Status and Trends in Provision of Safe Drinking Water and Sanitation in India: Evidence from Census

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Abstract

In India, unsafe water, poor sanitation and unhygienic conditions claim the lives of around 0.5 million children annually under the age of 5 years mainly from diarrhoea. The objective of this paper is to assess the level, trend, progress rate differential in accessibility and availability of safe drinking water and basic sanitation facility within premises across the country. Latest census of India, 2011 data on sources of drinking water and toilet facility was utilized to study above mentioned variables. In terms of level of rural-urban differential in access to safe drinking water in the households in India, in 1981, 26.5% households in rural India and 75.1% households in urban India, depicting a huge gap of around 49% point in access to safe drinking water. But, over the period of time this gap has also declined to 26% point in 1991 to only 8.7% point in 2011. It also examines the association between diarrhoea among children under 5 years of age and other variables such as water, sanitation, various socio-economic and demographic characteristics of Indian households. Further, the paper provides critical insights into coverage of basic sanitation and safe drinking water supply. India is “on track” to meet the target on access to safe drinking water with sharp reduction in urban-rural disparities. But so far as sanitation facility is concerned, India is lagging far behind its set targets. The paper recommends intensive mobilization of resources to reduce the vast coverage gap in sanitation in our country.

Keywords: Drinking water, Sanitation, Census, Urban, Rural, India

Background

Global Scenario in Water and Sanitation

Safe drinking water and sanitation are crucial for public health. In 2010, the UN General Assembly recognized access to safe and clean drinking water and sanitation as a human right, and called for international efforts to help countries to provide safe, clean, accessible and affordable drinking water and sanitation. Though the world is on track to achieve the goal of safe drinking water, but some 2.4 billion people still do not have toilets or covered latrines. On sanitation front, by the end of 2012, 64% of the global population used improved sanitation facilities, a rise of 15%age points since 1990.¹ However still, 2.4 billion people-two-thirds of whom live in Asia and a quarter in sub-Saharan Africa-still use unimproved sanitation facilities. There are 46 countries where at least half the population is not using an improved sanitation facility.² Despite progress, the 2015 Millennium Development Goal target to halve the proportion of the population without access to improved sanitation facilities was missed by almost 700 million people.³

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How to cite this article: Jaiswal V, Joon V. Status and Trends in Provision of Safe Drinking Water and Sanitation in India: Evidence from Census. *Epidem Int* 2017; 2(2): 18-23.

Digital Object Identifier (DOI): <https://doi.org/10.24321/2455.7048.201707>

ISSN: 2455-7048

Reduction of waterborne diseases is a major public health goal in developing countries. Access to safe drinking water and sanitation is not only an important measure of the socio-economic status of the household but it is also fundamental to the health of its members. Infectious agents are the health concerns associated with wastewater and excreta. Waterborne diseases are leading causes of mortality and morbidity in developing countries.⁴ Lack of clean water, inadequate sanitation and poor hygiene practices are among the underlying causes of child deaths and illness. Some 842,000 people in low- and middle-income countries die as a result of

inadequate water, sanitation and hygiene each year, representing 58% of total diarrhoeal deaths. Poor sanitation is believed to be the main cause in some 280,000 of these deaths.⁵ Diarrhoea remains a major killer but is largely preventable. Better water, sanitation and hygiene could prevent the deaths of 361,000 children aged under 5 each year. Open defecation perpetuates a vicious cycle of disease and poverty. The countries where open defecation is most widespread have the highest number of deaths of under-5s as well as the highest levels of malnutrition and poverty, and big disparities of wealth.¹

Water and Sanitation Scenario in Neighbouring Countries

Table 1. Status of Water and Sanitation Scenario in Neighbouring Countries

Country	Access to Improved Water Source	Access to Improved Sanitation Facility
Afghanistan	48.0	37.0
Bangladesh	80.0	53.0
Bhutan	92.0	85.0
India	91.4	47.6
Maldives	91.0	98.0
Nepal	83.0	86.0
Pakistan	87.0	66.0
Srilanka	90.0	91.0

Source: Central Bureau of Statistics Government of Nepal National Planning Commission Secretariat.⁶

With more than 80% drinking water coverage, India and its neighboring countries had almost met their MDG drinking water target of 87% well ahead of 2015, except Afghanistan. Five countries have already met the MDG drinking water target, while another three are on track for doing so.⁷

To meet the MDG sanitation target, coverage needs to increase from 67% in 2006 to 75% in 2015. Three of our neighboring countries have already met the MDG sanitation target, two are on track for doing so, and others are not on track. To reach the MDG sanitation target, 10.3 million people need to gain access to an improved sanitation facility. It is ironical that most of India's neighbors have better sanitation record.

Water and Sanitation Scenario in India

India has made steady progress in reducing deaths in children younger than 5 years, with total deaths declining from 2.5 million in 2001 to 1.5 million in 2012. Even though the deaths among children under 5 years have declined, the proportional mortality accounted by diarrheal diseases still remains high. Diarrhea is the third most common cause of death in under 5 children, responsible for 13% deaths in this age group, killing an estimated 300,000 children in India each year.⁸ Research studies estimate a 6-25% decrease in diarrhoea

morbidity by improving water supply, 32% reduction by improving sanitation, 47% reduction by hand washing with soap and 35% reduction with point-of-use microbial water treatment. Human excreta have been implicated in the transmission of many other infectious diseases including cholera, typhoid, infectious hepatitis, polio, and ascariasis. India too is on track with 82.7% rural and 91.4% urban populations having sustainable access to safe drinking water.⁹ South Asia and India doubled their coverage in improved sanitation between 1990 and 2004. Census of India, 2011 shows that still around 70% of India's rural and slum population (650 million) are exposed to water-borne and vector-borne diseases due to lack of basic sanitation facility, unsafe water and unhygienic conditions.

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drinking water with 93% of the population having access to an improved source of water, it is far from achieving its target for improved sanitation facilities with 792

million people still living without access to improved sanitation facilities in 2012, according to recently released World Health Organization report.²

Access to Safe Drinking Water in Households in India

Source: Census 2011

Figure 1. Access to Safe Drinking Water in Urban and Rural Households in India

According to 2011 Census data, overall 87% of households in India were using tap, tube well, hand pump and covered well as source of drinking water. Further, the data shows that tap water (treated plus untreated) was the major source of drinking water with access to 43.6% household in India followed by hand-pump/tube-well/borehole (42%), well (covered plus

uncovered) -11%. In rural India, hand-pump/tube-well/borehole (51%) was the leading source followed by tap water (treated-18% and untreated-13%) and well (covered-1.5% and uncovered-12%) as the main source of drinking water in their households, whereas in urban India, tap water (treated-62% and untreated-8.6%) was the main source of drinking water in 2011.

Figure 2. Trends in Access to Safe Drinking Water in Households in India

As shown in Fig. 2, India has progressed in access to safe drinking water (tap/hand-pump/tube well) in the household from 38% in 1981 to 85.5% in 2011. In terms of level of rural-urban differential in access to safe drinking water in the households in India, in 1981, 26.5% households in rural India and 75.1% households in urban India had access to safe drinking water, depicting a huge gap of around 49% point. But, over the period of time

this gap has also declined to 26% point in 1991 and further declined to only 8.7% point in 2011.

Access to Sanitation facilities in Households in India

Sanitation includes interventions for the safe management and disposal/re-use of waste. The delivery

of safe sanitation services includes infrastructure, associated behaviors and a requisite enabling environment. Lack of adequate sanitation is a pressing challenge in both rural and urban India. Sanitation-related diseases take a heavy toll of lives and are a drain on

productivity and incomes impacting economic progress. India over the last decade has made rapid strides in sanitation. The country aims to achieve total sanitation by the year 2022.

Figure 3.(a) & (b) Access to Sanitation Facilities in Urban and Rural Households in India as per Census 2011

Figure 3 shows the status of sanitation facilities in urban and rural households. It is seen from the figure that while the urban sanitation coverage in the country is around 81%, the rural sanitation coverage is only 32.7%, which calls for more focused interventions. The 2011 Census of India found that almost 50% of nearly 250

million households surveyed had toilet facilities on the premises, but many more of these (81%) were urban households and fewer (31%) were rural households. It is high time to think of the innovative methods to bridge this huge gap in coverage in urban versus rural areas.

Figure 4. Access to Sanitation Facilities in Households in India in 2001 and 2011 Census

During the census, the responses of people on sanitation facility were categorized into three according to distance they have to travel to avail a toilet facility:

- Within the premises: If the source was located within the premises where the household lived.
- Near the premises: If the source was located within a range of 100 meters from the premises in urban areas and within a distance of 500 meters in case of rural areas.

- Away: If the source was located beyond 100 meters from the premises in urban areas and beyond 500 meters in rural areas.

According to census 2001, 64% of total households in India had “no toilet facility within premises” and more than 60% population practiced open defecation. Evidences from census, 2011 depict that only 53% households in India had no toilet facility within premises and close to half of India’s population were still

practicing open defecation. Considering the size of the country, and regional variations, India has made significant strides in the drinking water arena. But on sanitation front, the country still has many challenges that need to be addressed.

Impacts of Inadequate Water and Sanitation

The lack of access to safe drinking water and to basic sanitation hampers economic development, slows down the progress towards gender equality and puts the health in danger. This is being discussed in detail as follows:

1. **Health-related impacts and Cost of treatment:** inadequate water supply and sanitation results in increased health risks for the population and a higher morbidity and mortality due to water related diseases. Premature deaths, costs of treating diseases; productive time lost due to people falling ill, and time lost by caregivers who look after them add economic cost to the family. Improved water quality will reduce the health risks and also the costs of preventing and treating ill family members. Furthermore, the reduction of working days lost to water-related diseases will also have a positive impact on the household's income situation.
2. **Poverty and Hunger:** Inadequate sanitation leads to a number of financial and economic costs including, increased medical costs as well as lost income through reduced or lost productivity. Assuring water supply for the households has significant consequences both in terms of time and monetary costs. At the same time, Improving water supply and sanitation will have a positive impact on the individual income and poverty situation of the household. Reducing the time and energy burden of water collection by providing safe water within premises will enable household members to engage in other income-generating and productive activities.
3. **Primary Education:** Improved water supply and sanitation facilities exert their positive impact on primary education through several channels. Relieving girls from their water-fetching duties can improve their school attendance as can the installation of separate sanitation facilities at the schools. Both boys' and girls' school attendance and educational achievements improve significantly with reduced health risks and better nutritional status from improved water supply and sanitation as well as reduced injuries and strain from water carrying, in particular for girls. Chronic early childhood diarrhea can result in permanent effects

on brain development with the resulting impact on a child's learning achievements.

4. **Gender Equality:** In most societies, ensuring the household's water supply falls under responsibility of the women. Considerable time and energy are spent daily on collecting water and caring for family members suffering from water-related illnesses. Improving water supply and sanitation impacts positively on women's living conditions by giving them more time for productive endeavors, adult education, empowerment activities and leisure. At the same time, reducing the distance to the water supply and sanitation facilities will also improve the security and safety and reduce the risk of harassment. Improved water, sanitation and hygiene impacts on the socio-cultural position of women and has the potential to provide them with privacy and dignity as well as increased status within the family and wider community. Female representation on water boards and user committees strengthens the role of women in society and has far-reaching socio-cultural impacts.
5. **Tourism Impacts:** Potential loss of tourism revenues and economic impacts of gastrointestinal illnesses among foreign tourists can give them a bad impression of a country thus adversely affecting its tourism prospects.

Conflict of Interest: Nil

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Date of Submission: 19th Jun. 2017

Date of Acceptance: 22nd Jun. 2017