ASSESSING INDIA’S PROGRESS IN ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS: KEY DRIVERS OF INTER-STATE VARIATIONS

Shiladitya Chatterjee, Matthew Hammill, Nagesh Kumar and Swayamsiddha Panda

September 2015
Disclaimer: The views expressed in this Development Paper are those of the author(s) and should not necessarily be considered as reflecting the views or carrying the endorsement of the United Nations. Development Papers describe research in progress by the author(s) and are published to elicit comments and to further debate. This publication has been issued without formal editing.

For any further details, please contact:

Dr. Nagesh Kumar, Head
South and South-West Asia Office (SSWA)
Economic and Social Commission for Asia and the Pacific (ESCAP)
C-2 Qutab Institutional Area, New Delhi-110016, India
Email: sswa.escap@un.org
## Contents

Foreword ................................................................................................................................. 5
Abstract ................................................................................................................................. 6
1. Introduction .......................................................................................................................... 7
2. India’s overall performance .............................................................................................. 8
3. Performance of States on the MDGs ................................................................................ 15
4. Key drivers of the MDGs Achievement .............................................................................. 24
   i) Broad-based and employment-creating economic growth .............................................. 25
   ii) Prioritization of resources for human development .................................................... 27
   iii) Effective delivery of public services ........................................................................... 29
   iv) Basic infrastructure development .............................................................................. 32
   v) Gender equality and empowerment of women ............................................................... 35
5. Concluding remarks .......................................................................................................... 37
References ............................................................................................................................... 39
Statistical Annex: ................................................................................................................. 43
   Data and methodology ..................................................................................................... 43
List of Boxes

Box 1: Recent data on nutritional status of children in India

List of Tables

Table 1: State ranks on MDG Composite Index for each Goal, (Latest Year)

List of Figures

Figure 1: India’s progress on the MDGs
Figure 2: Current state-wise progress on selected MDG indicators
Figure 3: Ranking of states by MDG Composite Performance Index latest year
Figure 4: MDG Composite Performance Indexes of states baseline and latest years
Figure 5: Change in states' ranks in MDG performance using MDG Composite Indexes, latest year compared to baseline year
Figure 6: Selected MDG indicator values for India and Bihar, earliest and latest years
Figure 7: Regression of growth on MDG Performance Index (Latest Year) of Indian states
Figure 8: Relationship between health outcomes and public health infrastructure
Figure 9: Off-take of food-grains from PDS per poor person – major states, 2013-14
Figure 10: Relationship between access to roads and proportion of births attended by skilled health personnel
Figure 11: Relationship between electricity access and literacy, 2011

List of Annex Tables

Annex Table 1: Target, Cut-offs and Transformation
Annex Table 2: Performance of states on MGNREGA 2012-13 and the MDG Performance Index
Foreword

The Development Papers Series of the ESCAP South and South-West Asia Office (ESCAP-SSWA) promotes and disseminates policy-relevant research on the development challenges facing South and South-West Asia. It features policy research conducted at ESCAP-SSWA as well as by outside experts from within the region and beyond. The objective is to foster an informed debate on development policy challenges facing the sub-region and sharing of development experiences and best practices.

This paper examines the key drivers of India’s MDG performance, assessing progress at the national and state levels and finds that even though India has made considerable progress towards reaching the MDGs, the achievements across the Goals and among states have been uneven. Taking stock of the progress accomplished over the last 14 years since the adoption of the MDGs, the paper argues that the MDGs still remain an unfinished agenda for India and greater efforts are urgently required to bring the states lagging on the achievement of the MDGs on par with the better performing states, given that the overall Indian MDG performance depends critically on performance by individual states. It draws policy lessons for accelerating progress for closing the gaps and carrying the momentum forwards post-2015, with the SDGs, to end poverty and deprivations in all forms and accelerate economic and social prosperity in ways which are sustainable.

We hope that insights and policy lessons drawn in this paper will be useful for designing a strategy for implementation by India of the 2030 Agenda for Sustainable Development adopted by the world leaders on 25 September 2015 that carries forward the unfinished tasks of MDGs.

Nagesh Kumar
Head, ESCAP South and South-West Asia Office
Assessing India’s Progress in Achieving the Millennium Development Goals: Key Drivers of Inter-State Variations

Shiladitya Chatterjee, Matthew Hammill, Nagesh Kumar and Swayamsiddha Panda

Abstract
Assessment of India’s progress towards the MDGs shows a notable but uneven achievement across goals, targets and states. India has achieved the target for halving poverty and is likely to attain gender parity in primary, secondary and tertiary school enrolment by the end of 2015. It has reversed the spread of communicable diseases such as AIDS, malaria, tuberculosis and met the target on access to clean drinking water. Based on revised WHO estimates, India is on track to achieve the target on maternal mortality ratio by end-2015. India will miss the target on reducing by half of the proportion of underweight children since 1990 by a small margin. It is lagging behind on targets for primary school enrolment and completion and universal youth literacy; empowering women through wage employment and political participation; reducing child and infant mortality and improving access to sanitation facilities.

A disaggregated analysis of the performance of individual states on the MDGs shows that states like Kerala, Tamil Nadu, Goa, Sikkim and Delhi seem to be doing better while Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh and Assam are lagging behind. Further investigation reveals all states, including Bihar, have made significant improvements in the absolute MDG scores from their baseline values; it is just that some states made more rapid improvements than the others. The key “drivers” explaining the inter-state variation include accelerated broad-based and employment creating economic growth; extent of allocation of resources to basic services such as education and health; effective delivery of public services; availability of basic infrastructure such as roads and electricity; and promotion of gender equality and empowerment of women were critical in achieving the MDGs.

JEL Code(s): I15, I25, I31, I38

Key words: Millennium Development Goals (MDGs), India, States, Broad-based growth, Basic services, Infrastructure, Sustainable development.

1 Shiladitya Chatterjee is an Adviser, Nagesh Kumar and Matthew Hammill are staff members and Swayamsiddha Panda, a consultant, of the UNESCAP South and South-West Asia Office, New Delhi. This paper partly draws upon earlier work done at UNESCAP-SSWA as a part of assessment of India’s progress in achieving MDGs undertaken on behalf of the United Nations Country Team in India and reported in UNESCAP (2015). The authors benefitted from inputs provided by UN agencies in India including UNICEF, UNESCO, UN Women, ILO, and WHO among others. They benefitted from incisive comments and suggestions of N.C. Saxena, A. K. Shiva Kumar, Ram Aggarwala and Gyanendra Badgaiyan on earlier versions. Chris Garroway’s contribution in the early stage of the work and that of Ivana Brnovic in later stages is gratefully acknowledged as well as the research assistance provided by a number of UNESCAP-SSWA interns, including Alessandro Amaro, Sadhika Bagga, Simon Coates, Sebastjan Wassermeyer, Istvan David Toth, and Xin Liu.
1. Introduction

The adoption of the Millennium Development Goals (MDGs) at the turn of the century represented a culmination of the people-centred development discourse that started with the launch of the United Nations Development Programme’s (UNDP’s) *Human Development Reports* in 1990 and many high-level dialogues and forums held at the United Nations focusing on different dimensions of human development through the 1990s including the World Children Summit 1990, the Rio Summit on Sustainable Development 1992, the World Conference on Human Rights 1993, the World Summit on Social Development 1995, World Conference on Women 1995, and the World Food Summit 1996.

The MDGs placed poverty reduction and freedom from other deprivations at the top of the global development agenda and helped invigorate Governments, the domestic and international development community and other stakeholders towards their fulfilment. Extensive policy advocacy by the United Nations agencies and the peer pressure led the governments at national and sub-national levels to integrate inclusive policies and programmes into their planning processes to meet their overarching objectives. The Tenth Five Year Plan (2002-07) of India, for instance, included more ambitious accomplishments on a number of MDG priorities, such as poverty reduction, provision of gainful and high quality employment, universal primary education, reduction in gender gaps in literacy and wage rates by at least 50%, drastically reducing infant and maternal mortality rates, among others, to be achieved by 2007. The Eleventh Five Year Plan (2007-12) recognized the need for better implementation of schemes towards achieving the MDG targets and announced various flagship programmes for expanding health (National Rural Health Mission), sanitation coverage (Total Sanitation Campaign), meeting the MDGs on gender equality and empowerment and targeted schemes for children. The Twelfth Five Year Plan (2012-17) noted that paucity of end-line data on many health indicators constrained review of health outcomes and emphasized improving the outcome indicators for health in terms of significant reduction in infant mortality rates (IMR), maternal mortality ratios (MMR), reduction of under-nutrition in children under-3 years, among other targets.

As the MDGs reach their deadline at the end of 2015, a universal and transformative development agenda to succeed the MDGs beyond 2015 has already been developed through an extensive process of consultation at national, regional and global levels comprising a set of 17 Sustainable Development Goals (SDGs) which has been adopted by the world leaders at the United Nations Summit in September, 2015.\(^2\) It is therefore timely to assess India’s progress towards achievement of MDGs.

A recent assessment of India’s progress towards the MDGs showed a notable but uneven achievement across goals, targets and states (see UNESCAP 2015). In this paper, we analyse

---

\(^2\) United Nations General Assembly resolution 70/1.
India’s performance on the MDGs in greater depth, focusing particularly on assessing the performance of individual Indian states. The paper is organized as follows. Section 2 presents a brief assessment of India’s overall performance on the MDGs at the aggregate all-India level. Section 3 analyses performance of the states. Section 4 analyses some key drivers or cross-cutting factors explaining the variations in performance of states on the MDGs. Section 5 presents conclusions with some lessons for the SDGs.

2. India’s overall performance

The overall all-India performance on the MDGs is summarized in Figure 1, following the methodology discussed in Annex 1. The figure shows the distance covered by India in each of the selected indicators from 1990 for which specific targets exist (in terms of the percentage of the target achieved from the 1990 baseline) till the latest count, and the additional distance likely to be traversed till the end of 2015. This involves 16 of the 20 indicators studied. In case of 4 indicators, performance is judged by directional change. This summary shows that India has either already achieved, or is likely to achieve by end 2015 targets relating to 10 of the 20 crucial indicators being studied. These are:

**Extreme poverty (Goal 1).** Goal 1 of the MDGs contains two important sub-goals: reduction of poverty and reduction of hunger. The poverty target is to reduce the incidence of extreme poverty by half from the 1990 baseline figure. India has already achieved its poverty reduction target under this MDG, as measured by the national poverty line recommended by the Tendulkar Committee. In 2011-12 the poverty headcount ratio (HCR) measured by this national poverty line had declined to 21.9%, which is already less than half its 1990 level. The Rangarajan Committee appointed to provide more accurate estimates of poverty assessed the headcount ratio of poverty for 2011-12 as being much higher (29.5%) than the Tendulkar Committee estimates. However, it found the rate of decline in poverty to be similar to that of the Tendulkar Committee, suggesting that the MDG target is likely to be met by end 2015. The data indicates that the rate of poverty reduction in India has accelerated since about 2004. According to national estimates, using the Tendulkar poverty lines, while poverty declined on average by 0.74 percentage points between 1993-94 and 2004-05, the decrease sharply accelerated to 2.2 percentage points annually between 2004-05 and 2011-12. This sharp reduction is also reported by the Rangarajan Committee according to which the reduction was by 2.4 percentage points. The decline is sharper since 2009-10: as much as 4.4 percentage points annually (Rangarajan) and 4.0 percentage points (Tendulkar). Even assuming the slower rate of decline on average since 2004-05 continues in the future, the poverty HCR in the MDG terminal year (2014-15) will be 22.3%, which is less than half of even the 2004-05 HCR assessed by the Rangarajan Committee of 46.2%, implying that India will achieve the MDG of reducing poverty by half,
Assessing India’s Progress in Achieving the Millennium Development Goals
September 2015

when using the national poverty lines employed by the Rangarajan Committee also (India, Planning Commission, 2014).

Figure 1: India’s progress on the MDGs

<table>
<thead>
<tr>
<th>MDG 1: Poverty and Hunger</th>
<th>MDG 2: Education</th>
<th>MDG 3: Gender equality and female empowerment</th>
<th>MDG 4: Child mortality</th>
<th>MDG 5: Maternal mortality</th>
<th>MDG 6: Communicable diseases</th>
<th>MDG 7: Environmental sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption poverty (below national poverty line)</td>
<td>Net enrolment rate (primary)</td>
<td>Ratio of girls to boys (primary education)</td>
<td>Child mortality rate (&lt;5 years, per 1000 live births)</td>
<td>Malaria incidence (per 100000)</td>
<td>HIV prevalence (percent)</td>
<td>People with access to water (%)</td>
</tr>
<tr>
<td>Underweight children (&lt;5 years of age)*</td>
<td>Net enrolment rate (primary)</td>
<td>Ratio of girls to boys (secondary education)</td>
<td>Infant mortality rate (&lt;1 year, per 1000 live births)</td>
<td>TB prevalence (per 100000)</td>
<td></td>
<td>People with access to adequate sanitation (%)</td>
</tr>
<tr>
<td>Net enrolment rate (primary)</td>
<td>Net enrolment rate (primary)</td>
<td>Ratio of girls to boys (tertiary education)</td>
<td>Measles immunization (12-23 months)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Latest data for underweight children (<5 years) based on national figures from RGOC, 2013-14. **WHO** Women & Child Development, Goal. **MDR** values from calculations based on revised estimates by the WHO for India (500 per 100,000 live births).


Note: The yellow portion of the indicator bars show progress made (in percentage) from 1990 till the latest year of data available of the total distance to be covered. The extended red portion of the bar shows where the indicator value is likely to be by end 2015 given current trends. If the portion of the bar shaded yellow has already crossed the vertical line placed at the 100% mark it indicates that the target for this has already been achieved. If the total bar length including the additional improvement likely till end 2015 crosses the vertical line then it indicates that that indicator will reach the target by end 2015. If the extended bar does not reach the target, India is off track in that indicator and the distance from the vertical line shows the extent of the gap that will remain.

**Gender parity in primary, secondary and tertiary education (Goal 3).** India has already achieved the overall MDG target of eliminating gender disparity in primary education and is on track to achieve parity in secondary and tertiary education as well. The Gender Parity Index (GPI) rose from 0.76 in 1990-91 and crossed parity (1.01) in primary education in 2011-12 (an increase of 33%); it increased from 0.60 to 0.93 (55%) in secondary education; and from 0.54 to 0.88 (63%) in higher education in the same period. The more rapid increase in parity in secondary and tertiary education leads to the forecasted values exceeding parity by 2015.
**Maternal mortality (Goal 5).** The main indicator under this Goal is reduction of maternal mortality. The target is to reduce maternal mortality ratio by three quarters from the 1990 level. The latest (2011-13) estimate of the maternal mortality ratio (MMR) is 167 compared to 212 in 2007-09, a fall of 21%. India is likely to reach an MMR of 140 per 100,000 live births by end-2015. A doubling of the rate of decline has been noticed in the recent years 2003-09 compared to the 8% achieved in 2001-03. As the UN has revised its estimates of India’s MMR in 1990, the new 2015 target is 140, and India is expected to reach this revised target (WHO, 2014).

**HIV/AIDS, tuberculosis and malaria (Goal 6).** The MDG indicators under this Goal require a halt or reversal of these deadly diseases. Since 2005 India has reduced the prevalence, i.e. the total number, of adult HIV cases and the proportion of adults (15-49 years) with HIV has fallen between 2008 and 2011. The incidence of malaria was also on the decline in the period 2006-2014. Similarly, TB prevalence rate is seen to have declined over the period 2004-2010 for which data has been released (India, Ministry of Statistics and Programme Implementation, 2014a).

**Forest cover, area protected for bio-diversity; access to water (Goal 7).** The main MDG indicators under this Goal are to halt or reverse the loss of forest cover, and area protected for biodiversity; expand access to clean water supply and improved sanitation; and reduce carbon dioxide emissions and consumption of ozone depleting CFCs.

Forest cover as a percentage of the total geographical area in the country increased from 19.32% in 1997 to 21.23% in 2013 (India, Ministry of Statistics and Programme Implementation, 2015). India’s total protected area under biodiversity conservation has been growing also and it now has a protected area network of national parks, wild life sanctuaries and conservation reserves that covers about 4.8% of its total geographical area (ENVIS Centre on Wildlife and Protected Areas, 2015).

India has already met and exceeded, the drinking water target of MDG 7 (which was that 85% of the population have access to improved water source while 88% have already obtained such access) (India, Ministry of Statistics and Programme Implementation, 2015).

In addition, to the above indicators targets for which are either already achieved or will be by 2015 end, India will miss only by a small margin (less than 5% of the target) the targets on the following indicators:

---

3 As the WHO has revised its estimates of India’s MMR in 1990 to 560 maternal deaths per 100,000 live births, the revised target for 2015 is 140 (Figure 1). India is expected to reach this revised higher target, but will likely fall short of the lower nationally estimated target of 109 (India, Ministry of Statistics and Programme Implementation, 2015). This is because the MOSPI uses the 1990 estimate of 437 maternal deaths per 100,000 live births based on the National Family Health Survey -1 (IIPS, 1995).
Underweight children (Goal 1). This is the major hunger related target in Goal 1 and requires reducing by half of the proportion of underweight children from the 1990 baseline. Against a target of 26% by 2015, the proportion of underweight children in India stood at over 40% in 2005-06. However, recent preliminary data from the Ministry of Women and Child Development shows that this proportion has declined significantly to 27% in 2014 (see Box 1). This progress would leave India less than 4% short of achieving Goal 1’s hunger target (India, Ministry of Women and Child Development, 2015).

Apparent survival rate in primary schooling (Goal 2). This is measured by the proportion of Grade V to Grade I students and is targeted to reach 100% by 2015. The latest figure considered here for this indicator is 93% based on DISE 2013-14 data; and while it is projected to remain the same by 2015 end it is already close to the cut-off of 95% set for this target.

On the other hand, India will fail to reach targets leaving large gaps in projected achievements in 2015 compared to targets in the following indicators:

Primary school enrolment (Goal 2). The target is to achieve 100% net enrolment rate (NER) by 2015. Although previous data indicated otherwise, recent data suggests that India has made slower progress in primary enrolment in recent years than was thought earlier, thus will be missing the MDG target of universal enrolment by end 2015 by a wide margin. The NER at the primary level (6-10 years) rose to only 88.1% in 2013-14 from 84.5% in 2005-06. Due to slow progress, the target of universal primary enrolment by end-2015 is unlikely to be achieved and it is estimated that India will achieve only an NER of 90.7% by end 2015. This finding is consistent with data on out-of-school children, which indicates that a significant proportion of children are still not in school. A recent study conducted by UNICEF and UNESCO Institute for Statistics (UIS) (2014) showed, for example, that 10.8% of children between 6 to 10 years were not in school in 2009-10.

---

4 The results of the current round of the National Family Health Survey-4 (NFHS-4) are expected to be released soon. For Figure 1, therefore, the updated national figure based on the Rapid Survey on Children, 2013-14, has been used for underweight children below 3 years of age. For the states, however, which are discussed later, data for 2005-06 based on NFHS-3 have been used as robust and comparable state-level data would only be available when the NFHS-4 data are released.

5 India, Ministry of Statistics and Programme Implementation (2014a) reported, based on DISE Flash Statistics 2011-12, that the All States NER at primary level reached 99.89% in 2011-12. However, the DISE Flash Statistics for 2012-13 and 2013-14 indicate that the NER fell to 90.8 and 88.1 respectively. The Figure on NER is based on the 2005-06 and 2013-14 DISE Flash Statistics as end points. The sharp drop in the NER in the last two years could be attributed partly to the use of population projections based on the 2001 Census which may have underestimated the population of primary school age children. Given that this was a possible cause of the overestimates of the NER particularly for 2010-11 and data for years near to this year, projections made for 2015 in this paper have omitted some of these years to get a more reliable estimate.
Youth literacy rate (Goal 2). The target is to achieve universal youth (15-24 years) literacy by 2015. The latest value recorded (in 2011) is 86% which is projected to increase to 88.9% only by 2015.

Participation of women in non-agricultural wage employment (Goal 3). This is an important proxy for women’s empowerment. No target has been specified for this indicator in the MDGs. But to make an assessment, a notional target of 50% can be considered, assuming parity with men by 2015. However, compared to this, India only reached 19.3% in 2011-12 (India, Ministry of Statistics and Programme Implementation, 2015) and is projected to rise only to 19.4% by end 2015, which is far below this notional target.

Child (under 5) mortality rate (Goal 4). India has made substantial progress in reducing the child mortality rate from 125 per 1000 live births to 49 in 2013. Yet this is far short of the target of reducing child mortality by two-thirds which requires the mortality rate to be cut to 42 by 2015 while projections indicate that a reduction to only 48 will be achieved which is still quite wide of the target.

Infant mortality rate (Goal 4). India is making even slower progress in reducing infant mortality with the current rate at 40 per 1000 live births being only half of the 1990 baseline figure of 80 in 2013 whereas the MDG target requires a two-thirds reduction to 27 by 2015. Projections indicate that at best a reduction to 37 only is likely to be achieved, which is further off-track than in case of child mortality.

Measles immunization (Goal 4). On immunizations of children too, India has made only slow progress. While in 1990 the proportion of one-year olds vaccinated against measles was only 42%, the latest assessment made in 2009 indicates that this figure had improved to 74% only. As the MDG target is universal immunization, and the projection of the proportion of vaccinations by end-2015 is only likely to reach 80%, India will be severely underperforming on this child health indicator too.

Proportion of births attended by skilled health professionals (Goal 5). This MDG indicator provides an indication of the skilled health resources available to assist deliveries in India. While all births should be so assisted, in 2009 only 76.2% of such births were and projections do not indicate any progress till 2015 either.6

Access to sanitation (Goal 7). The target is to reduce by half the proportion of households without improved sanitation compared to 1990. The 1990 baseline is estimated at 72.9% of households without access, and cutting this by half sets a target of 36.45%. The latest data

---

6 See India, Ministry of Statistics and Programme Implementation (2015) for the latest estimate. Projections made using the methodology presented earlier suggest that the figure will in fact fall to 74.6% by 2015.
(2011-12) indicates that 45.4% still do not have access (India, Ministry of Statistics and Programme Implementation, 2015), but projections suggest that this figure will fall to 39.3% by end 2015. Thus a significant gap of nearly 8% of the target will still remain.

It may be noted that as far as greenhouse gas emissions are concerned, it is difficult to categorize India’s performance. India’s performance can be considered satisfactory, if the carbon intensity of GDP is used as an indicator; but not if CO₂ emissions per head is considered. India’s CO₂ intensity has fallen from 0.59 kg of CO₂ per $PPP in 1995 to 0.33 kg by 2012 (Hirst and others, 2012). On the other hand, India’s per capita CO₂ emissions increased from 0.8 tonnes in 1990 to 1.7 tonnes in 2010 (World Bank, 2014b).

An overall assessment of progress Goal-wise can be summarized therefore as follows:

Goal 1: On-track, since the poverty target has been achieved and the hunger target likely to be achieved just after 2015

Goal 2: Off-track, as all three indicators are off track and two of three likely to lie substantially below target

Goal 3: Mixed performance, as while India has done well on the education gender parity indicators which are either achieved or likely to be achieved; it has made slow progress on the proxy gender economic empowerment measure of participation of women in non-agricultural wage employment.

Goal 4. Off-track as the child health indicators are all unlikely to be achieved.

Goal 5. On track as the target on the main outcome indicator of maternal mortality will be reached.

Goal 6. On track as it has had success in controlling all three deadly diseases (HIV/AIDS, malaria and TB) being tracked.

Goal 7. Mixed performance as India has achieved the targets on forest cover, area protected for biodiversity, and access to clean water. However, it is failing to achieve the sanitation target, and it is difficult to categorize India’s progress on the greenhouse gas emissions.
Box 1: Recent data on nutritional status of children in India

With respect to the MDG target on hunger (MDG 1.C), the Government of India was monitoring till recently, the indicator on ‘prevalence of underweight children below 3 years of age’, instead of the official MDG indicator pertaining to children less than 5 years of age, given the comparative data availability in the national context (India, Ministry of Statistics and Programme Implementation, 2015). The National Family Health Survey (NFHS) collected data on underweight children between 0-35 months and 0-47 months of age in 1992-93 (NFHS-1), between 0-35 months in 1998-99 (NFHS-2) and between 0-35 months as well as 0-59 months in 2005-06 (NFHS-3), making the results comparable only for children belonging to the age group 0-35 months in India (less than 3 years of age). However, preliminary results from the recent survey based on the Rapid Survey on Children, 2013-14, conducted by the government, with support from UNICEF, reports data on prevalence of underweight children below 5 years of age, in line with the WHO recommended growth standards (India, Ministry of Women and Child Development, 2015).

According to this recent data, 29.4% of children under 5 years of age were underweight in India in 2014 compared to about 43% in 2005-06, suggesting a decline of 32% over a span of 8 years. During 2013-14, the proportion of underweight children (less than 5 years of age) ranged from 14.1% in Manipur to 42.1 in Jharkhand. Mizoram had 14.8% of underweight children below 5 years, followed by Jammu and Kashmir (15.6%), Sikkim (15.8%), Punjab (16.1%), Goa (16.2%), Kerala (18.5%) and Delhi (19.4%). States like Jharkhand (42.1%), Bihar (37.1%), Madhya Pradesh (36.1%), Uttar Pradesh (34.5%) and Odisha (34.4%) were among the states with highest underweight prevalence among children under age 5. While there seems to have been a significant decline in prevalence of underweight children below 5 years of age, both at the all India level and among states, between 2005-06 (NFHS-3) and 2013-14 (Preliminary results of the Rapid Survey on Children), conclusive analysis would be possible once final data become available. Comprehensive state-level analysis on underweight children below 5 years of age could become possible when results from the NFHS-4 (currently underway) get released, ensuring availability of comparable data over a longer time frame.

Source: UNESCAP based on national sources.

India’s successes on the MDG Goals 1, 5 and 6 owe much to an intensification of poverty reduction and social development efforts in the 2000s. These were possible both due to the better economic growth India has enjoyed since 2000 which enabled greater allocations towards public social inclusion efforts as well as specific inclusive anti-poverty and social development programs it introduced towards that end. Programs such as the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) (which assisted in lowering poverty); the intensification of the Integrated Child Development Services (ICDS) Scheme (which helped in
reducing child malnutrition); and the adoption of the National Rural Health Mission (NRHM) (which assisted in reducing maternal mortality), all have played a role. While there are innumerable evaluation studies both by the erstwhile Planning Commission as well as independent agencies which indicate that implementation performance on these programs could have been better (see India, Planning Commission, 2011a and 2011b), that these did play an important role in India’s eventual performance, even with their failings, is perhaps not in doubt.

On the other hand, failures also stand out starkly. The most disappointing are the failures to reach the primary education (Goal 2) and the child health (Goal 4) targets, which deny millions of children their rights to education and enjoyment of good health. These in turn lower the productivity of future workers and threaten India’s growth. The earlier national programs supporting them such as the Sarva Siksha Abhiyaan, the Integrated Child Development Services (ICDS) scheme, and child components in the National Health Mission (NHM) clearly did not perform well enough and will therefore need to be substantially revamped. On gender (Goal 3) India has a long way still to go and although gender parity in education is being achieved, it is only an initial step in a giant battle to change social attitudes and mores necessary to bring in genuine equality and empowerment of women. Finally, the major failure as far as Goal 7 is concerned is on sanitation, which too involves changes in attitudes of communities and households as much as physical construction of toilets, which the new Swachh Bharat Abhiyan campaign must address.

3. Performance of States on the MDGs

The aggregate national performance presented above is not the result of the Central Government’s efforts alone but that of the Centre along with the states, which have joint responsibility in achieving the MDGs. The performance of individual states is summarized in Figure 2. The figure uses the ‘traffic light’ approach, pioneered by Asia-Pacific MDG Reports issued by UNESCAP, ADB and UNDP, categorizing performance of each indicator in each state under four categories enumerated previously: the best (the state is an ‘early achiever’ on the indicator having reached the target already) is shown with blue dots; satisfactory performance (the state is ‘on track’ on the indicator and will achieve the target by 2015) is shown with a blue arrow pointing forward; unsatisfactory performance (progress is too slow to reach the target) is shown with brown squares; and highly unsatisfactory performance (the state is regressing on the indicator or making no progress) is shown by a red arrow pointing backward.

In making the categorization, the method adopted for the indicators at the all-India level is replicated for each individual state, including the forecasting to 2015 and the back-casting to
1990 where necessary to set up a baseline. However, data for this exercise is available for only nineteen crucial indicators which are presented in Figure 2.

**Figure 2: Current state-wise progress on selected MDG indicators**

![State-wise progress on selected MDG indicators](chart.png)

*Source: Authors’ estimates based on national sources.*

*Note: Maternal mortality ratio (MMR) for India based on the revised baseline estimates from the WHO (2014). MMR values combined for Bihar/Jharkhand, Uttar Pradesh/Uttarakhand and Madhya Pradesh/Chattisgarh.*

The performance of the states on these selected indicators has been on the whole in line with the all-India picture. Mirroring the overall all-India picture, most states are either early achievers or on track to achieve the MDG targets of reducing extreme poverty and gender imbalance in primary, secondary and tertiary school enrolment; combating HIV/AIDS, TB and
malaria; improving forest cover and improving access to clean water. In the case of access to improved sanitation, while the majority of small states are either early achievers or on track; India as a whole is off-track as a result of the poor performance of almost all the larger states. Similar to the national picture most states are off-track on child hunger reduction,\(^8\) universal primary school enrolment; and child health. On maternal mortality aggregative data indicates that India is likely to achieve the target using the revised UN target value. The state data is scant: projections are available only for 15 states which are shown as mostly missing the target.

The 4-way categorization of performance on each of the indicators in Figure 2 allows only a comparison across states per indicator but does not, however, enable a good comparison between the states on their overall progress on the MDGs given the large number of indicators involved. A non-rigorous rudimentary assessment can be made, however, by looking at the proportion of indicators that each state is “on track” in. Both the central Indian states of Madhya Pradesh and Chhattisgarh have a large proportion of indicators they are “off-track” in. This is also true of the eastern Indian states of Bihar, Jharkhand and Odisha. Only West Bengal is the exception in this group. The states shown in the north India category generally show better performance, except for Uttar Pradesh and Rajasthan. The north-eastern states are all shown as performing poorly except for Sikkim and to a lesser extent Tripura and Manipur. In the western India group, Goa stands out as an excellent performer with 16 of 18 indicators “on–track” while the other two are average performers. In the south India group, Kerala and Tamil Nadu stand out but the others are average performers.

It should be noted, however, that this categorization is based on performance towards MDG indicator targets many of which differ between states as many MDG indicators have targets as a proportion of their baseline scores (such as halving poverty incidence or reducing maternal mortality rate by three quarters from the 1990 level). This manner of rating progress – intended primarily by the UN for international comparison between countries but can be equally applied at the sub-national levels – is based on the principle that improvement efforts should be proportionate to initial levels which vary between countries or states to be fair to all. States which had already achieved higher baseline values to begin with, however, are given a stiffer task to achieve their targets and in some cases may not be able to reach them. They may therefore be categorized as having underperformed although already having achieved high absolute scores compared to others that have lower absolute scores but are categorized as “on-track.”

To rectify this problem a comparison using absolute levels of attainment is therefore also necessary. Also, since the MDGs involve several indicators, making rigorous comparisons

\(^8\) Although recently released national data for 2013-14 on child hunger suggests marked progress and on the basis of this updated data India is likely to reach the target on underweight children just after 2015. State level performance on reducing underweight children in this table reflects state level data which are available only till 2005-06.
between the states is difficult unless composite indices are developed. To address these two issues, composite indicators using absolute indicator values attained can be used. Such composite indicators can be prepared both to (i) compare the final attainments of the states on the MDGs at the latest date for which data is available; as well as (ii) compare their initial performance. Both (i) and (ii) taken together provide a better picture of performance and progress than either alone as it is interesting to see both where the states have finally reached relative to each other as well as gauge the relative improvements made by the states. For both (i) and (ii) therefore, we begin by constructing such indexes.

For preparing such performance indexes both for the final and the initial years, we adapt the method used by Hailu and Tsukada (2012). A composite index is built for each state by aggregating each state’s performance across the indicators and the goals, assessing each indicator on the progress made. Construction of this index involves a three step process.

First, performance on each individual indicator in the final year (and later the exercise repeated for the baseline year) is given a score which shows how far states differ in their achievement of the MDG indicator. The score index ($S_{\text{indicator}}$) is given by:

$$S_{\text{indicator}} = 1 - \left(\frac{\text{max} - I}{\text{max} - \text{min}}\right)$$

Where “max” is the maximum value of a given indicator across all states in the sample set; “min” is the minimum value of that indicator in the set of states, and ‘I’ is the actual achievement of an individual state on that indicator. A score of zero implies that a state’s indicator is at the minimum level of achievement in the sample; while a score of one indicates that the state’s indicator is at the maximum level achieved in the sample.

Next, a Goal score is arrived at for each Goal by averaging across the indicator scores under that Goal. If a Goal has several outcomes some with several indicators (e.g. the outcome of controlling HIV/AIDS under Goal 6 has three indicators) then these are averaged into a single sub-goal outcome score first so as to provide equal weight to all intended sub-outcomes within the Goal. Finally averaging all the seven Goal scores is done to arrive at the composite index. The comparative picture from this for the latest year is presented in Figure 3.

---

9 As more data is available for the final year than for the baseline year, it was possible to include 25 indicators for preparing this composite index compared to only 19 for which the traffic light categorization (which requires data availability in both baseline and latest years) was possible. This therefore provides a more accurate estimate of the final achievements.
Among the larger states, Kerala and Tamil Nadu top the list followed by Maharashtra, Andhra Pradesh and Punjab. When all states are included, Goa tops in performance, and the smaller states of Sikkim, Delhi and Tripura are also among the better performers. The five large states that are seen to be doing least well are Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh and Assam. Other large states below the mean score of 0.51 are Chhattisgarh, Rajasthan and Odisha. It is in these states together with the other lagging performers (namely the North-eastern states of Nagaland and Arunachal Pradesh) that comprise the ten states falling below the mean score where most attention will need to be focused.

It may be interesting to observe also the rankings of the states for each of the Goals separately. This is summarized in Table 1. The states are also categorized roughly into those in the top third (ranks 1-10 shown in green), the middle third (ranks 11-19 shown in white); and the bottom third (ranks 20-29 shown in red) in each of the Goals.

As expected, those states that are in the top 10 positions (or the top third in the rankings), also have more individual Goals in the top third rankings. Thus Goa, which has the top composite rank, has all its individual Goal rankings within the top third of all the states. Similarly, Kerala and Tamil Nadu have also performed comparatively well on most Goals except that both have performed poorly on the environment Goal 7. Bihar on the other hand, which lags all states in the composite rankings, has all but one Goal in the bottom third rankings. This is true also of Uttar Pradesh and Jharkhand, for example, which also are at the bottom of the composite rankings. Similarly, the poorly performing North-eastern states of Arunachal Pradesh,
Assam and Nagaland have most Goals in the bottom third of the rankings. Interestingly, all the North-eastern states (except Manipur) and the hill states of Himachal Pradesh and Uttarakhand have performed well relatively on the environment Goal 7.

As discussed earlier, it is also interesting to try and gauge the extent to which states have improved comparative to other states or fared worse compared to the baseline year. This will provide an idea of relative improvements made by states in the period between the original and final situations. To make this comparison, we prepare in a similar fashion as before the MDG Table 1. State ranks on MDG Composite Index for each Goal, (Latest Year)

<table>
<thead>
<tr>
<th>States</th>
<th>MDG1</th>
<th>MDG2</th>
<th>MDG3</th>
<th>MDG4</th>
<th>MDG5</th>
<th>MDG6</th>
<th>MDG7</th>
<th>Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>14</td>
<td>16</td>
<td>10</td>
<td>11</td>
<td>2</td>
<td>24</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>25</td>
<td>29</td>
<td>28</td>
<td>29</td>
<td>23</td>
<td>18</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Assam</td>
<td>24</td>
<td>22</td>
<td>14</td>
<td>25</td>
<td>21</td>
<td>19</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Bihar</td>
<td>26</td>
<td>28</td>
<td>29</td>
<td>24</td>
<td>28</td>
<td>8</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>27</td>
<td>14</td>
<td>8</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Delhi</td>
<td>6</td>
<td>5</td>
<td>15</td>
<td>5</td>
<td>9</td>
<td>7</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Goa</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Gujarat</td>
<td>19</td>
<td>10</td>
<td>26</td>
<td>14</td>
<td>7</td>
<td>11</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Haryana</td>
<td>13</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>18</td>
<td>10</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>9</td>
<td>2</td>
<td>13</td>
<td>9</td>
<td>24</td>
<td>2</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>5</td>
<td>25</td>
<td>18</td>
<td>13</td>
<td>6</td>
<td>1</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>28</td>
<td>26</td>
<td>27</td>
<td>19</td>
<td>27</td>
<td>21</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Karnataka</td>
<td>18</td>
<td>12</td>
<td>16</td>
<td>8</td>
<td>5</td>
<td>27</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Kerala</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>29</td>
<td>18</td>
<td>25</td>
<td>27</td>
<td>16</td>
<td>16</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>15</td>
<td>8</td>
<td>17</td>
<td>4</td>
<td>8</td>
<td>20</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Manipur</td>
<td>21</td>
<td>23</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>17</td>
<td>24</td>
<td>2</td>
<td>23</td>
<td>19</td>
<td>28</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Mizoram</td>
<td>7</td>
<td>21</td>
<td>9</td>
<td>15</td>
<td>12</td>
<td>29</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Nagaland</td>
<td>11</td>
<td>13</td>
<td>24</td>
<td>20</td>
<td>29</td>
<td>15</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Odisha</td>
<td>23</td>
<td>12</td>
<td>16</td>
<td>26</td>
<td>13</td>
<td>26</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Punjab</td>
<td>4</td>
<td>11</td>
<td>21</td>
<td>6</td>
<td>17</td>
<td>5</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>16</td>
<td>27</td>
<td>19</td>
<td>22</td>
<td>20</td>
<td>14</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Sikkim</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>13</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>17</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>Tripura</td>
<td>12</td>
<td>7</td>
<td>5</td>
<td>18</td>
<td>11</td>
<td>22</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>22</td>
<td>20</td>
<td>22</td>
<td>28</td>
<td>26</td>
<td>3</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>10</td>
<td>17</td>
<td>23</td>
<td>17</td>
<td>25</td>
<td>12</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>West Bengal</td>
<td>20</td>
<td>19</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>9</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: Authors' estimates from official data

Legend: Top rankers (1-10), Middle rankers (11-19), Bottom rankers (20-29)

As discussed earlier, it is also interesting to try and gauge the extent to which states have improved comparative to other states or fared worse compared to the baseline year. This will provide an idea of relative improvements made by states in the period between the original and final situations. To make this comparison, we prepare in a similar fashion as before the MDG
composite performance index for the baseline year.\textsuperscript{10} Next we plot the composite indices for the baseline and final years in a scatter diagram which is shown in Figure 4. The states further to the right on the horizontal axis were doing better in the baseline year than those to the left. Similarly, the vertical axis measures the final performance given by the composite performance index for the final year. A regression line is fitted which provides a locus of reference to show where the predicted value of a state in the final year is given the initial value. A vertical value higher than the regression line would indicate that the state has improved more than expected; a value below would indicate that it has regressed compared to where its position was predicted to be by the regression line.

\textbf{Figure 4: MDG Composite Performance Indexes of states baseline and latest years}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{mdgCompositePerformanceIndex.png}
\caption{MDG Composite Performance Indexes of states baseline and latest years}
\end{figure}

\textit{Source:} Authors’ estimates

\textsuperscript{10} As data was scantier in the baseline years for Goals 4 and 7, the number of indicators for which the composite index was prepared in the baseline year was 22.
Generally, states that are located above the regression line have, as expected, also improved their rankings as compared to their original rankings in the baseline year. The change in rankings between the initial and final years is shown in Figure 5. The state that has improved its ranking the most is Tripura, by 9 ranks. Andhra Pradesh and Jammu and Kashmir have improved by 5 ranks; and Gujarat and West Bengal by 4 ranks. Sikkim which was already high in the initial standing has improved further by 3 positions. Some relatively lagging states finding positions above the line have also improved their positions such as Rajasthan and Odisha by 3 positions while Uttar Pradesh has also improved by one position.
On the other hand, states falling below the line have generally performed poorly in comparison to the other states. Those that have fallen behind significantly in the rankings are Mizoram (falling by 11 positions), Nagaland (falling 9 positions), Meghalaya and Arunachal Pradesh (by 6 positions) and Punjab (by 4 positions). The historically poor performers of Jharkhand and Bihar remain below the regression line and at the bottom of the state rankings in the final year too, not having changed their rankings.

It may be of interest to look more closely at the cases of Andhra Pradesh and Punjab – both large states, the former having improved its overall rank by 5 positions, while the latter has fallen by 4 positions – to see what may have caused such a discrepancy in relative improvement. Andhra Pradesh did much better than Punjab in reducing poverty between the baseline and final years (cutting incidence of poverty by 81.5% compared to Punjab’s 63.8%). It improved adult literacy rate by 17.6% as compared to Punjab’s improvement of 8.2%. Its improvement in gender parity in literacy was far higher (16.5% compared to 3.2% for Punjab). Punjab did particularly poorly in gender parity in all levels of education, bucking the national trend by regressing in all three levels of education while Andhra Pradesh made significant improvements particularly in secondary and tertiary levels. Other notable areas where Andhra Pradesh’s improvement was far better than Punjab’s are child immunization against measles (68.3% improvement compared to 34.7% for Punjab); and attendance by skilled personnel at birth (95.5% to Punjab’s 41.0%). The fall in Punjab’s ranking was not because it did not improve, but that it improved much less than some other states and thus fell behind from its original rank of 6th to the latest ranking of 10th.

This brings us to an important observation that needs to be highlighted: all states did generally make significant improvements in the absolute scores of the MDG indicators from the baseline year. The discussion above had focused more on changes in inter-se rankings of states and did not therefore highlight this aspect. While some states did better in making more rapid improvements than others, all did generally improve on their absolute levels of achievement.

This is best illustrated by looking at what is considered the most poorly performing state on the MDGs – Bihar. The state ranked at the bottom in the baseline year as well as in the latest standings. This does not mean however that it has not made improvements – only that other states have improved more.

Figure 6 illustrates this point. It shows the earliest and latest indicator values for selected MDG indicators for both India as a whole and for Bihar. Starting at much below the average India values of most of these indicators, Bihar has shown considerable improvement. The proportion of population out of poverty has for example risen from 37.7% to 66.3% between 1990 and 2011. In case of primary student survival rate, Bihar has matched the all India value starting at about half the initial level of India’s on this indicator. In case of access to drinking water it has exceeded India’s figure. In case of skilled birth attendance and access to sanitation
Bihar has more than doubled its achievement score between 1997-98 and 2009 in the former case and between 1992-93 and 2010-11 in the latter case. Youth literacy has increased by a third between 2001 and 2011; while the proportion children immunized against measles more than tripled between 1997-98 and 2009.

**Figure 6: Selected MDG indicator values for India and Bihar, earliest and latest years**

![Graph showing selected MDG indicator values for India and Bihar, earliest and latest years](image)

*Source: Authors based on India, MOSPI (various years).*

**4. Key drivers of the MDGs Achievement**

While factors specific to each of the MDGs are important for achievement of the targets, there are several key ‘drivers’ that affect the performance of all the MDGs. Some of these cross-cutting generic factors were not explicitly factored into the MDG goals and indicator structure but their roles are now being recognized as crucial to the success of the MDGs. In what follows, five of these key drivers that influence performance and attainment of MDGs are discussed. These are broad-based and employment-creating economic growth; adequate allocation of resources towards the social sectors and basic services; strong design and effective implementation of MDG related programmes; creating basic infrastructure for better access and delivery of MDG related services; and women’s empowerment.
i) **Broad-based and employment-creating economic growth**

Rapid economic growth, particularly if it is broad based, i.e. widely participated in by all segments of the population, generates employment and improves the livelihood of the poor, is essential for the achievement of all the MDGs. Its importance in the Indian context is demonstrated by the fact that the index of MDG performance (for the latest year) by states prepared for this paper is closely associated with their per capita growth rates.\(^{11}\) The positive relationship between per capita National State Domestic Product (NSDP) and MDG performance for the latest year is shown in the scatter diagram in Figure 7.

![Figure 7: Regression of growth on MDG Performance Index (Latest Year) of Indian states](image)

*Source: Authors’ calculations based on data from RBI (2013) and national sources.*

*Note: Data on average annual growth rates of per capita NSDP at constant prices, 1993-94 to 2012-13.*

Rapid growth can favourably impact on the MDGs in many ways. It can act indirectly to help MDG achievement by potentially improving resources with Governments at the Centre and the states, if such resources can be well garnered by effective taxation, and if such resources can be spent wisely on remediying gaps in basic services such as education, health, water and sanitation. In India, growth over the MDG period has helped bolster revenues with the Central Government, for example, and despite Central Government revenues remaining around 10% of GDP in this period (considered low compared to developing countries in Asia-Pacific and other regions), the rapid growth that occurred particularly after mid-2000s, helped increase revenues

---

\(^{11}\) The MDG performance index (latest year) measures the final attainments of the states on the MDGs at the latest date. A strong positive correlation of 0.54, significant at the 1% level was found with this index and the states’ per capita GDPs. The regression also shows a close fit with significant regression coefficient.
substantially on a per capita basis. Growth is considered a ‘necessary’ - although not a ‘sufficient’ condition - for assisting MDG achievement, as without growth, taking effective public action in support of MDG achievement would not be possible.

Growth can impact more directly on reducing poverty if it generates large scale employment of poor households or adds substantially to incomes from their existing work. The latter is what is likely to have happened in India in the period 2004 to 2011, when faster growth led to an acceleration in poverty reduction. The poverty headcount measure - given both by the national poverty line as well as the international $1.25 (PPP) a day measure – declined sharply (from 45.3% to 21.9% between 1993 to 2011-12 by national estimates and from 41.6% to 32.7% in the shorter 2004-05 to 2009-10 period by international estimates). This was partly attributable to a sharp increase in growth, which exceeded 8.0% on average in the period 2004-2011 compared to just 5.7% on average in the earlier period 1999-2003. Faster growth appears to have had a two - fold impact on poverty. First, there is likely to have been an increase in incomes of poor households in agriculture, as a result of agricultural growth of 3.5% on average for the period 2004-05 to 2011-12 as well as due to the impact of the MGNREGA rural employment generation scheme (the outlays for which were made possible by enlarged revenues due to growth) and which provided jobs to a large number of poor households at minimum wages (about 50 million households are estimated to have benefitted in 2011-12) (see India, Ministry of Rural Development, 2012) as well as bolstered real wages in the rural sector in general. Secondly, although overall employment generation was weak due to a drop of 20 million in the number of women employed during 2004-05 to 2011-12 (World Bank, 2014a), a sharp increase in employment in the construction sector and some increase in the services sector occurred, absorbing surplus male labour from agriculture in better paying jobs. However, if growth had generated greater overall employment for women too, the reduction in poverty is likely to have been even sharper.

The relationship between economic growth and poverty reduction has been well documented not only in India but across the world and generally a strong association has been found between growth and the reduction in the poverty head count measure (beginning with Dollar and Kray, 1991). The growth elasticity of poverty given by the national estimates (i.e. the percentage reduction brought about in the head count ratio by a one percentage increase in GDP per capita) was about a 0.8 in the period 2004-05 to 2011-12. This favourable impact of growth is likely to have been greater and the incidence of poverty fallen even more sharply had not inequality increased in this period as well, rendering growth less broad-based across income classes (Kapoor, 2013).12

---

12 For evidence on impact of inequality on growth-poverty reduction rates in a cross country context, see UNESCAP (2010).
Factors that have reduced the impact of growth as an instrument for poverty reduction also include the structural transformation of the Indian economy from agriculture to the services sector, bypassing industry. As a result, while the share of agriculture has come down in GDP to about 15 percent, it continues to sustain nearly half of the workforce. The service-oriented structural transformation has given to the country good growth but has not been able to generate enough jobs to move workers from low productivity work in agriculture to more productive jobs (see UNESCAP, 2012 and Aggarwal and Kumar, 2012). For example, in the period 2004-05 to 2011-12 while India experienced fairly rapid GDP growth of 8.5% on average per annum, the growth of employment overall was only 0.4% per annum on average. This was mainly due to insufficient job creation in the industry and services sectors, and due to the decline female labour force participation between 2004-05 and 2011-12 in rural areas.

In this context, the new Government’s emphasis on development of the manufacturing sector to create jobs is both appropriate and timely. There are opportunities to leverage the large domestic market demand that has developed over the years, as reflected in sizeable imports of many manufactured goods and to build industrial capacities that can help generate millions of better jobs; while accelerating growth and improving the balance of payments (Kumar, 2013).

Despite poor job creation, growth still has had a large impact on poverty. Findings also suggest that the impact of growth on the other MDGs is also favourable, although each percent of economic growth has a smaller but still important positive impact, or the elasticity for the non-poverty MDG indicators such as for health, nutrition and education indicators is lower. This is because the MDG indicators other than poverty depend more heavily on the availability of public services and on public action – such as on construction and staffing of schools and health centres, providing nutritional support to mothers and children, etc. – which are not automatically brought about by growth but have to be provided by mainly the government, out of the augmented revenues that growth makes possible.

ii) Prioritization of resources for human development

The manner in which Governments at both the Centre and in the states use their augmented revenues brought about by growth is critical for achieving the MDGs. Developing countries have many needs but the need to invest in human development – such as education, health, livelihood promotion and other basic services, which the MDGs represent – must be at the top of the development agenda. This is both because of the obvious intrinsic benefits that good education and good health, for example, provide to individual wellbeing, as also the

13 For evidence relating to developing Asia-Pacific for all MDGs, see UNESCAP, ADB and UNDP (2008), which found in a cross section study of Asian developing countries, evidence of growth impacting favourably on the MDG indicators but at lower elasticities for the non-income MDGs compared to poverty. Several studies exist on the importance of growth for individual non-income MDGs in the Indian context. An example of the relationship between growth and child mortality for India, for example, can be seen from Bhalotra (2006), which found a growth elasticity of under-5 child mortality reduction of 0.7.
importance of improving the productivity of human resources for the future growth and development of countries.

However, India has not been spending enough on human development, resulting in generally poorer outcomes in such areas as health, nutrition, quality of education (including skills development), and sanitation and hygiene, compared to developing Asia as a whole and particularly East Asia, which has surged far ahead. In health, for example, where India is particularly underperforming, it spends 4% of its GDP (in 2013), compared to 6% to 12% in upper middle and high income countries, respectively. Only a third of India’s health spending comes from public funds (1.3% of GDP) and the gap is funded by households, out of their pockets. It has been estimated that 6.2% of households in India fall below the poverty line, due to health spending that they cannot afford (Mahal and others, 2010). In education too, India’s performance is less than satisfactory, with public expenditure on education at 3.8% of GDP against the UNESCO norm of 6% of GDP.\(^{14}\)

Apart from insufficient spending overall, there is wide variation among states in the investment made on human development. Many poorer states have much lower per capita investment expenditure on human development than the prosperous states, owing to insufficient revenue collection and inadequate devolutions from the Centre to cover their funding gaps.\(^{15}\) Those that have invested adequately have reaped benefits. In health, the number of persons in the state served by a government hospital bed serves as a proxy for public resources devoted to developing physical health infrastructure. As can be seen from Figure 8, the greater the scarcity of hospital beds – which implies also the poorer the resources devoted to building up health infrastructure - the lower the overall health outcome. Similarly, in education, there has been wide disparity in resources provided by the states over the years with consequential variation in education outcomes. There is a strong positive correlation, for instance, between literacy levels in states and their current public spending on primary schooling.\(^{16}\) Not surprisingly, Kerala which leads among the states in education outcome indicators, such as primary enrolment rate, reduction in dropout rates, youth literacy levels and ASER competency tests in primary schooling, has the highest per capita expenditure on primary schooling among all the larger states and the figure is 3.5 times the all-state average.

\(^{14}\) India’s public spending on education was 3.8% of GDP in 2012 according to the UNESCO Institute of Statistics (http://data.uis.unesco.org/?queryid=181). The international norm of 6% of GDP was suggested in the Oslo Declaration in December 2008 (http://www.unesco.org/education/Oslo_Declaration_final_17dec08.pdf).

\(^{15}\) Devolutions from the Finance and Planning Commissions, are based on 1971 population and therefore, don’t reflect state differences in population growth. States with low population growth will benefit more than states with high population growth rates since 1971. States like Bihar, UP, and Rajasthan which have not been able to control population growth suffer a great deal when compared with Kerala and Tamil Nadu. For instance, Kerala’s share in India’s population is now 2.8%, but for the purpose of central devolution of funds the share is calculated at 4%, which was the position in 1971.

\(^{16}\) The correlation coefficient is 0.52 and is significant at the 1% level.
In order to rectify the imbalances in outcomes due to insufficient state spending, Central assistance to states commensurate with the development challenges they face is crucial. A look at the devolution of Central funds to the states shows that some of the richer states may be getting a disproportionate share of resources (per poor person). In this context, the Raghuram Rajan Committee which had been asked to address this issue, proposed a new composite underdevelopment index for allocating Central assistance based on human development outcomes such as per capita consumption, infant mortality, female literacy, poverty, share of SC/ST population, rate of urbanization, level of education, a household amenity index, and connectivity (India, Ministry of Finance, 2013). Such needs based allocation will help in the future provided both the Centre and the states keep a close watch on the results of their spending and tailor their allocations and efforts accordingly. In addition to needs, allocations should also be made on the basis of performance, so that continually poor performers are not provided resources they do not use effectively. Unless proper use is made of scarce public resources, little impact on the MDGs can result. Attention to effectiveness of spending is therefore crucial for success.

iii) Effective delivery of public services

Effective delivery of public services is most critical from the point of view of MDG performance. This is an area in which India can make significant improvements, as higher delivery standards have already been achieved within the country among the better performing states. It has been estimated, for example, that bringing the entire nation up to the standards already achieved in best performing states for health and education services and food and fuel
subsidy distribution would result in a 50% increase in effectiveness of national social spending, in terms of reaching intended beneficiaries (McKinsey Global Institute, 2014).

A good example of the variability in standards of public services is in the utilization of the employment generation funds under MGNREGA by different states. MGNREGA has been helping rural households avoid poverty directly by providing employment at minimum wages to around 50 million households annually, and by raising rural wages in general indirectly helping a larger number of rural workers. However, the implementation of this major programme has varied considerably across states, thereby affecting its impact significantly. Annex Table 2 shows the 2012-13 implementation performance in the states. Many states did not fully utilize the funds allocated and failed to provide sufficient employment to rural households. Since the MGNREGA is an anti-poverty measure, the better measure of effectiveness is the proportion of rural poor households that have been assisted. It is also a good proxy of the efficiency of public services delivery. An index for this (proportion of rural households assisted as a proportion of the incidence of rural poor households) is provided in the last column of the Table. Several high poverty states such as Bihar, Odisha, Uttar Pradesh, Madhya Pradesh, Jharkhand and Assam appear not to have covered all the rural poor households in their states under the scheme. On the other hand, many states covered more than the proportion of poor rural households in the state. This index also shows a very close positive association with progress on the MDGs given by the MDG performance index based on the latest year.

Another good proxy of the efficiency of public services is the off-take of food grains from the PDS per poor person in a state – a well-managed state should be able to get more food for its poor than others. Figure 9 shows that Goa, the southern states as well as Jammu and Kashmir and Uttarakhand have done well on this indicator, while some states with high poverty have performed poorly. There is also a positive and very strong correlation of this index with the MDG performance indicator for the latest year.\(^{17}\)

\(^{17}\) The correlation coefficient is 0.69; and it is significant at the 1% level.
For improving the delivery of public services one would need to address several important issues critical for their effectiveness. These include effective participation of beneficiaries in design, implementation and monitoring of such services; smooth flow of funds, credible reporting, objective and timely evaluation of outcomes, linking a part of devolution with performance, properly targeting the services; making information available about service entitlements and standards; ensuring services are performed in time and in required quantity and quality; establishing effective grievance redressal mechanisms; professionalizing administration through fair and transparent recruitment, stable tenure, and enabling citizens to demand accountability from service providers (Bhargava, 2013). Effectiveness of public services in India would improve substantially if these features are incorporated within their design and implementation structure.

In most government programmes, the focus tends to be on collecting data on inputs, such as expenditure, staffing, training, infrastructure and equipment. What this information does not reveal, however, is what these investments yield in terms of the quality and quantity of services delivered, and the effect of service delivery on programme outcomes. Consequently, programme managers do not have the information that they need to assess whether the programme is reaching its objectives and whether corrective action needs to be taken. An outcomes-oriented
approach demands that there be a shift from an emphasis on measuring inputs and outputs (‘traditional M&E’) to measuring outcomes. Government should therefore promote an outcomes-oriented approach that shifts the focus from inputs to outputs and outcomes, focusing not only on expenditures but also on what is achieved with those expenditures. This outcome-based approach would also possibly lead to rebalancing the ratio in favour of professional staff who deliver the services such as nurses and doctors vis-à-vis administrative and peripheral staff.

Effectiveness of the delivery of public services is also affected by other factors, two of which are especially important: corruption and capacity of public officials. The former has become a matter of increasing public concern and will require major institutional changes and reforms in monitoring and audit of public programmes and schemes. Capacity, especially of many state and local governments in implementing public programmes is weak and mechanisms for cross-learning across states need strengthening. A wealth of information on best practices already exists and where these have not been adequately documented, they need to be prepared and disseminated. While training schemes for development staff abound, real hands on capacity development is not sufficiently undertaken. Officials who develop capacities by designing and implementing various development schemes are rarely loaned between states and local bodies. Greater emphasis should be provided to cross-learning and capacity development, particularly of state and local officials who actually implement MDG schemes. Given the enormity of the problem India faces, consideration may be also given to the suggestion to set up high level all-India specialist cadres on health and education, as already exist for general administration, policing and forests. Such personnel should be used to disseminate knowledge and good practices across the country.

iv) Basic infrastructure development

The expansion of basic services and their impact depends critically on the availability of basic infrastructure such as all-weather roads, transportation, electricity and telecommunications, for both rural and urban areas. Given rapid urbanization, basic urban infrastructure services are also needed, including urban housing and shelter for the poor, mass transport systems, water, drainage and sewerage - all crucial for making cities and urban areas liveable. Much of the achievement of the MDGs depend on availability of infrastructure support; as without roads and public transport children cannot go to school and expecting mothers cannot reach the health centres; and learning at home and in school, health services at health centres are all hampered without electricity. Better rural infrastructure – such as farm to market roads, storage facilities, market infrastructure, and irrigation - also increases rural productivity and incomes and thereby assists in reducing rural poverty. Although the importance of infrastructure in delivery of basic services and poverty reduction is well-known and well documented, except in the case of water and sanitation and telecommunications, the MDGs did not explicitly emphasize this aspect, within their indicator structure.
An example from the Indian context is illustrated in Figure 10. It shows the strong positive relationship between access to all-weather (surfaced) roads and proportion of births attended by health personnel.

Figure 10: Relationship between access to roads and proportion of births attended by skilled health personnel

![Graph showing the relationship between access to roads and proportion of births attended by skilled health personnel.](image)

Source: Authors’ calculations based on India, MOSPI, Statistical Yearbook 2014, and CES 2009.

The indicator for access to roads is a good proxy for provision of basic infrastructure in general, in a state. It shows a good association with the latest year MDG performance indicator for states,\(^\text{18}\) pointing to the importance of basic infrastructure for overall achievement of the MDGs. Another good proxy for infrastructure provisioning is the proportion of households with access to electricity. The relationship between access to households’ access to electricity and literacy levels is illustrated in Figure 11.\(^\text{19}\) It shows once again the importance of basic infrastructure for delivery of basic services such as education.

---

\(^{18}\) The correlation coefficient between kilometers of roads per 10,000 population and the latest year MDG performance index has a positive correlation of 0.72 which is significant at the 1% level, for the set of the all states (excluding the north eastern states of Sikkim, Arunachal Pradesh, Nagaland, and Mizoram).

\(^{19}\) A correlation of 0.52, significant at the 1% level is found between the literacy figures of states and percent of households electrified till 2011 from India, Census 2011. The slope of the regression line is also significant.
India faces a serious deficiency of basic infrastructure. For example, currently about 25% of all households in India have no access to electricity, while in other BRICS countries about 15% on average have no access, and in China virtually no households are without access. In India, road infrastructure remains poor and of the existing roads only about half are paved, while this is more than 60% for all other developing countries in Asia, as a whole.

Inter-state differences in MDG outcomes are also affected by variation in basic infrastructure development, particularly those that directly impact on the MDGs. There is considerable variation in the availability of basic infrastructure within the country. As Figure 10 illustrates, availability of surfaced roads is around 33 kilometres per 10,000 population in Kerala, whereas for Jharkhand the figure is less than 5 kilometres. As far as access to electricity is concerned, there is large variation in access to electricity as well, as shown in Figure 11. While more than 90% households have access in all the four southern states and in Punjab, Haryana and Gujarat, about half or less than half of the population has such access in West Bengal, Jharkhand, Odisha, Assam, UP and Bihar – in the last two states the proportion is as little as about a third or less (India, Census, 2011a). It is thus clear that non-availability of basic infrastructure, such as surfaced roads and electricity in some areas is slowing down the achievement of MDG targets.

Figure 11: Relationship between electricity access and literacy, 2011

Source: Authors’ calculations based on India, Census, 2011 data.

Access of households to electricity is deemed equivalent to households who use electricity for lighting, which is measured in the Census (India, Census, 2011a).
This is an issue that needs to be urgently addressed by the Government, both at the Centre and at the state level.

v) **Gender equality and empowerment of women**

Gender equality has been adopted as an important Goal (MDG 3) mainly in recognition of the need to uplift women who comprise half the population of countries but continue to suffer deprivations resulting from social and economic discrimination. Achieving gender equality and empowerment helps achieve the other MDGs i.e. apart from its intrinsic merits, gender equality has instrumental value by spurring development in general. This opposite direction of causality results from the large development impact, particularly the social development impact that women’s development brings about. The correlation between the Gender Empowerment Measure 2006 (see India, Ministry of Women and Child Development, 2009)\(^{21}\) for the various states of India and the MDG performance index prepared for this report shows a significant positive relationship,\(^{22}\) suggesting the important role women’s development plays in advancing the MDGs.

Promoting gender equality helps in reducing fertility and population growth, impacts child mortality; improves the nutrition, hygiene and health of households, children’s performance in schools, helps correct the allocation of household resources, and aids economic growth in general. Estimates have shown, for example, that the costs to countries of *not* having gender parity in primary and secondary education are high: significant increases are found in child mortality and incidence of underweight children as a result (Abu-Ghaida and Klasen, 2004). The FAO has pointed out that women in India own less than 10% of agricultural land and even when they are owners they do not have effective control in terms of right to sell or rent, etc.\(^{23}\) Lack of land ownership is a severe impediment to efficiency for women cultivators because in the absence of the title to land, women cannot get credit or be entitled to irrigation and other inputs, especially technology. Estimates by FAO show that more equal access to productive resources for female farmers could increase agricultural output in developing countries by 2.5% to 4% and contribute to reducing global hunger by 12% to 17% (FAO, 2011).

---

\(^{21}\) The GEM measure for India was prepared for 2006 by the Ministry of Women and Child Development and is based on three sub-indexes (i) political participation and decision-making power, which relied participation of women in national and state legislatures, panchayats, political parties and voting in elections; (ii) economic participation and decision-making power, which relied on participation on women in civil services, and enrolment in medical and engineering colleges; and (iii) power over economic resources; which was based on indicators relating to women’s share in land holdings, bank accounts, and ratio of estimated shares of females to males per capita incomes.

\(^{22}\) The association between the 2006 GEM and the latest year MDG performance index has a correlation coefficient of 0.47 which is significant at the 1% level.

A study also shows that South Asia’s larger gender gaps in education and labour force participation, compared to East Asia, have resulted in a 1.4% lower economic growth compared to East Asia (Klasen and Lamanna, 2009).

Women in India remain severely deprived, compared to other developing countries including several of India’s neighbours, and this is one of the crucial constraints to India’s future development. For example, the 2014 Human Development Report places India’s Gender Inequality Index (GII) at an unacceptably high level of 0.563 (UNDP, 2014). India is ranked 135th in the world and India’s index is almost twice the gender inequality index (0.333) of East Asia and the Pacific (EAP). India fares far worse than EAP in all gender inequality sub-indicators. For example, while the proportion of females aged 25 or older with at least secondary education was nearly 54.6% for EAP, it was just 26.6% for India, which was lower than in some other South Asian countries like Bhutan (34%) and Bangladesh (30.8%). In Sri Lanka, it was as high as 72.6%. While less than 30% of women above 15 years participated in the labour force in India – and evidence points to stagnation or even a decline in such participation, the participation rate was more than double in EAP (66.4%) and was again higher in several South Asian countries such as Nepal (79.9%), Bhutan (66.4%), Bangladesh (57.3%) and Sri Lanka (35.0%). Perhaps the most fundamental expression of gender inequality in India is the preference for sons over daughters. The Child Sex Ratio (CSR) in the age group 0-6 years has declined from 962 in 1981 to 927 (India Census, 2001) to 919 in 2011 (India, Census, 2011), owing to both the widespread use of sex determination tests, sex selective foeticide and the continued discrimination against girls after birth.

In some states, the condition of women is far worse than the national average and in many states the performance differs between the particular gender dimension that is being measured. Generally among the larger states, those with high aggregate Gender Empowerment Measure (GEM) scores24 include the four southern states (Kerala, Karnataka, Tamil Nadu and Andhra Pradesh), Maharashtra, and the northern states of Punjab, Haryana and Himachal Pradesh. However, two of the more developed states, Haryana and Punjab with high aggregate GEM scores, are ranked among the bottom five states based on their extremely unnatural child sex ratios, with 834 and 846 girls born for every 1,000 boys respectively (India, Census, 2011b).

Such paradoxes are not uncommon in India. Deeper analysis is therefore required to assess the overall progress on gender issues in a particular state. States that have fallen behind have much catching up to do, in order to improve both the condition and status of women and thereby contribute to their overall social and economic development. While improvements in gender equality and women’s empowerment are taking place, these need to be speeded up. For example, many more girls, are in education and in jobs and women are participating in larger

24Note that the GEM is measured by the Government of India is similar to the United Nations GEM measure which has now been replaced by the Gender Inequality Index in Human Development Reports.
numbers in local government bodies and in *gram panchayats*; women’s self-help groups have made major contributions to reducing poverty. However, much greater and more sustained effort will be necessary to eliminate gender inequality from India’s society, economy and polity. In that context, the Government’s *Beti Bachao-Beti Padhao* campaign is a timely initiative to save and educate and empower girls.

5. Concluding remarks

This paper has attempted to make an assessment of India’s performance and that of the states on the MDGs based on the latest available data released so far. An objective methodology has been used for this purpose. The paper has shown that taking India as a whole, while significant progress has been made in many critical areas of development; major weaknesses have remained in vital areas such as primary education, child health, sanitation and gender empowerment. MDGs therefore remain an unfinished agenda for India.

The paper also attempted to analyse the performance of the individual states. While improvements have been made by all, the pace of progress has in several cases been insufficient if the MDG targeting norms are employed. Also, that some states were able to make much more progress than others indicates the gaps in performance that lagging states may have to fill. As the overall Indian MDG performance will depend critically on efforts by individual states, much more effort is still needed in the lagging states for the overall objective of inclusiveness in India’s development to be achieved. In particular, more focus is needed on the 10 states identified as lagging with particular focus on the Goals they are lagging. India can improve performance by helping the weaker states emulate the good performers. While factors specific to each of the MDGs are important for achievement of the targets, the paper has identified five key “drivers” explaining the performance of States that may help closing the gaps include accelerated broad-based and employment creating economic growth, higher resources channeled into basic services such as education and health, effective delivery of public services, extended basic infrastructure networks such as roads and electricity for better access to basic services by rural folks, and promotion of gender equality and empowerment of women that affect the outcomes of other goals.

As the MDGs reach their December 2015 deadline, a new set of transformative and universal Sustainable Development Goals (SDGs) have been adopted by the world leaders at the United Nations Summit in September 2015, as a culmination of an extensive process of consultation at different levels. The new SDGs seek to ensure that the momentum generated by the MDGs is carried forward beyond 2015 to provide a life of dignity to all. Building on the MDGs, the SDGs propose to end poverty and deprivation in all forms, leaving no one behind, while making development economically, socially and environmentally sustainable.
The proposed SDGs cover 17 goals and 169 targets to be achieved by 2030. These include the unfinished MDG agenda covering poverty, hunger, education, health, and other basic needs, gender equality, along with some of the cross-cutting issues or “drivers” such as inclusive growth, industrialization, and employment creation, recognizing their critical role. They also include some goals to enhance the ecological sustainability of development and resilience to natural disasters. Finally they include a reinvigorated and strengthened global partnership for development.

At this time of transition from MDGs to SDGs, the responsibility of steering development in India has been passed on to the new Government. There is now a remarkable convergence of vision underlying the SDG priorities and those of the Government which has adopted the principle of Sabka Sath, Sabka Vikas (“Together with all, development for All”), and has stated that the “first claim on development belongs to the poor.” More than ever before, the Government is calling for improved sanitation (through its Swachh Bharat Abhiyan), health, education, financial inclusion (Pradhan Mantri Jan Dhan Yojana), security and dignity of all, especially women (Beti Bachao-Beti Padhao). It is seeking to create decent jobs through Skill-India and Make-in-India missions while strengthening key existing anti-poverty programmes such as MGNREGA. The Government is simultaneously prioritizing improving environmental development by treating the challenge of climate change as an opportunity rather than a problem and has quintupled the target for solar power to 100 GW by 2022.

Besides building a national consensus to pursue SDGs to provide a life of dignity to all its people, India could also assist fellow developing countries in the neighbourhood and beyond in achieving SDGs through regional and South-South Cooperation as a part of the global partnership. India has been an early pioneer of South-South Cooperation and has shared its valuable development experiences with other countries for decades. The new Government has shown its resolve to take this engagement to a new higher level to develop mutually beneficial partnerships.

Given India’s sheer size and huge share in the world’s population, it assumes a critical role in reducing the global burden of poverty, hunger, malnourishment, illiteracy, disease and gender discrimination, among other core development challenges. For 2015 and beyond, the world will be watching how India will implement its new strategic direction and the concrete actions and achievements it can make to provide a sustainable future for all as it emerges as one of the largest and the most dynamic economies of the world and an anchor of the Asian Century.
References


Statistical Annex:

Data and methodology

Indicators. The MDGs contain 45 indicators under Goals 1-7 which relate mainly to country level action. Goal 8 indicators are not of much relevance as they concern international cooperation. Even among the 45 indicators which involve national efforts, reliable data is not available for many. This paper therefore proposes to focus only on the indicators where sufficient data is available to be able to make an assessment. As fortunately these are the most crucial indicators too, an overall assessment of performance based on them provide a good basis for analysing how well India and the individual states have done towards achieving the MDGs.

The official goals, targets and indicators for the MDGs are detailed in the United Nations Millennium Development Goals database. The Government of India monitors a selected set of MDG indicators. Some indicators monitored by India are identical to the official MDG indicators, for example the under-five mortality rate. Other indicators are monitored by India and correspond, but are not identical to, official MDG indicators. For example, in case of the official United Nations indicator 1.8, “prevalence of underweight children under-five years of age,” India monitors the proportion of underweight children below 3 years, due mainly to technical difficulties in obtaining data for under 5 years across surveys that contain different age categories. However, in recent surveys the government has started collecting information on underweight prevalence in children below age 5, in line with the official MDG indicator (Rapid Survey on Children, 2013-14; NFHS – 4 which is currently underway). Some indicators, such as the employment to population ratio, the adolescent birth rate and the unmet need for family planning are not monitored by India.

The primary sources of data used for assessing MDG performance at the all-India aggregative level and at the state level are various annual publications of the Ministry of Statistics and Programme Implementation (MOSPI), Social Statistics Division entitled Millennium Development Goals: India Country Report including the latest 2015 report. Use of relevant official data beyond that available in this MOSPI report have also been included. Analyses in this paper are based on data available up to the end of August 2015.

The methodology for assessing MDG progress in this paper is taken from that adopted by the regional partnership on the MDGs consisting of United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), United Nations Development Programme (UNDP) and the Asian Development Bank (ADB) in their Asia-Pacific Regional MDG Report series. It differs in some respects to that employed by MOSPI as presented in its Millennium Development Goals: India Country Report.

---

26 See http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/asia-pacific/
Development Goals, India Country Report 2015 (see India, Ministry of Statistics and Programme Implementation, 2015, pp.164-167). Below is a summary of our methodology as adapted for assessing performance of India and the states; details are available in the regional MDG report series referred to.

Categorization of MDG progress. One way of measuring progress in each indicator for India as well as for each state is to use a “traffic light” approach where progress is categorized in one of four ways:

1. *Early achiever*: Already achieved the 2015 target value
2. *On track*: Expected to meet the target by 2015, following the same path
3. *Off track, slow*: Expected to meet the target, but after 2015
4. *Off track, regressing/no progress*: Slipping backwards or stagnating

Some MDG targets are explicit (such as reducing the incidence of poverty by half from the 1990 value by 2015; or reducing maternal mortality rate by three quarters). To categorize performance, a likely estimated value for the indicator in 2015, based on the trend rate of the observations is calculated and then compared to the target value.

On the other hand, some MDG indicators have no explicit target value, but call for only halting and reversing course: such as prevalence of diseases like HIV/AIDS where a halting or decrease is necessary (to reduce negative effects); or halting and increase is stipulated, such as for halting the loss of forest cover, (to increase positive effects.) In these cases only three categories of progress apply: *Early achiever, On track* and *Off track, regressing.*

Cut-off values. It is not always possible to fully achieve a target owing to the functional forms of the trend lines fitted to approximate progress on an indicator (such as for trend lines which are assumed to take logarithmic or logistic form). For some indicators the target is approached asymptotically (e.g. enrolment rate of 100%). In other indicators, the precision for trend and value of the measurement of the indicator declines when the value is very small, thus making measurement of progress difficult. These require the setting of cut-off values. For example, the cut-off value for the reduction in poverty is 2% as that is usually the lowest level reported on this indicator; while in the case of primary school enrolment the cut-off value is 95% instead of 100%. For categorizing progress in these cases, the indicator is assumed to reach the target if the cut-off value is achieved. The cut-offs employed in this paper are listed in Annex Table 1.

Addressing data gaps. The calculation of the trend growth rates and estimates requires for each indicator at both national and state levels, at least two data points, a minimum of three years apart. If these are not available that particular indicator is not assessed. The baseline value for
Assessing India’s Progress in Achieving the Millennium Development Goals
September 2015

each MDG indicator is the observation for 1990 where data is available. If no observation exists for 1990, the observation for the nearest year is used if data exists for any period between 1991 and 1994. For indicators that have a specific target value, (e.g. poverty reduction), and where no observation exists before 1995, a trend growth rate of the existing data is used to back-cast and estimate a value for 1990. This value then becomes the basis for the determination of the 2015 target for cases where explicit target values are specified.

In some cases the number of sample observations for back-casting differs across different states due to dissimilar data availability across states. In such cases, estimates for 1990 or 2015 may be based on differing sample sizes. For example, for the infant mortality indicator, states including Chhattisgarh and Jharkhand the 1990 likely and target estimates are derived from available data between only 2006 and 2013; but for all other states reported, observations include values between 1990 and 2013.

**Performing appropriate transformations to derive a trend growth rate and forecasting.** The MDG indicators can be divided into three types: (i) indicators that are proportions or probabilities such as the proportion of the population below the poverty line; (ii) indicators that are odds ratios such as gender parity in education at primary, secondary and tertiary level; and (iii) indicators such as CO2 emissions that are neither probabilities nor odds ratios. For (i) a logistic transformation is used; and for (ii) a logarithmic transformation is used. No transformation is used for type (iii) indicators. Thereafter a linear regression is used on the transformed variables for forecasting and back-casting. Once the estimated values are determined for likely 2015 achievement, and if necessary for 1990 back-casting, a reverse transformation is applied to the estimate.

**States studied:** The paper includes estimates of 29 Indian States, including the National Capital Region of Delhi, for each of the indicators where data is available. The state of Telengana was officially created on 2 June 2014 and for the purposes of this paper, data is combined with the state of Andhra Pradesh. Union Territories and Islands are not included in this report due to low reporting and data availability. However, the India (Total) figures for each indicator include data on all available states and territories for each particular indicator.
Annex Table 1: Target, Cut-offs and Transformation

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Cut-off</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty Headcount</td>
<td>Half 1990 value</td>
<td>2</td>
<td>Logit</td>
</tr>
<tr>
<td>Underweight children</td>
<td>Half 1990 value</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Primary enrolment</td>
<td>100</td>
<td>95</td>
<td>Logit</td>
</tr>
<tr>
<td>Survival rate</td>
<td>100</td>
<td>95</td>
<td>Logit</td>
</tr>
<tr>
<td>Youth literacy</td>
<td>100</td>
<td>95</td>
<td>Logit</td>
</tr>
<tr>
<td>Gender parity in primary education</td>
<td>1</td>
<td>0.95</td>
<td>Log</td>
</tr>
<tr>
<td>Gender parity in secondary education</td>
<td>1</td>
<td>0.95</td>
<td>Log</td>
</tr>
<tr>
<td>Gender parity in tertiary education</td>
<td>1</td>
<td>0.95</td>
<td>Log</td>
</tr>
<tr>
<td>Under 5 mortality</td>
<td>Reduce to $\frac{1}{3}$ of 1990 value</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>Reduce to $\frac{1}{3}$ of 1990 value</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Maternal mortality</td>
<td>Reduce 1990 mortality rate by $\frac{3}{4}$</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Skilled birth attendance</td>
<td>Reduce 1990 unattended birth- rate by $\frac{3}{4}$</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Adult HIV prevalence</td>
<td>Reverse the trend</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Malaria incidence</td>
<td>Reverse the trend</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Tuberculosis prevalence</td>
<td>Reverse the trend</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Improved drinking water</td>
<td>Half 1990 value (of those without access)</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Improved sanitation</td>
<td>Half 1990 value (of those without)</td>
<td>None</td>
<td>Logit</td>
</tr>
<tr>
<td>Forest cover</td>
<td>Reverse the trend</td>
<td>None</td>
<td>Logit</td>
</tr>
</tbody>
</table>

## Annex Table 2: Performance of states on MGNREGA 2012-13 and the MDG Performance Index

<table>
<thead>
<tr>
<th>States</th>
<th>MDG Performance Index</th>
<th>Percentage of funds utilised (%)</th>
<th>Proportion of rural households provided work (%)</th>
<th>Incidence of rural poverty (%)</th>
<th>Proportion of rural households provided work as proportion of rural poor households (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goa</td>
<td>0.78</td>
<td>28</td>
<td>4.1</td>
<td>6.8</td>
<td>60.2</td>
</tr>
<tr>
<td>Kerala</td>
<td>0.75</td>
<td>99</td>
<td>37.8</td>
<td>9.1</td>
<td>413.9</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>0.72</td>
<td>89</td>
<td>74.1</td>
<td>15.8</td>
<td>467.9</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>0.66</td>
<td>88</td>
<td>38.7</td>
<td>8.5</td>
<td>456.1</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>0.65</td>
<td>99</td>
<td>41.6</td>
<td>11</td>
<td>379.5</td>
</tr>
<tr>
<td>Punjab</td>
<td>0.64</td>
<td>91</td>
<td>7.1</td>
<td>7.7</td>
<td>92.7</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>0.64</td>
<td>91</td>
<td>10.5</td>
<td>24.2</td>
<td>43.2</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>0.63</td>
<td>95</td>
<td>44</td>
<td>11.5</td>
<td>381.6</td>
</tr>
<tr>
<td>Gujarat</td>
<td>0.60</td>
<td>70</td>
<td>9.7</td>
<td>21.5</td>
<td>45.2</td>
</tr>
<tr>
<td>Karnataka</td>
<td>0.60</td>
<td>82</td>
<td>16.5</td>
<td>24.5</td>
<td>67.4</td>
</tr>
<tr>
<td>Haryana</td>
<td>0.59</td>
<td>94</td>
<td>9.6</td>
<td>11.6</td>
<td>82.1</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>0.58</td>
<td>96</td>
<td>31.7</td>
<td>11.6</td>
<td>273</td>
</tr>
<tr>
<td>West Bengal</td>
<td>0.58</td>
<td>94</td>
<td>42.6</td>
<td>22.5</td>
<td>189</td>
</tr>
<tr>
<td>Assam</td>
<td>0.48</td>
<td>96</td>
<td>22.6</td>
<td>33.9</td>
<td>66.6</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>0.48</td>
<td>82</td>
<td>61.1</td>
<td>44.6</td>
<td>137</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>0.47</td>
<td>82</td>
<td>44.6</td>
<td>16.1</td>
<td>278</td>
</tr>
<tr>
<td>Orissa</td>
<td>0.47</td>
<td>83</td>
<td>19.9</td>
<td>35.7</td>
<td>55.6</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>0.45</td>
<td>86</td>
<td>32.3</td>
<td>35.7</td>
<td>90.3</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>0.44</td>
<td>50</td>
<td>57.4</td>
<td>38.9</td>
<td>147.5</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>0.37</td>
<td>80</td>
<td>19.3</td>
<td>30.4</td>
<td>63.6</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>0.34</td>
<td>79</td>
<td>30.2</td>
<td>40.8</td>
<td>73.9</td>
</tr>
<tr>
<td>Bihar</td>
<td>0.30</td>
<td>74</td>
<td>12.4</td>
<td>34.1</td>
<td>36.4</td>
</tr>
</tbody>
</table>


*Note:* It is being assumed that the incidence for households in poverty in rural areas can be approximated by these estimates of headcount ratio.