



# 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

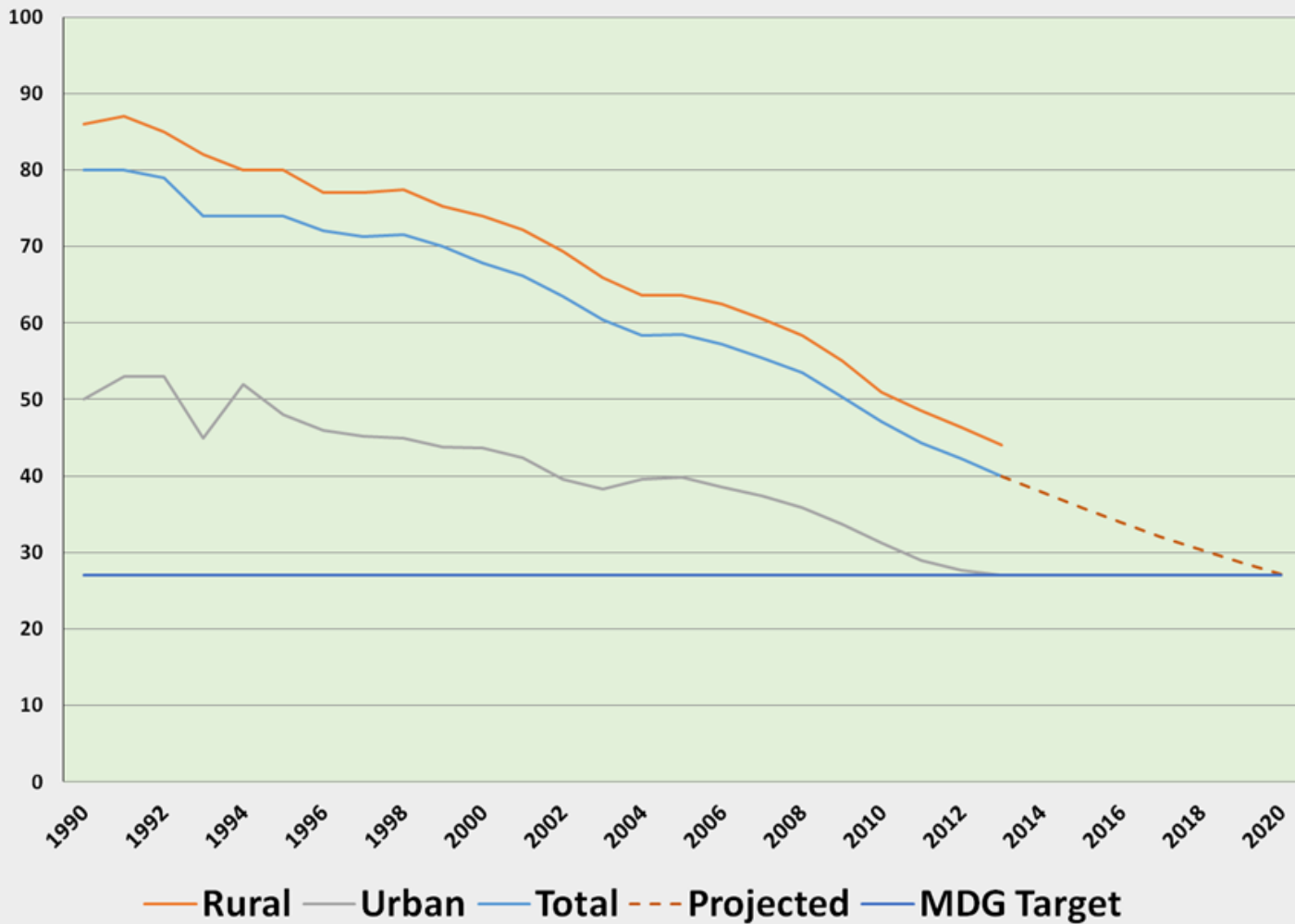
- The objective of SRS is to provide annual estimates of Infant mortality rate, birth and death rates at natural division level for rural areas and at State and National level for rural and urban areas.
- SRS also provides data for estimating components of Infant Mortality Rate (IMR), Total Fertility 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.

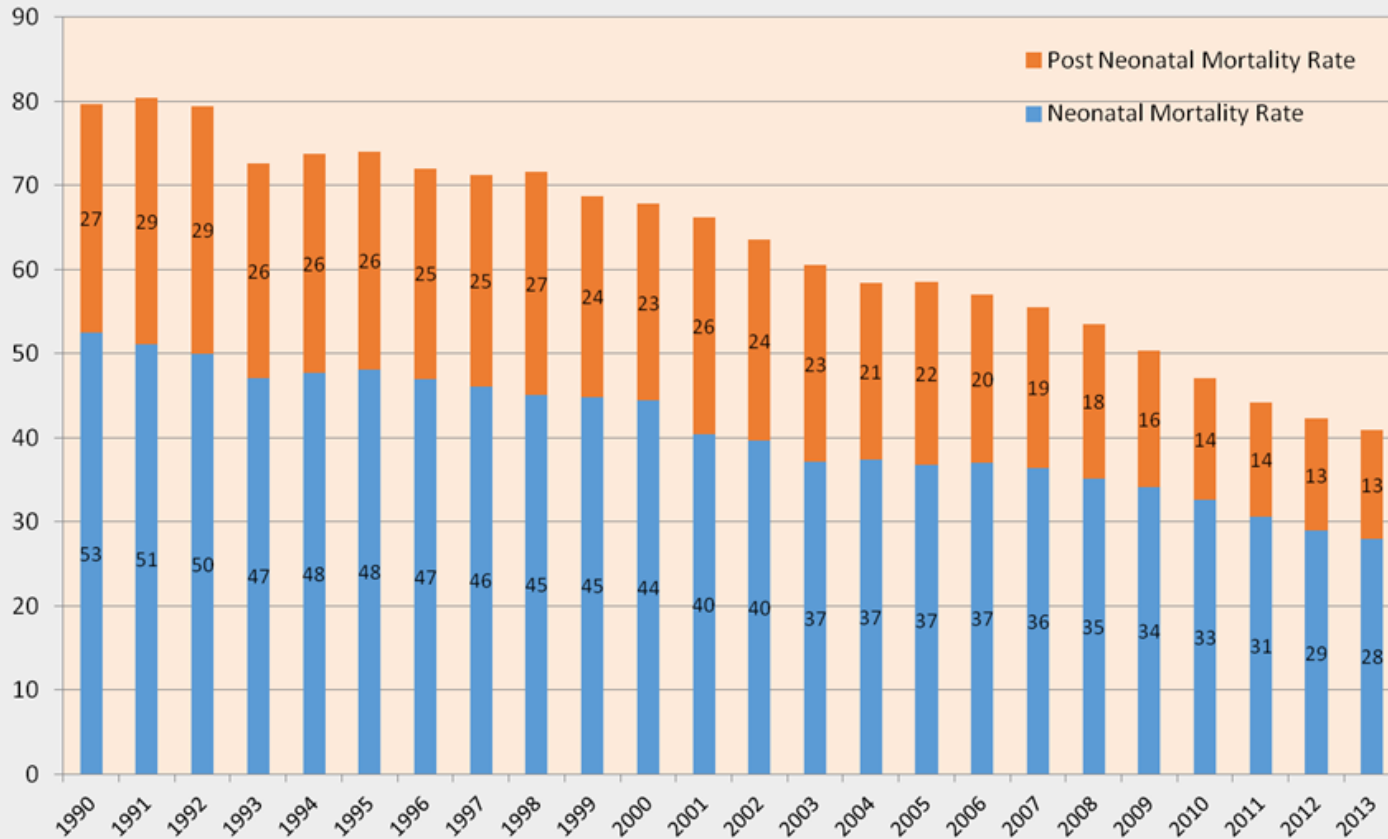
- The gap is still considerable.

- 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

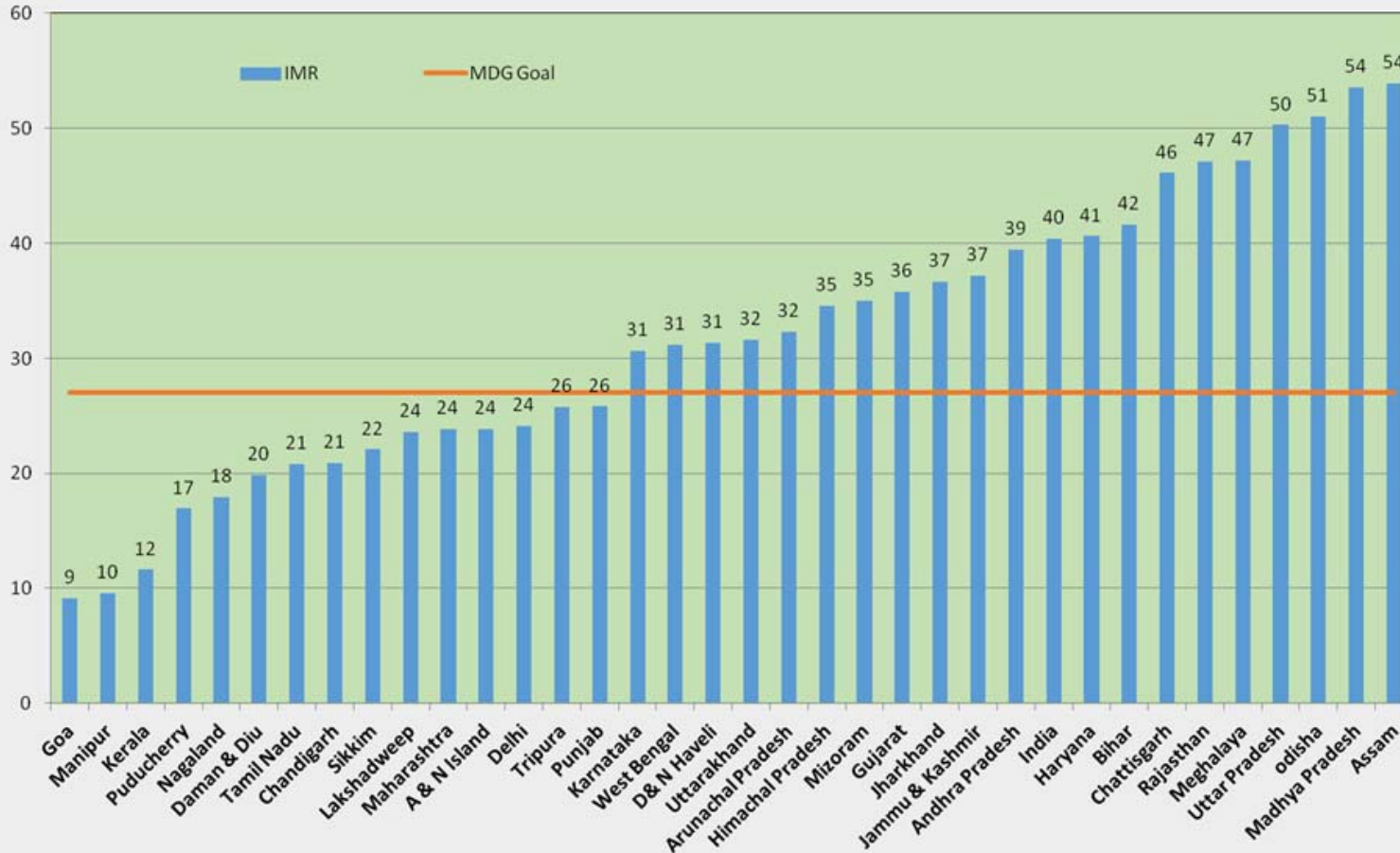
(Distribution of Neonatal and Post neonatal mortality in IMR)



- 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                   |

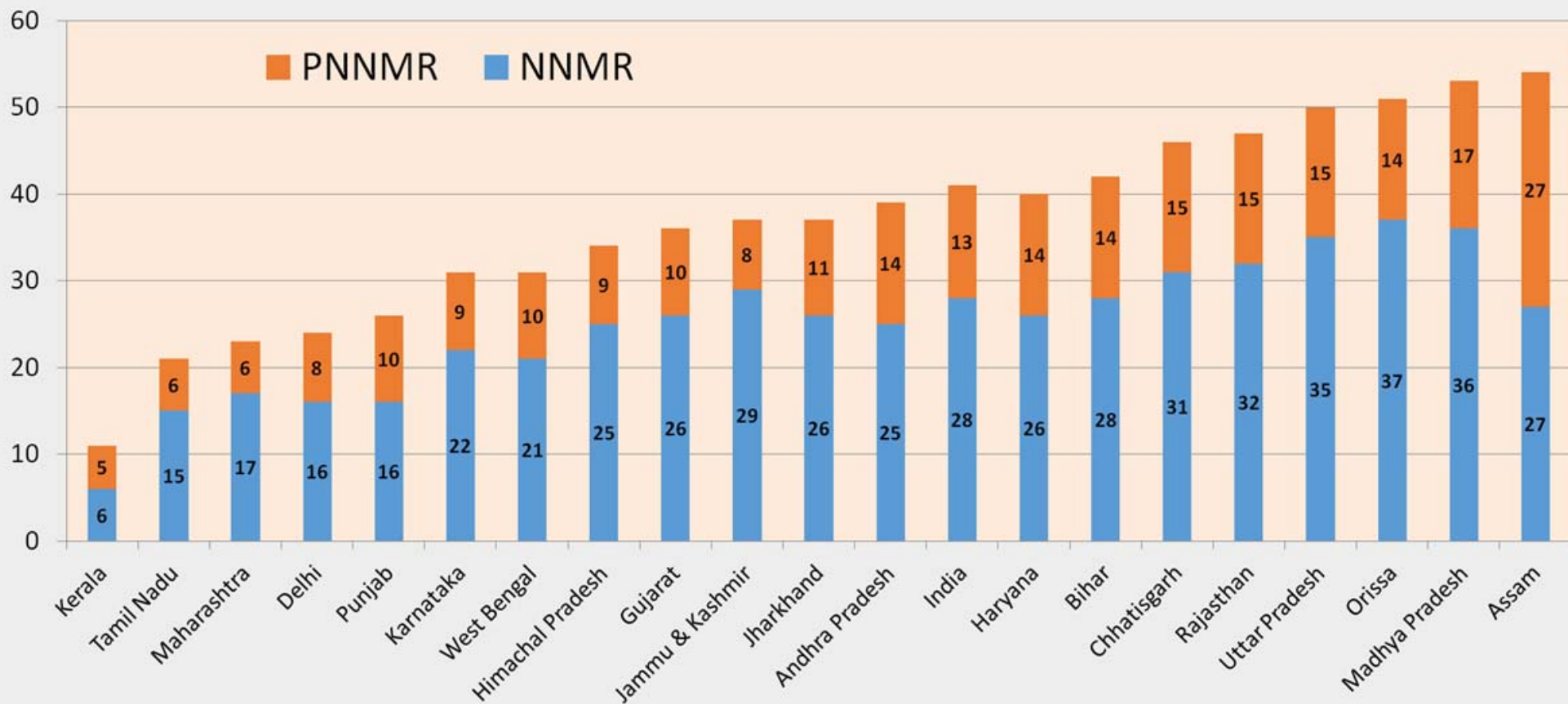
\* Data under year 1990 pertains to year 1998 for Jammu & Kashmir and 1999 for Chhattisgarh and Jharkhand.

# 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.

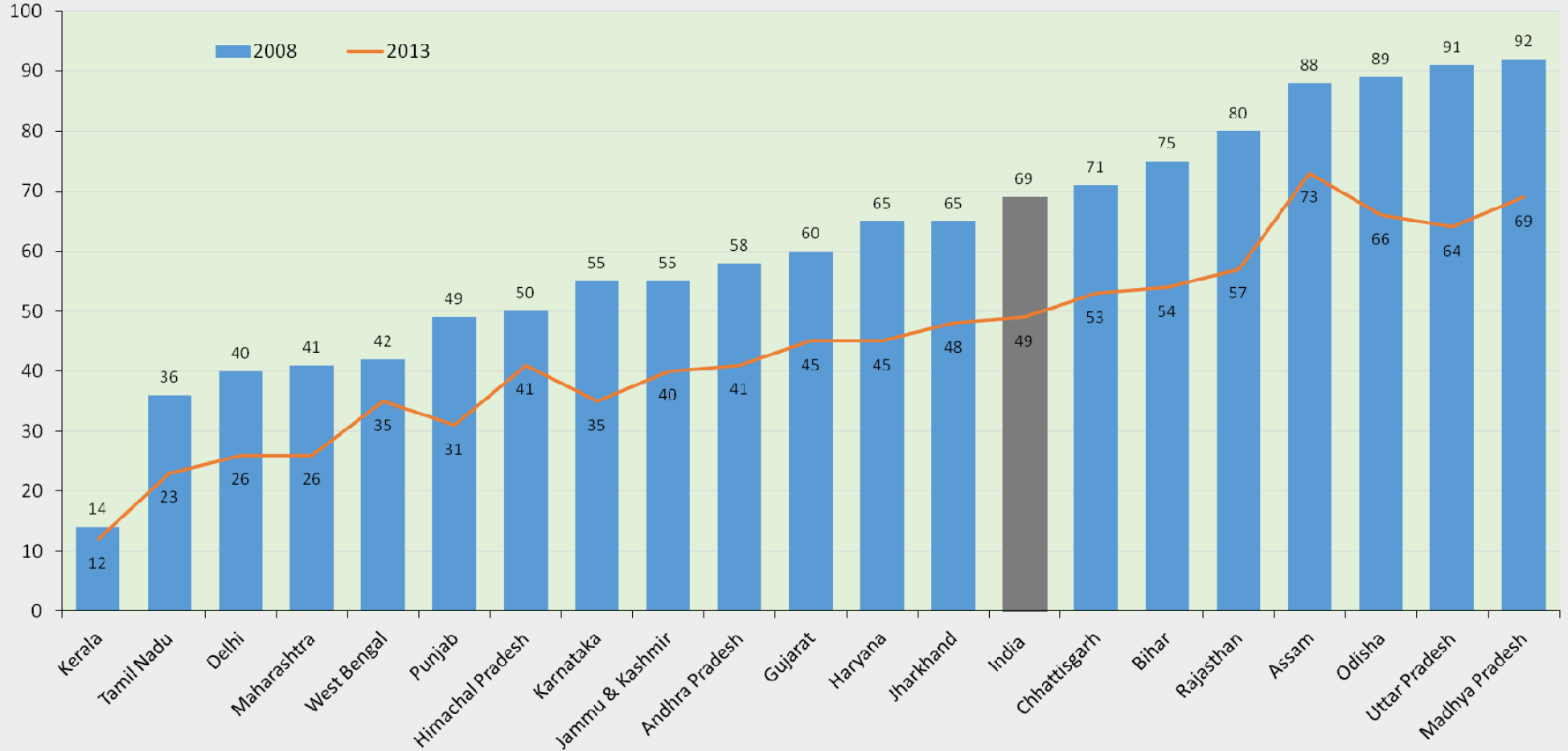
# Under Five Mortality Rate

| 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



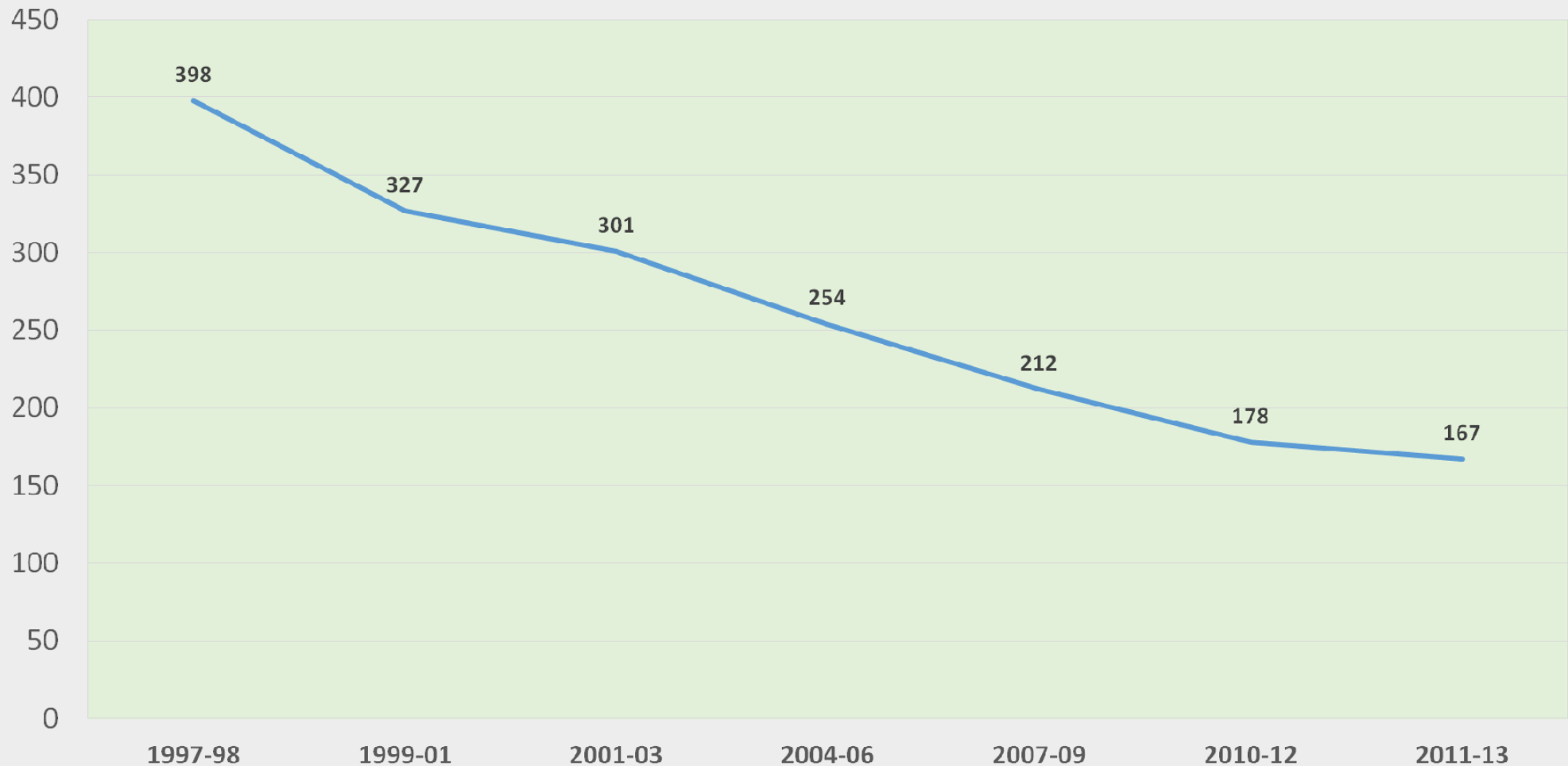
## Under Five Mortality Rate – Top & Bottom 5 States (based on U5MR of 2013)

| 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                   |

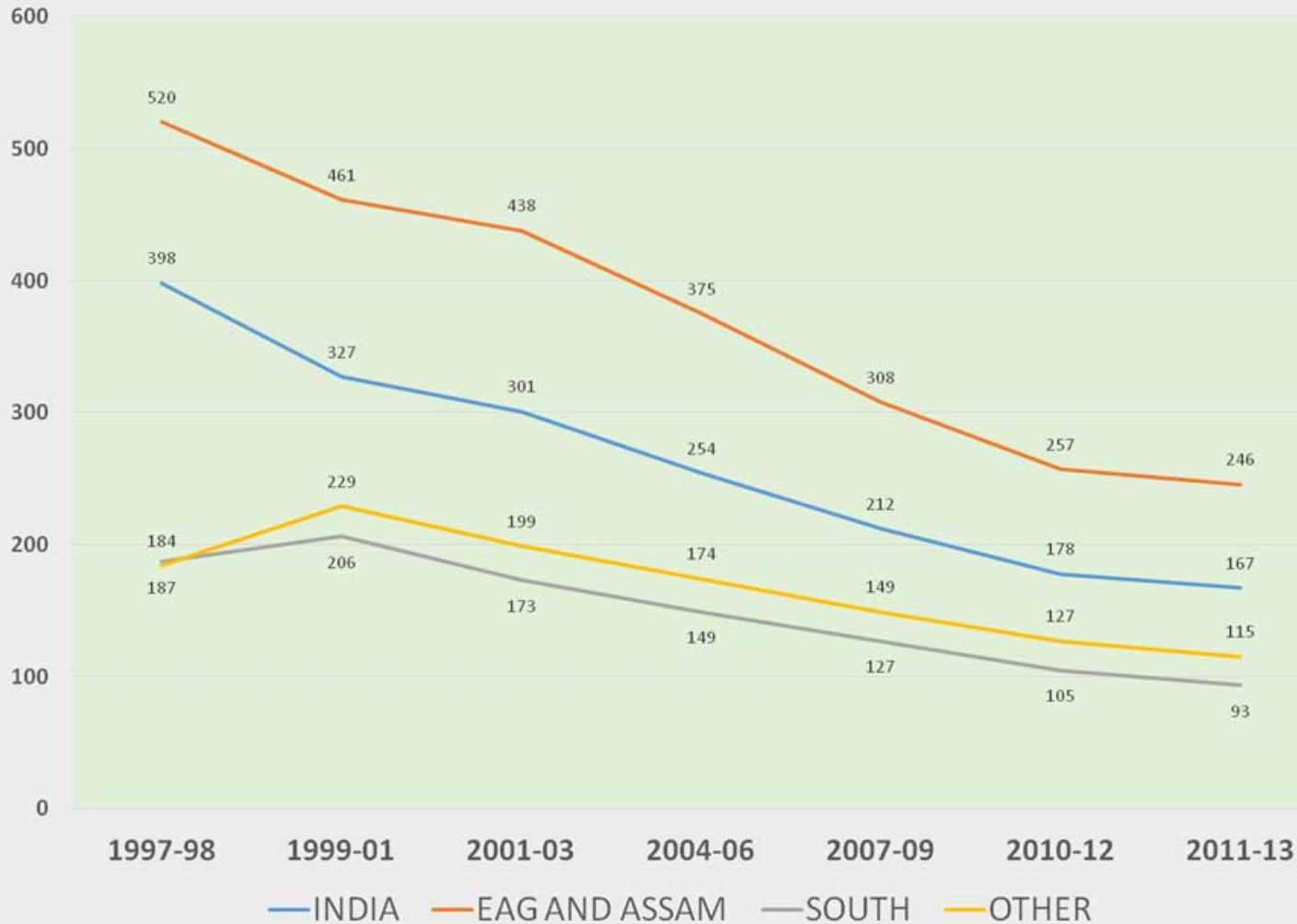
# Maternal Health

- **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.

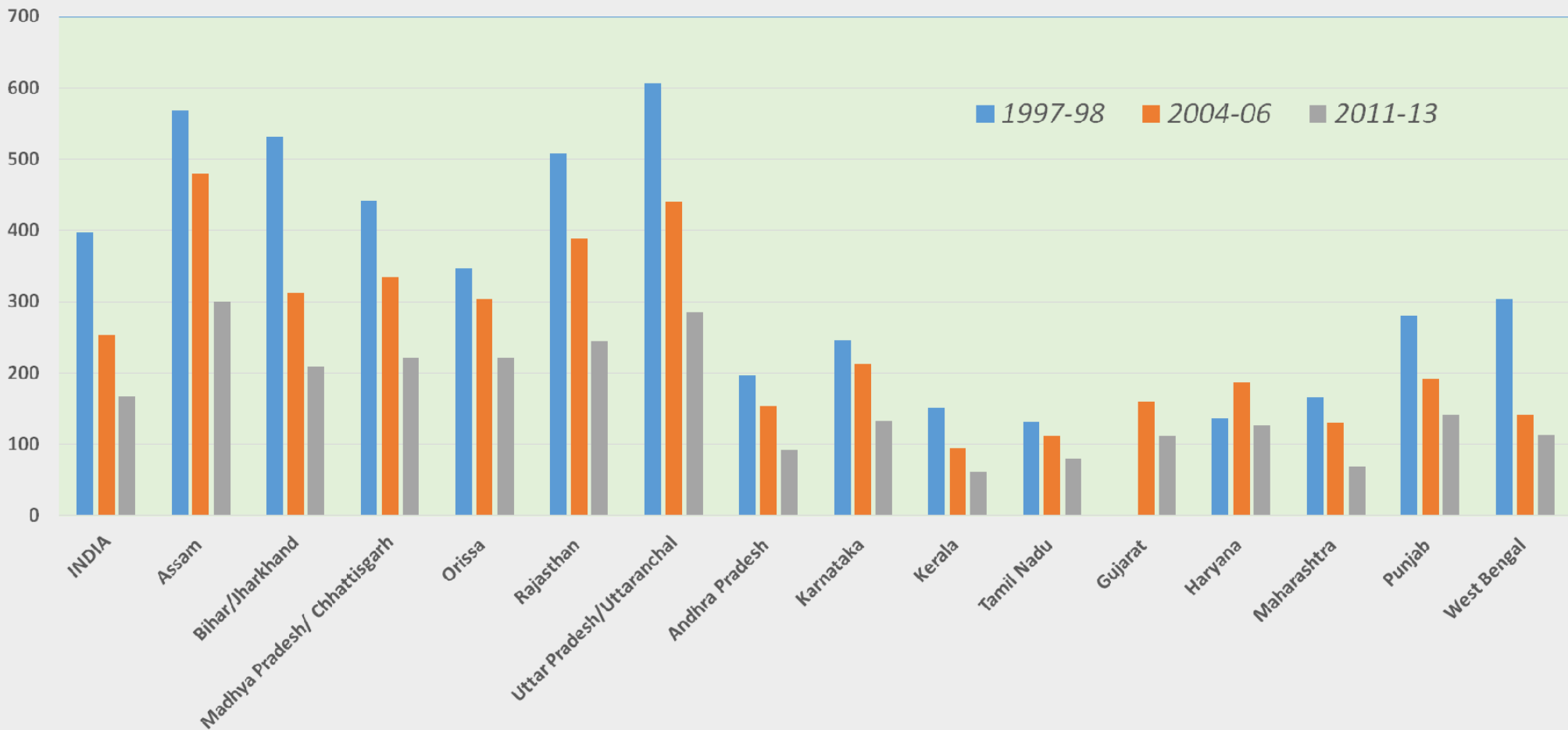
- 4 states have achieved the target.

# 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                          |

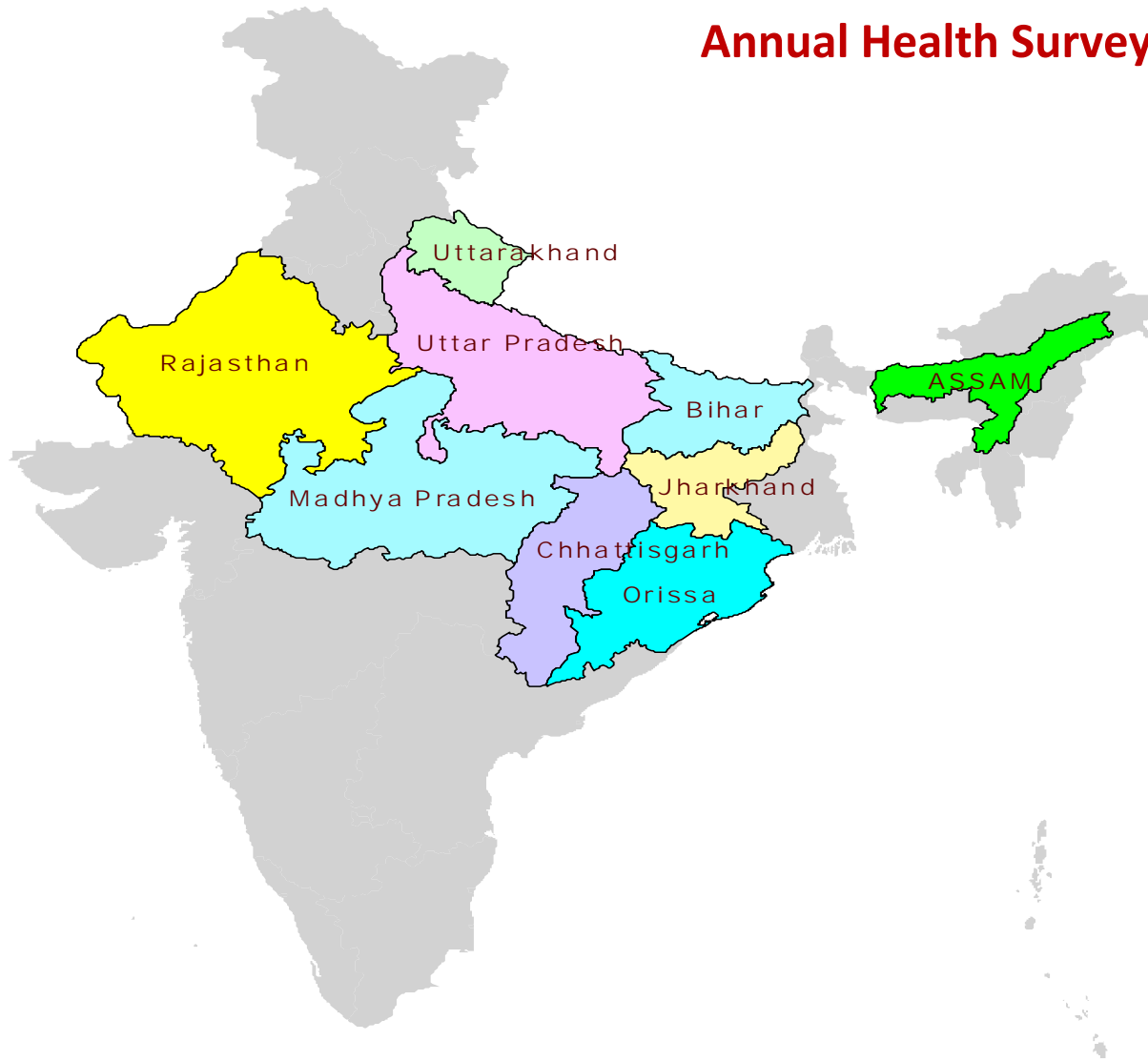
# Annual Health Survey; Source of Child And Maternal Mortality at District Level

- **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

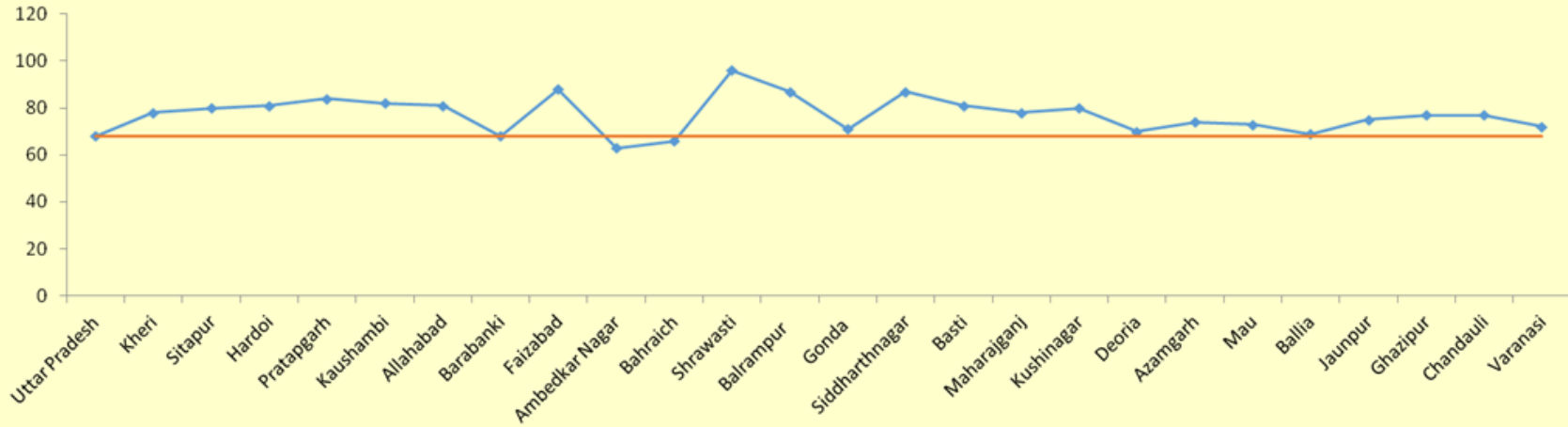


# KEY FINDINGS

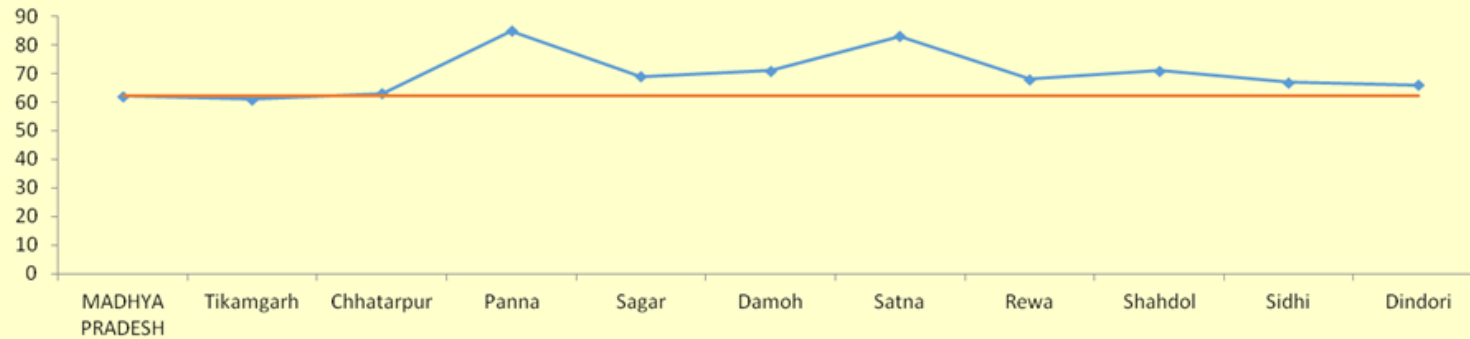
- Top 25 Administrative Divisions comprising 100 districts (104 districts in baseline) in order of MMR constitute 45 percent of the total Maternal Deaths.
- 42 districts are hotspots i.e. common in top 100 districts in IMR and top 25 Administrative Divisions (100 districts) in MMR. Among them 35 districts 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

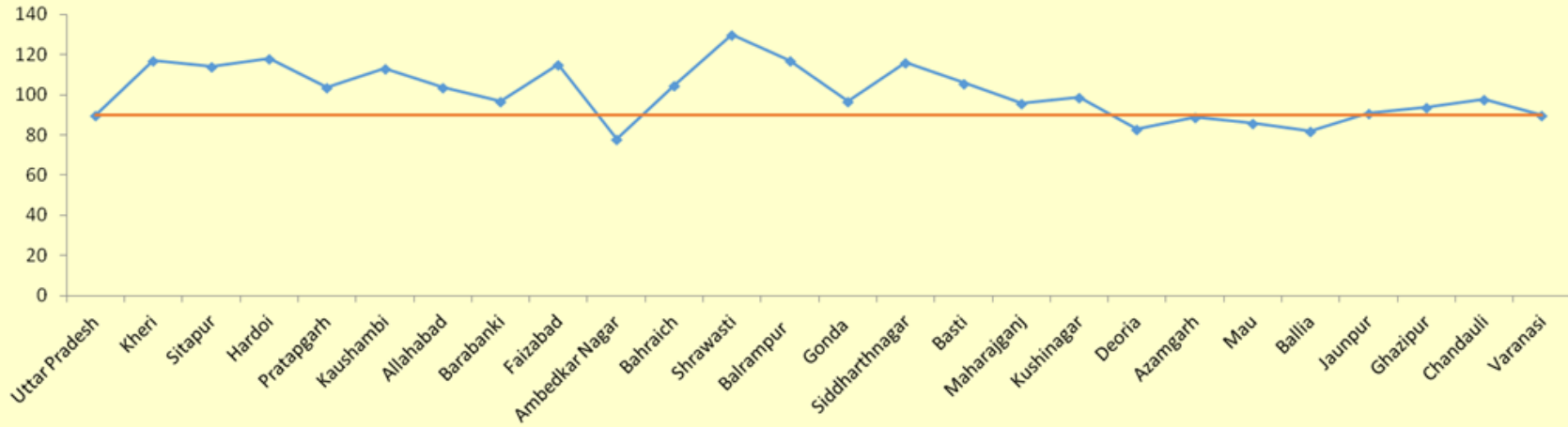


## Madhya Pradesh

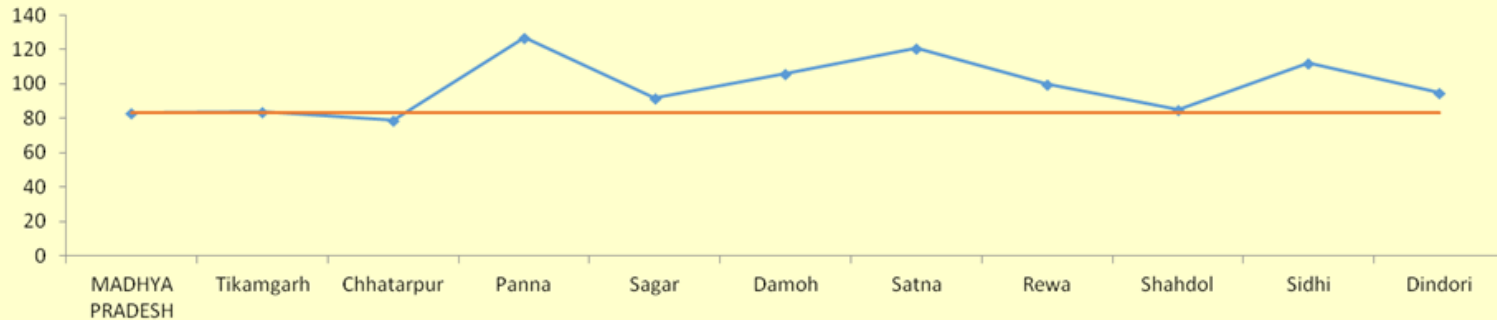


# Performance of hotspot districts w.r.t. U5MR

## Uttar Pradesh



## Madhya Pradesh





## **WAY FORWARD**

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