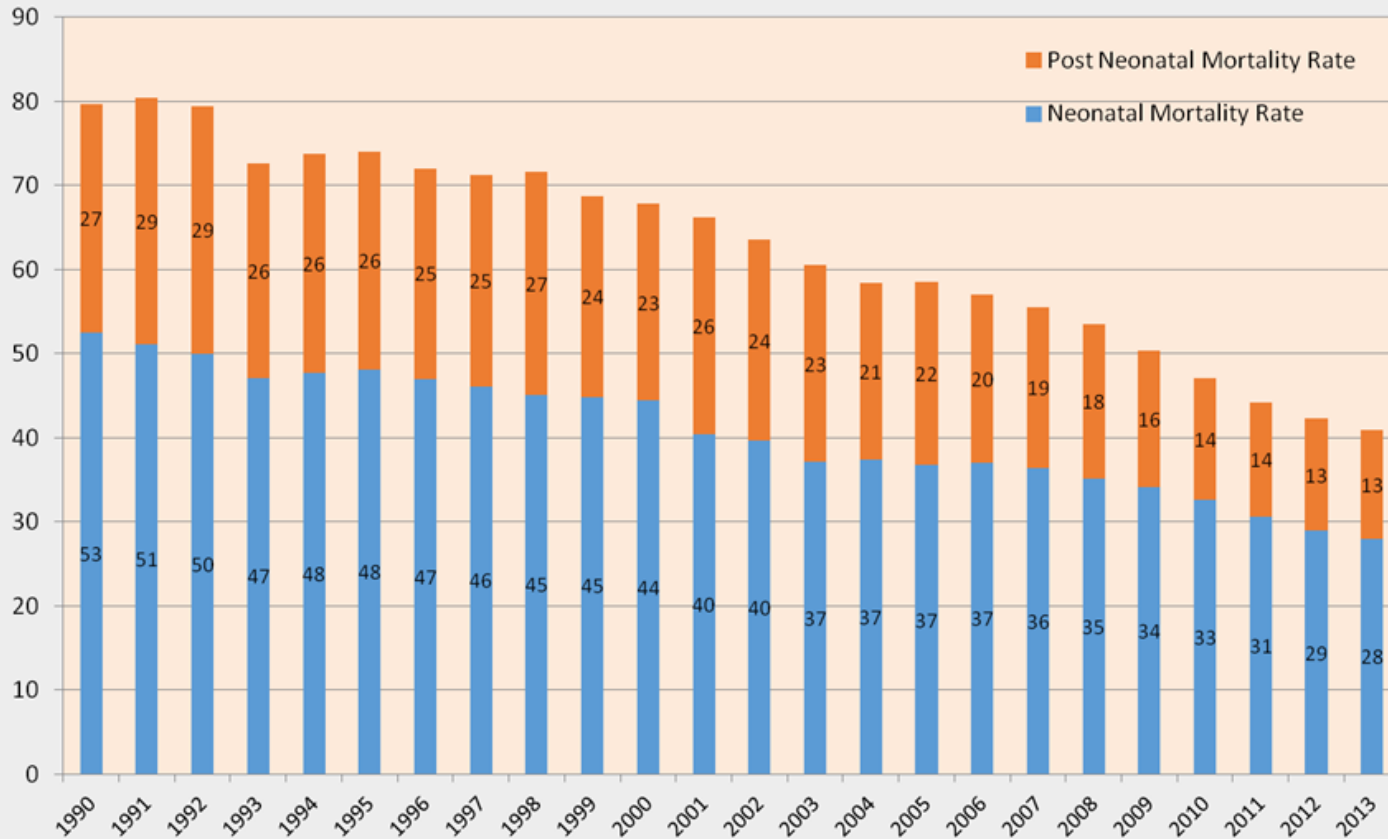
- The gap is still considerable.

- Urban area has achieved the IMR of 27 in 2013.

- At current rate of decline the target will be achieved by 2020.

## Infant Mortality Rate, India: 1990-2013

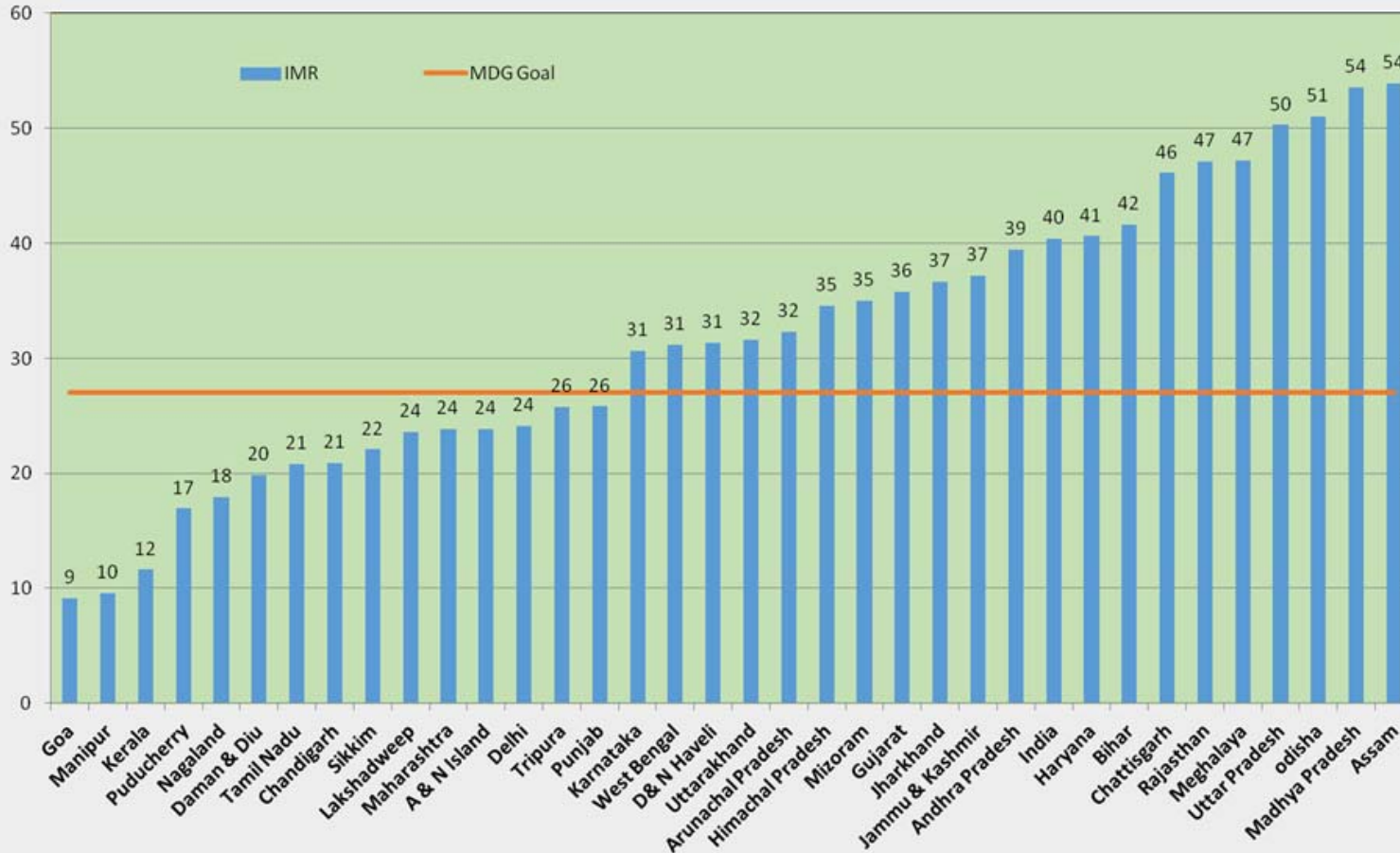
(Distribution of Neonatal and Post neonatal mortality in IMR)



- IMR of India in 1990 was 80.
- The target set to achieve by 2015 was 27.
- IMR in 2013 is 40.
- Neonatal mortality constitute 70% of the Infant mortality
- Reduction is substantial.
- Yet, certain to miss the target.



## State wise Achievement of MDG Goal in respect of Infant Mortality Rate 2013



- 15 States/UTs achieved the target IMR of 27 by 2013.

- Some of the states are still far away from the figure of 27.

# Infant Mortality Rate – Bigger States

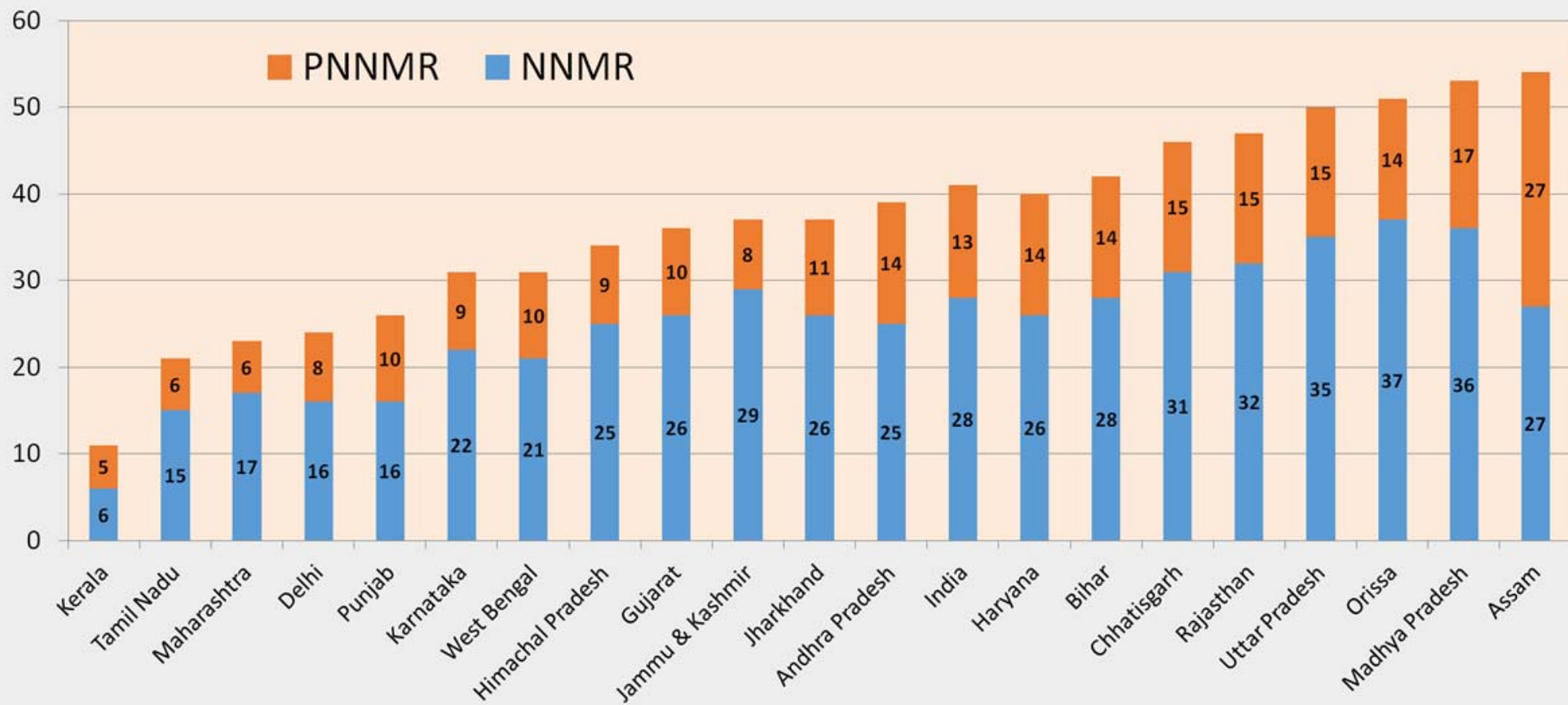
State/India	Year		% Change from 1990-2013
	1990	2013	
Kerala	17	12	-29.4
Tamil Nadu	59	21	-64.4
Maharashtra	58	24	-58.6
Delhi	43	24	-44.2
Punjab	61	26	-57.4
Karnataka	70	31	-55.7
West Bengal	63	31	-50.8
Himachal Pradesh	68	35	-48.5
Gujarat	72	36	-50.0
Jammu & Kashmir*	45	37	-18.5
Jharkhand*	71	37	-47.9
Andhra Pradesh	70	39	-44.3
<b>India</b>	<b>80</b>	<b>40</b>	<b>-50.0</b>
Haryana	69	41	-40.6
Bihar	75	42	-44.0
Chhattisgarh*	78	46	-41.0
Rajasthan	84	47	-44.0
Uttar Pradesh	99	50	-49.5
Orissa	122	51	-58.2
Madhya Pradesh	111	54	-51.4
Assam	76	54	-28.9

\* Data under year 1990 pertains to year 1998 for Jammu & Kashmir and 1999 for Chhattisgarh and Jharkhand.

# Infant Mortality Rate – Top & Bottom 5 States (Years 1990, 2000 & 2013)

States With Low Infant Mortality Rate					
1990		2000		2013	
Kerala	17	Kerala	14	Kerala	12
Delhi	43	Delhi	32	Tamil Nadu	21
Maharashtra	58	Maharashtra	48	Delhi	24
Tamil Nadu	59	Tamil Nadu	51	Maharashtra	24
Punjab	61	West Bengal	51	Punjab	26
		Himachal Pradesh	51		
States With High Infant Mortality Rate					
1990		2000		2013	
Orissa	122	Orissa	95	Madhya Pradesh	54
Madhya Pradesh	111	Madhya Pradesh	87	Assam	54
Uttar Pradesh	99	Uttar Pradesh	83	Orissa	51
Rajasthan	84	Rajasthan	79	Uttar Pradesh	50
Assam	76	Chhattisgarh	79	Rajasthan	47

# State wise Neonatal and Post neonatal Mortality Rate: 2013



# Neo-natal Mortality Rate – Bigger States

State/India	Year		% Change from 1990-2013
	1990	2013	
Kerala	13	6	-53.8
Tamil Nadu	44	15	-65.9
Punjab	34	16	-52.9
Delhi*	20	16	-20.9
Maharashtra	42	17	-59.5
West Bengal	37	21	-43.2
Karnataka	51	22	-56.9
Andhra Pradesh	48	25	-47.9
Himachal Pradesh*	41	25	-39.0
Gujarat	50	26	-48.0
Haryana	39	26	-33.3
Jharkhand*	26	26	0.4
Assam	48	27	-43.8
<b>India</b>	<b>53</b>	<b>28</b>	<b>-47.2</b>
Bihar	49	28	-42.9
Jammu & Kashmir*	38	29	-23.4
Chhatisgarh*	43	31	-27.9
Rajasthan	52	32	-38.5
Uttar Pradesh	65	35	-46.2
Madhya Pradesh	72	36	-50.0
Orissa	79	37	-53.2

\* Data under year 1990 pertains to year 1991 for Himachal Pradesh & 2004 for Delhi, Jammu & Kashmir, Jharkhand & Chhattisgarh.

# Neo-natal Mortality Rate – Top & Bottom 5 States (Years 1990, 2000 & 2013)

States With Low Neonatal Mortality Rate					
1990		2000		2013	
Kerala	13	Kerala	10	Kerala	6
Punjab	34	Punjab	29	Tamil Nadu	15
West Bengal	37	West Bengal	31	Punjab	16
Haryana	39	Himachal Pradesh	31	Delhi	16
Himachal Pradesh*	41	Maharashtra	33	Maharashtra	17
States With High Neonatal Mortality Rate					
1990		2000		2013	
Orissa	79	Orissa	61	Orissa	37
Madhya Pradesh	72	Madhya Pradesh	59	Madhya Pradesh	36
Uttar Pradesh	65	Uttar Pradesh	53	Uttar Pradesh	35
Rajasthan	52	Rajasthan	49	Rajasthan	32
Karnataka	51	Assam	47	Chhattisgarh	31

# Post- Neonatal Mortality Rate – Bigger States

State/India	Year		% Change from 1990-2013
	1990	2013	
Kerala	4	5	25.0
Maharashtra	16	6	-62.5
Tamil Nadu	15	6	-60.0
Delhi	12	8	-33.2
Jammu & Kashmir	11	8	-24.7
Himachal Pradesh*	34	9	-73.5
Karnataka	19	9	-52.6
Punjab	27	10	-63.0
West Bengal	26	10	-61.5
Gujarat	22	10	-54.5
Jharkhand	23	11	-52.1
<b>India</b>	<b>27</b>	<b>13</b>	<b>-51.9</b>
Orissa	43	14	-67.4
Haryana	30	14	-53.3
Bihar	26	14	-46.2
Andhra Pradesh	22	14	-36.4
Uttar Pradesh	34	15	-55.9
Rajasthan	32	15	-53.1
Chhatisgarh	17	15	-8.2
Madhya Pradesh	39	17	-56.4
Assam	28	27	-3.6

\* Data under year 1990 pertains to year 1991 for Himachal Pradesh & 2004 for Delhi, Jammu & Kashmir, Jharkhand & Chhattisgarh.

# Post Neo-natal Mortality Rate – Top & Bottom 5 States (Years 1990, 2000 & 2013)

## States With Low Post Neonatal Mortality Rate

1990		2000		2013	
Kerala	4	Kerala	4	Kerala	5
Tamil Nadu	15	Maharashtra	14	Maharashtra	6
Maharashtra	16	Tamil Nadu	15	Tamil Nadu	6
Karnataka	19	Karnataka	16	Delhi	8
Andhra Pradesh	22	Andhra Pradesh	20	Jammu & Kashmir	8
Gujarat	22	Gujarat	20		
		Bihar	20		
		West Bengal	20		
		Himachal Pradesh	20		

## States With High Post Neonatal Mortality Rate

1990		2000		2013	
Orissa	43	Orissa	34	Assam	27
Madhya Pradesh	39	Uttar Pradesh	30	Madhya Pradesh	17
Himachal Pradesh*	34	Rajasthan	30	Chhatisgarh	15
Uttar Pradesh	34	Haryana	29	Uttar Pradesh	15
Rajasthan	32	Madhya Pradesh	28	Rajasthan	15



Under Five Mortality Rate - India



- U5MR in 1990 was 126.

- Target for the year 2015 is 42

- Figures available under SRS from the year 2013 is 49.

- Estimate of U5MR is available from 2008 onwards from SRS.

- Current rate of decline will meet the target in 2016.

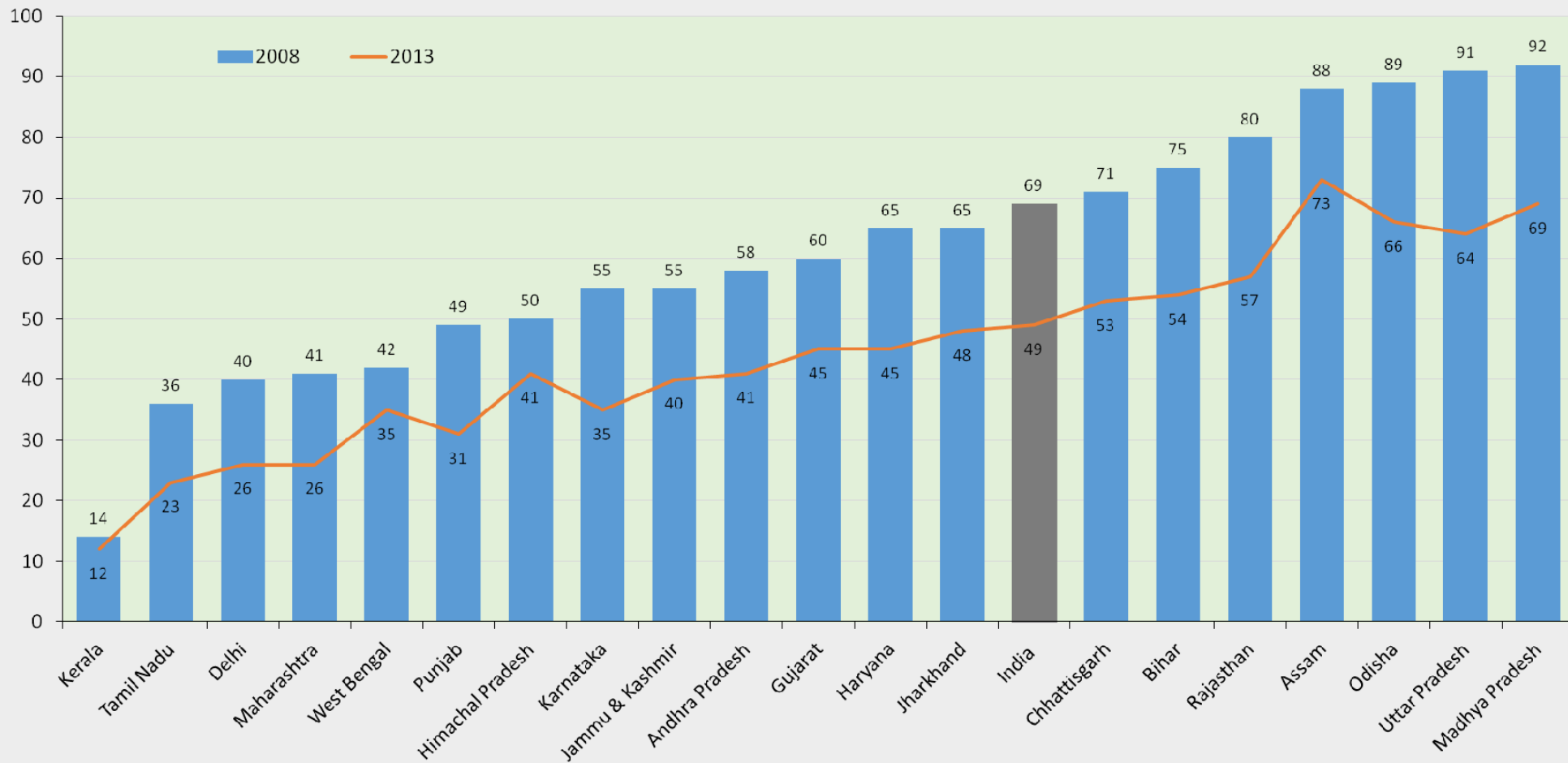
# Under Five Mortality Rate

State/India	Year		% Change from 2008-2013
	2008	2013	
Kerala	14	12	-14.3
Tamil Nadu	36	23	-36.1
Maharashtra	41	26	-36.6
Delhi	40	26	-35.0
Punjab	49	31	-36.7
Karnataka	55	35	-36.4
West Bengal	42	35	-16.7
Jammu & Kashmir	55	40	-27.3
Andhra Pradesh	58	41	-29.3
Himachal Pradesh	50	41	-18.0
Haryana	65	45	-30.8
Gujarat	60	45	-25.0
Jharkhand	65	48	-26.2
<b>India</b>	<b>69</b>	<b>49</b>	<b>-29.0</b>
Chhatisgarh	71	53	-25.4
Bihar	75	54	-28.0
Rajasthan	80	57	-28.8
Uttar Pradesh	91	64	-29.7
Odisha	89	66	-25.8
Madhya Pradesh	92	69	-25.0
Assam	88	73	-17.0

Ten States have already achieved the target by 2013.

Many states are still far behind the target of 42.

### State-wise Under Five Mortality Rate - 2008 vis a vis 2013



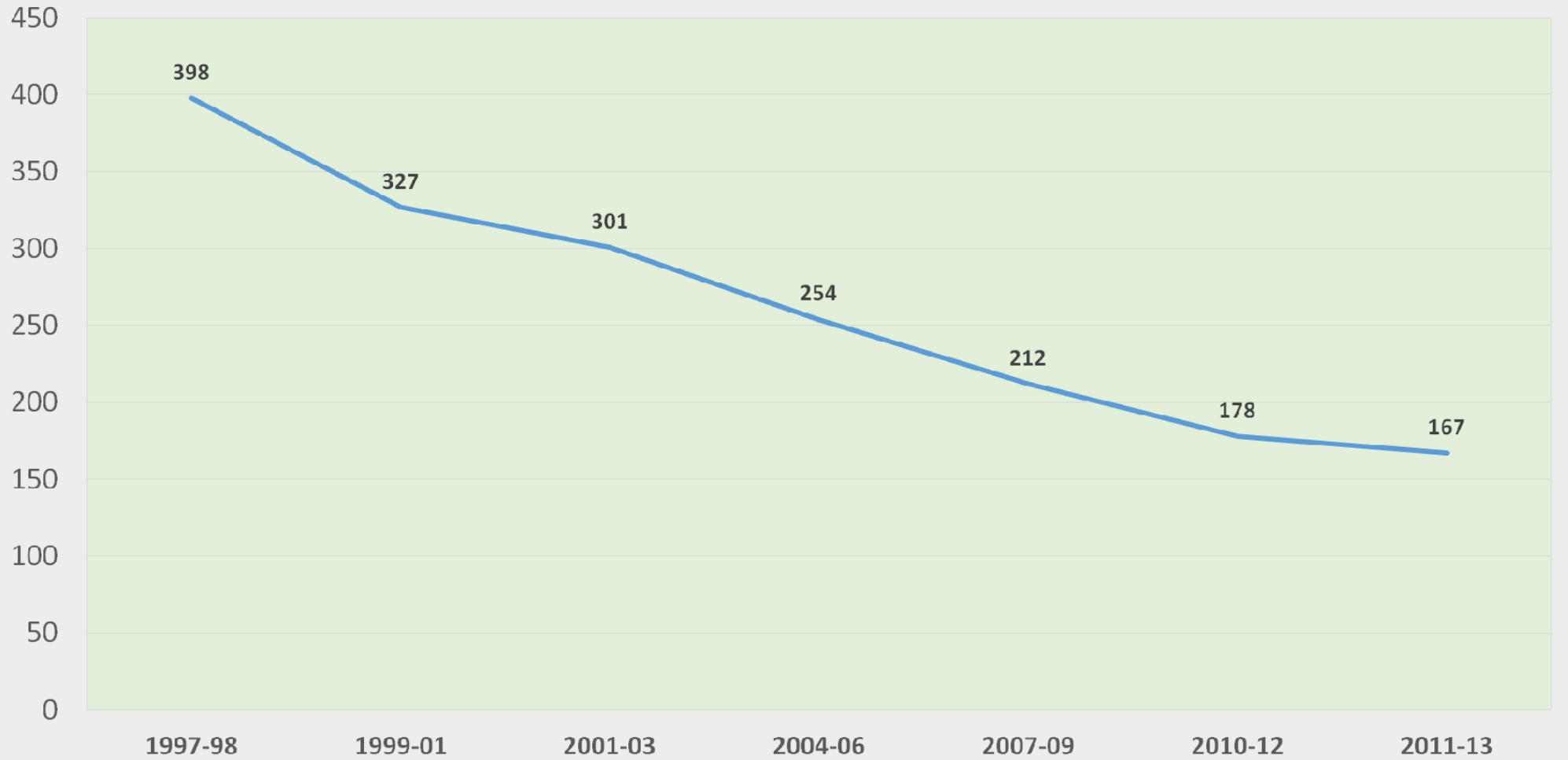
## Under Five Mortality Rate – Top & Bottom 5 States (based on U5MR of 2013)

State/India	Year		% Change from 2008-2013
	2008	2013	
<b>States with Low U5MR</b>			
Kerala	14	12	-14.3
Tamil Nadu	36	23	-36.1
Maharashtra	41	26	-36.6
Delhi	40	26	-35.0
Punjab	49	31	-36.7
<b>States with High U5MR</b>			
Assam	88	73	-17.0
Madhya Pradesh	92	69	-25.0
Odisha	89	66	-25.8
Uttar Pradesh	91	64	-29.7
Rajasthan	80	57	-28.8

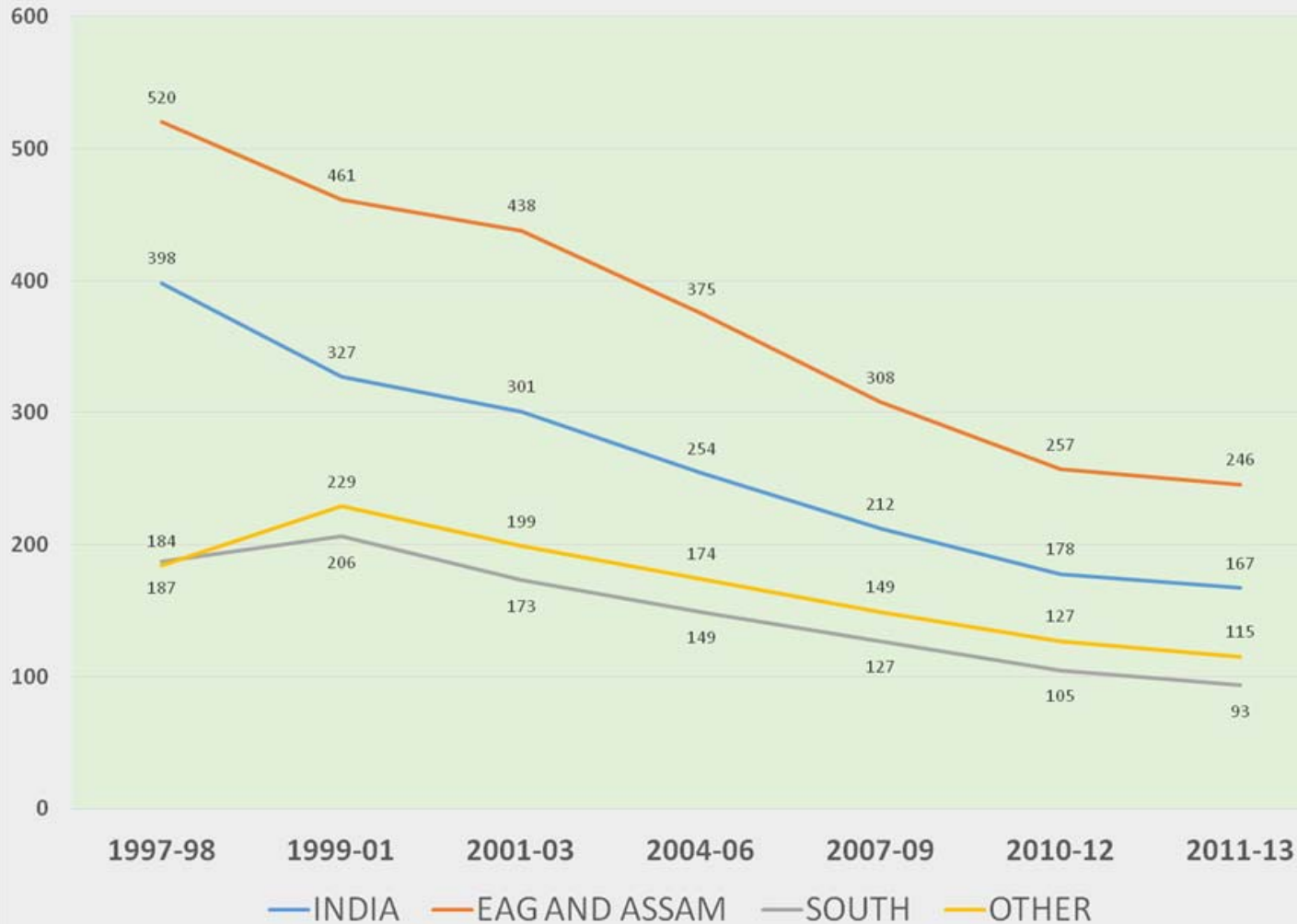
# Maternal Health

- **Maternal Mortality Ratio (MMR)**
  - Figures available under SRS from the year 1997-98 onwards.
  - 58 percent decrease in the ratio from 398 in 1997-98 to 167 in 2011-13.
  - Target is to achieve the MMR of 109 by 2015
  - With a maternal mortality ratio (MMR) of Less than 170 deaths per 100,000 live births, country is making progress on Millennium Development Goal 5.

# Maternal Mortality Ratio - India



## Maternal Mortality Ratio - India



- Target is to achieve the MMR of 109 by 2015.

- EAG States and Assam are lagging behind the target.

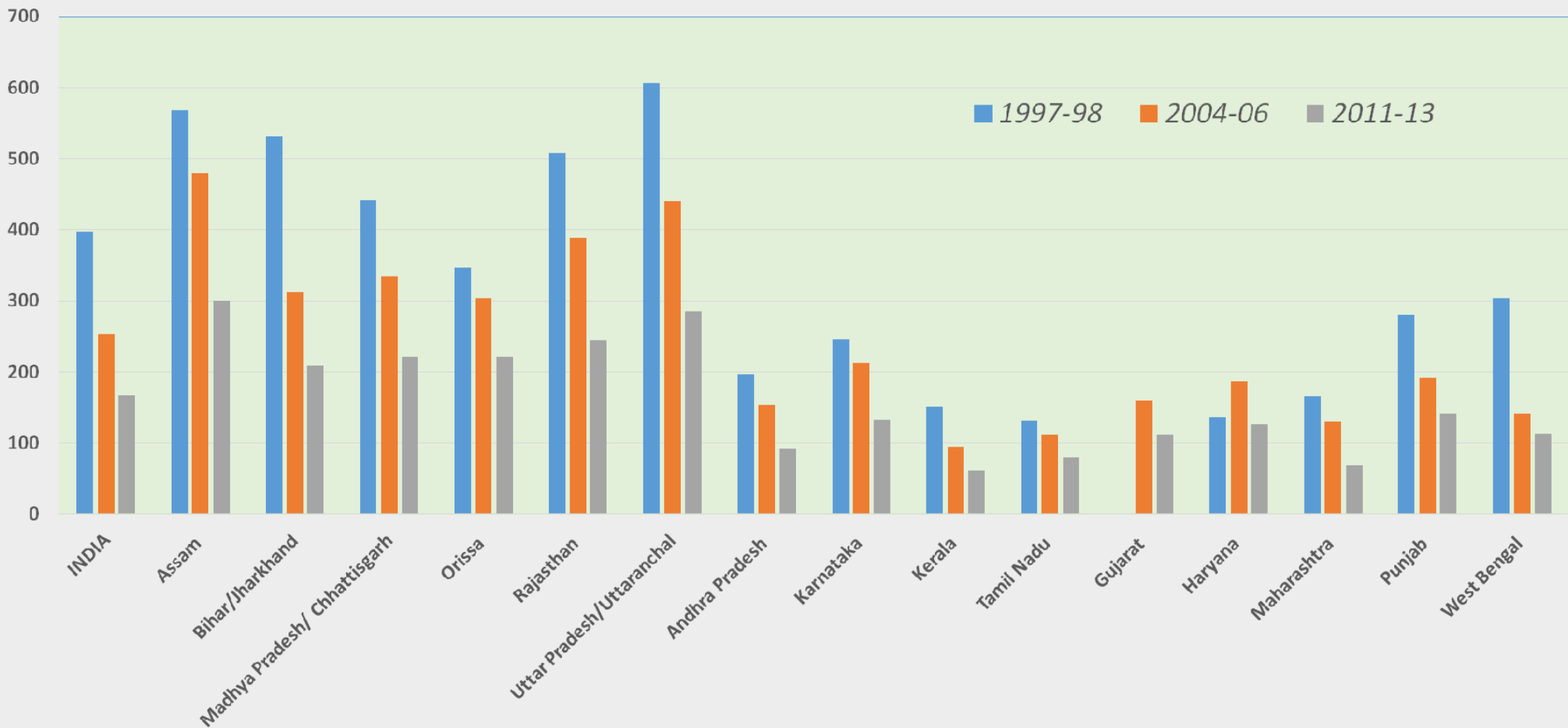
- 4 states have achieved the target.

# State wise Maternal Mortality Ratio: 1997-98 and 2011-13

State/India	1997-98	2011-13	% Increase/Decrease
Kerala	150	61	-59.1
Maharashtra	166	68	-59.2
Tamil Nadu	131	79	-39.5
Andhra Pradesh	197	92	-53.5
West Bengal	303	113	-62.7
Haryana	136	127	-6.9
Karnataka	245	133	-45.8
Punjab	280	141	-49.6
<b>INDIA</b>	<b>398</b>	<b>167</b>	<b>-58.0</b>
Bihar/Jharkhand	531	208	-60.8
Madhya Pradesh/ Chhattisgarh	441	221	-49.8
Orissa	346	222	-36.0
Rajasthan	508	244	-52.0
Uttar Pradesh/Uttaranchal	606	285	-53.0
Assam	568	300	-47.3



# State wise Maternal Mortality Ratio - 1997-98, 2004-06 & 2011-13



# Maternal Mortality Ratio: States at the top and bottom

State	Year		% Change from 1997-98 -2011-13
	1997-98	2011-13	
<b>States with low MMR</b>			
Kerala	150	61	-59.1
Maharashtra	166	68	-59.2
Tamil Nadu	131	79	-39.5
Andhra Pradesh	197	92	-53.5
<b>States with high MMR</b>			
Assam	568	300	-47.3
Uttar Pradesh/Uttarakhand	606	285	-53.0
Rajasthan	508	244	-52.0
Orissa	346	222	-36.0
Madhya Pradesh/Chhattisgarh	441	221	-49.8

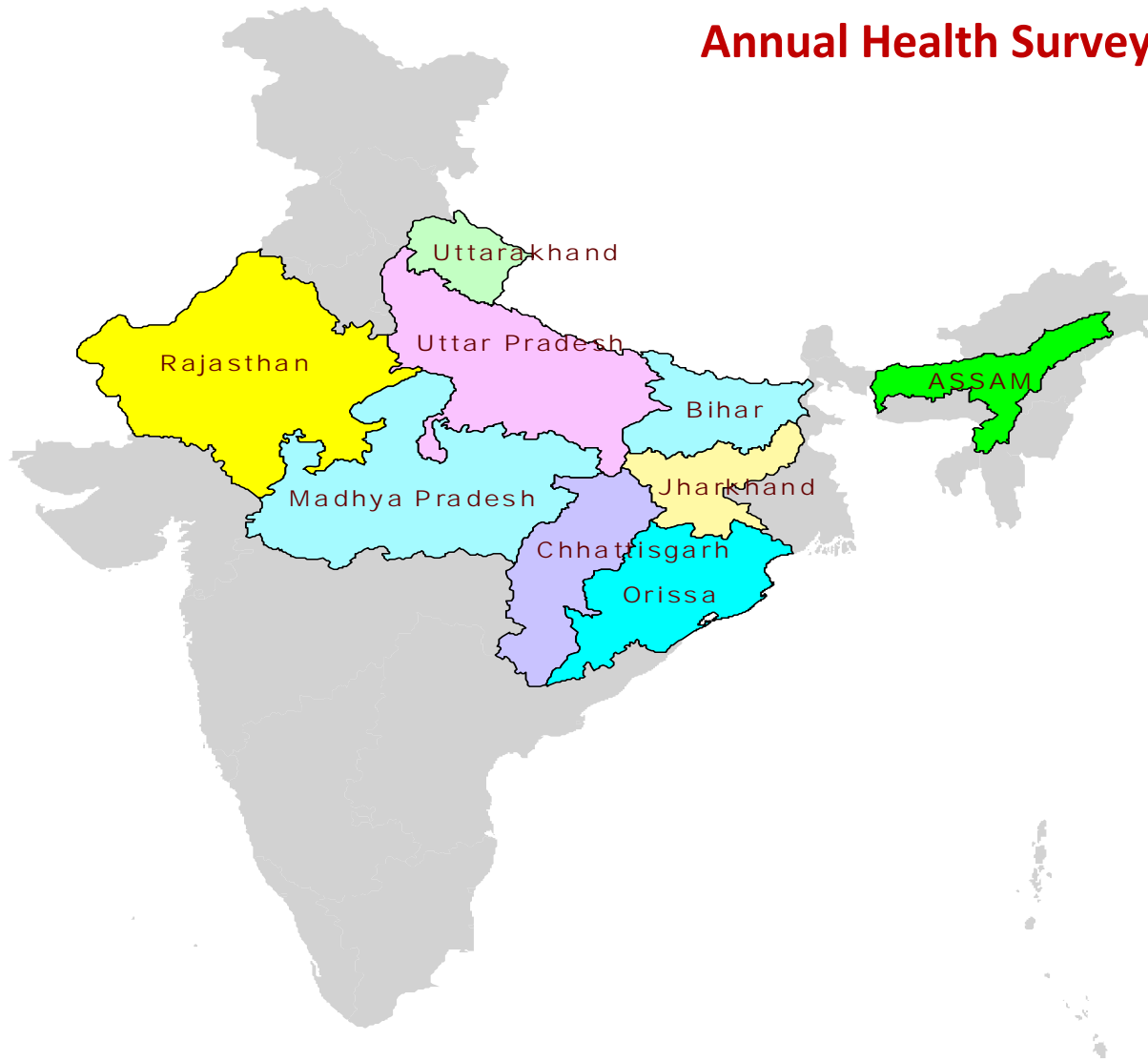
# Annual Health Survey; Source of Child And Maternal Mortality at District Level

- **Objective-** To yield benchmarks of core vital and health indicators at the district level and to map changes therein on an annual basis”
- **Coverage-** All the 284 districts of 8 EAG States and Assam. (304 Districts as per census 2011)
- **Sample Units-** 20,694 statistically selected sample unit (Census Enumeration Blocks in urban areas and Villages in rural areas)
- **Sample Population-** About 20.94 million

# KEY FINDINGS

- Top 100 districts (35% to total districts) in order of IMR constitute about 51 percent of total Infant Deaths across 9 States whereas it was 50 percent during baseline.
- In IMR, 9 districts viz. Purbi Singhbhum ,Dhanbad, Bokaro , Giridih & Kodarma (Jharkhand); Chamoli, Rudraprayag, Pithoragarh & Almora (Uttarakhand) have already achieved MDG-4 National target of 28.
- Top 100 districts in order of U5MR account for 52 percent of total child deaths whereas it was 63 in baseline .
- In U5MR, 15 districts viz. Pithoragarh, Almora, Rudraprayag, Chamoli, Nainital ,Bagheswar, Dehradun & Champawat (Uttarakhand) and Purbhi Singhbhum, Hazaribagh, Dhanbad, Bokaro,Girdih, Deoghar & Kodarma (Jharkhand) have already achieved MDG National level target of 42.

## Annual Health Survey Selected States

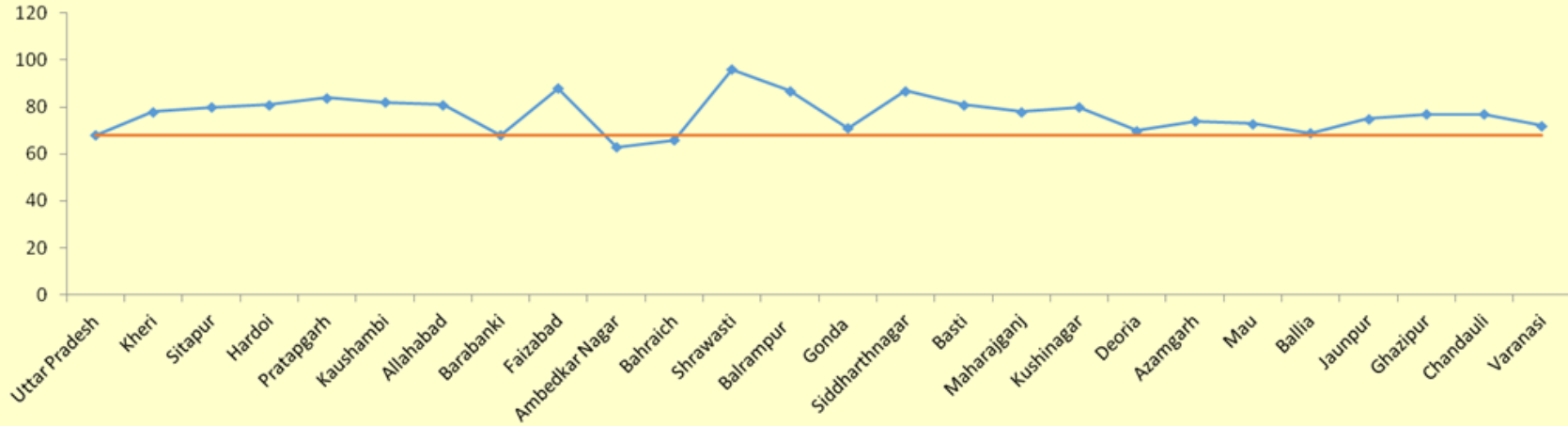


# KEY FINDINGS

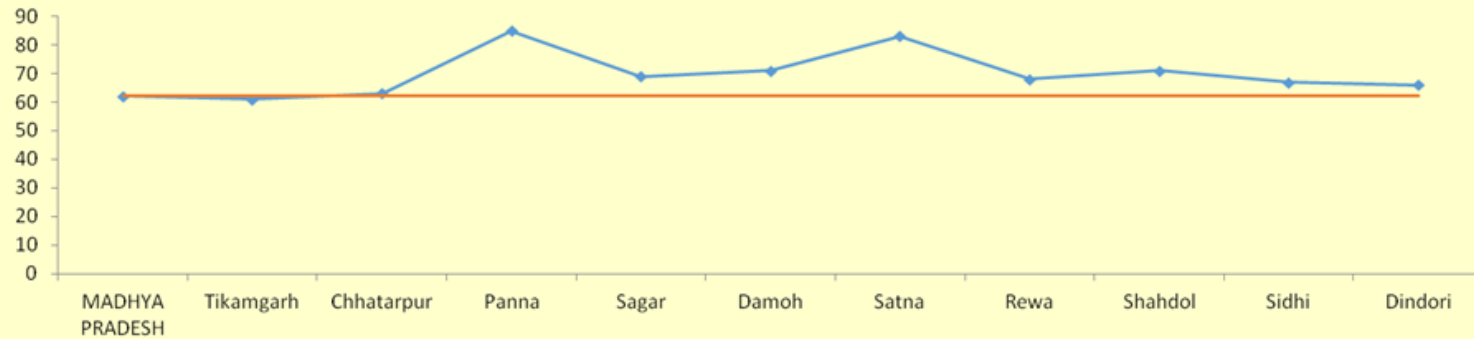
- Top 25 Administrative Divisions comprising 100 districts (104 districts in baseline) in order of MMR constitute 45 percent of the total Maternal Deaths.
- 42 districts are hotspots i.e. common in top 100 districts in IMR and top 25 Administrative Divisions (100 districts) in MMR. Among them 35 districts remained present in all the three rounds which exist in only two States i.e. Uttar Pradesh(24) and Madhya Pradesh(11).

# Performance of hotspot districts w.r.t. IMR

## Uttar Pradesh

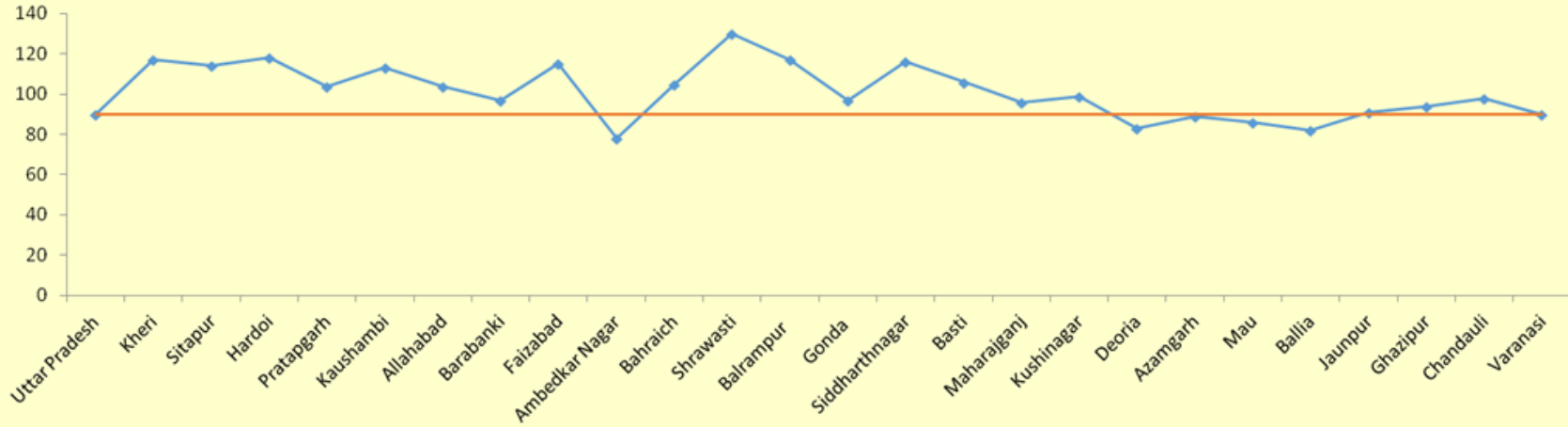


## Madhya Pradesh

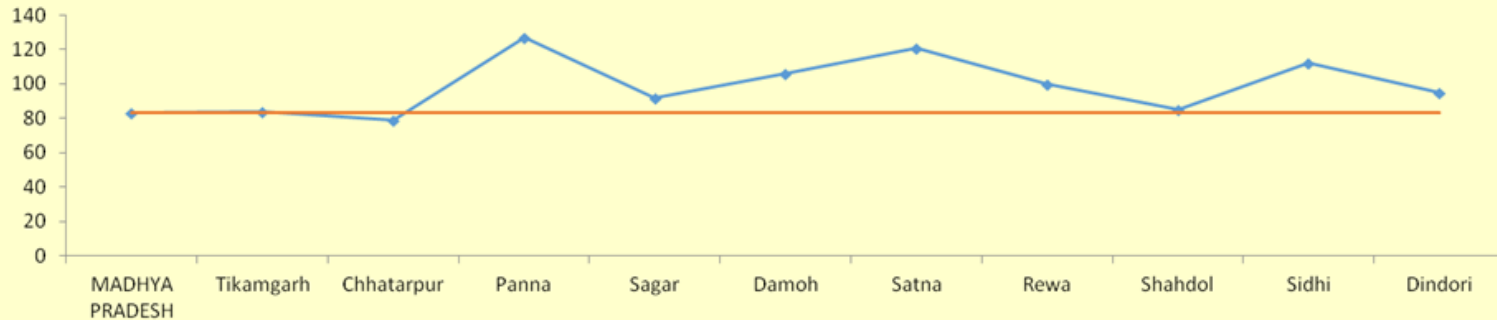


# Performance of hotspot districts w.r.t. U5MR

## Uttar Pradesh



## Madhya Pradesh





## **WAY FORWARD**

- District Level Data on Vital Indicators should be made available for customized and evidence based planning.