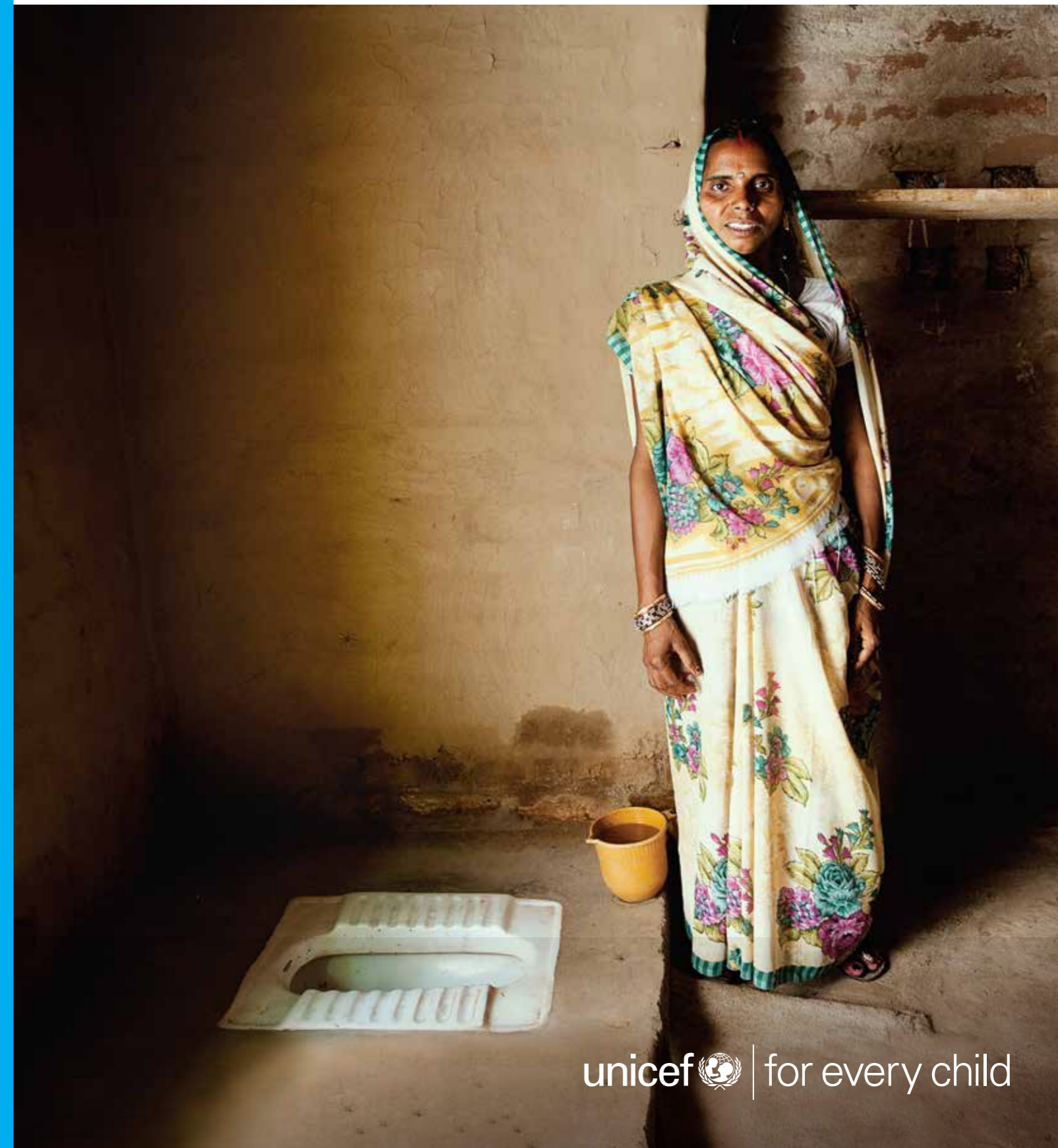


# SUMMARY REPORT

The Financial and Economic Impact  
of Swachh Bharat Mission in India



unicef  | for every child

India Country Office, UNICEF House, 73 Lodi Estate, New Delhi – 110003, India  
Telephone: +91 11 24691410 | Web: [www.unicef.in](http://www.unicef.in) | [@unicefindia](https://twitter.com/unicefindia) [/unicefindia](https://facebook.com/unicefindia)

unicef  | for every child

## Interim report on SBM costs and benefits

UNICEF was requested by the Ministry of Drinking Water and Sanitation to conduct a study to assess the economic impacts of the Swachh Bharat Gramin in rural areas. Key findings were as follows:

- On an average households in ODF villages accrued cumulative benefits of Rs.50,000 per year
- Households with a toilet saw a property increase of Rs.19,000
- On an average, total benefits exceed costs by 4.7 times for households

UNICEF implemented an independent survey on a sample of 18,376 respondents representing 10,068 rural households, randomly selected from 550 Gram Panchayats across 12 states accounting for 90% of open defecation in India. The survey was carried out from 20 July – 11 August 2017. This interim reports provides an overview of key findings, showing differences between population ‘quintiles’ reflecting household wealth, based on an asset index.

### SBM Costs per wealth quintile

To estimate SBM (G) costs, the study considered three types of expenditures:

- 1) Financial costs paid by household from own funds. On average: INR 9,942 was spent by those receiving government support, and INR 29,900 by those not receiving any government support, thus averaging INR 16,262 across all households. Spending on operations and maintenance (O&M) costs averaged INR 2,359 per year (see columns labelled 1. in table).
- 2) Financial investment from the government. 70% of sampled households reported to have received support for capital investment. The financial incentive to these households averaged INR 11,800 per household, or an average of INR 8,199 per household across all households obtaining latrines. In addition, the average software cost is estimated at INR 960 per household= (8% of INR 12,000).
- 3) Non-financial costs covered by household included time in building, cleaning and maintaining the latrine (see columns labelled 3. in table). Time is valued at the rural wage rate of INR 250 per day.

| Group   | 1. Financial costs paid by household from own funds |            | 2. Financial costs paid by government and household |            | 3. Non-financial costs (time) covered by household |            |
|---------|---|------------|---|------------|--|------------|
|         | Investment  | Annual O&M | Investment  | Annual O&M | Investment   | Annual O&M |
| All     | INR 16,626  | INR 2,359  | INR 25,785  | INR 2,359  | INR 1,007  | INR 6,082  |
| Poorest | INR 6,971   | INR 1,743  | INR 17,622  | INR 1,743  | INR 1,192  | INR 4,189  |
| Q2      | INR 13,874  | INR 2,286  | INR 23,659  | INR 2,286  | INR 917  | INR 5,104  |
| Q3      | INR 16,499  | INR 2,397  | INR 25,842  | INR 2,397  | INR 803  | INR 5,958  |
| Q4      | INR 19,160  | INR 2,653  | INR 27,923  | INR 2,653  | INR 744  | INR 6,772  |
| Richest | INR 26,613  | INR 2,752  | INR 33,801  | INR 2,752  | INR 895  | INR 8,650  |

The table shows cost data for five quintiles as well as overall. It is clear that households from poorer quintiles spent less of their own resources and received more government support: 82% of households in poorest quintile received government support compared to 53% in the richest quintile. Consequently, the poorest households received about INR 3,500 more, on average, than the richest households. Poorer households also invested more of their own time in toilet construction (see investment column labelled 3. in table).

<sup>1</sup>Andhra Pradesh, Assam, Bihar, Jharkhand, Bihar, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh

## SBM Benefits per wealth quintile

The study results presented below considered 4 types of benefit that accrue to households from having a household latrine and using it. A fifth type, reuse/recycling of excreta and organic waste, is also expected to provide an important benefit which will be analysed in a separate study.

- 1) Medical costs averted: financial savings from paying less medical costs based on reductions in illness episodes (average INR 8,024 per household per year).
- 2) Value of time savings: reduced time lost from sickness and seeking a place for open defecation (average INR 24,646 per household per year).
- 3) Value of saved lives: economic value of saved lives due to lower mortality rates (average INR 17,622 per household per year).
- 4) Property value: Rs 18,991 per household was estimated as the average increase in property value from having a latrine, made by the household occupants. In the analysis, it is a one-off cash benefits that is assumed to accrue at the end of a 10 year period.



Medical costs averted



Value of time savings



Value of saved lives



Property value

| Group   | Annual benefits at 100% latrine usage |                       |                      |            | Property value (one-off benefit) |
|---------|---------------------------------------|-----------------------|----------------------|------------|----------------------------------|
|         | Medical costs averted                 | Value of time savings | Value of saved lives | Total      |                                  |
| All     | INR 8,024                             | INR 24,646            | INR 17,622           | INR 50,482 | INR 18,991                       |
| Poorest | INR 6,599                             | INR 21,466            | INR 20,184           | INR 48,613 | INR 11,757                       |
| Q2      | INR 5,940                             | INR 24,869            | INR 18,853           | INR 49,781 | INR 16,884                       |
| Q3      | INR 7,278                             | INR 23,361            | INR 16,650           | INR 47,289 | INR 18,698                       |
| Q4      | INR 8,961                             | INR 26,337            | INR 15,665           | INR 51,246 | INR 20,808                       |
| Richest | INR 13,182                            | INR 28,614            | INR 16,813           | INR 58,905 | INR 26,144                       |

<sup>2</sup>There is indeed considerable potential to safely reuse human excreta in India, given the survey found 40% of households to have a double pit latrine. However, when asked, only 14.5% of households said they plan to use it as a compost in their plot and 0.6% plan to sell it. Currently 80% of households with animals reuse the animal excreta in some way, and 40% of households compost their organic waste. Hence there is still some potential for closing the sanitation value chain, and reusing more household and farm waste. However, it will need more in-depth scientific study to value these waste accurately. For adults, if they say they lost income, then that income was recorded.

<sup>3</sup>For other adults, value of time was INR 250 per day (rural unskilled wage, NREGS). For children of school age, 50% of rural wage was used.

## SBM Cost-Benefits

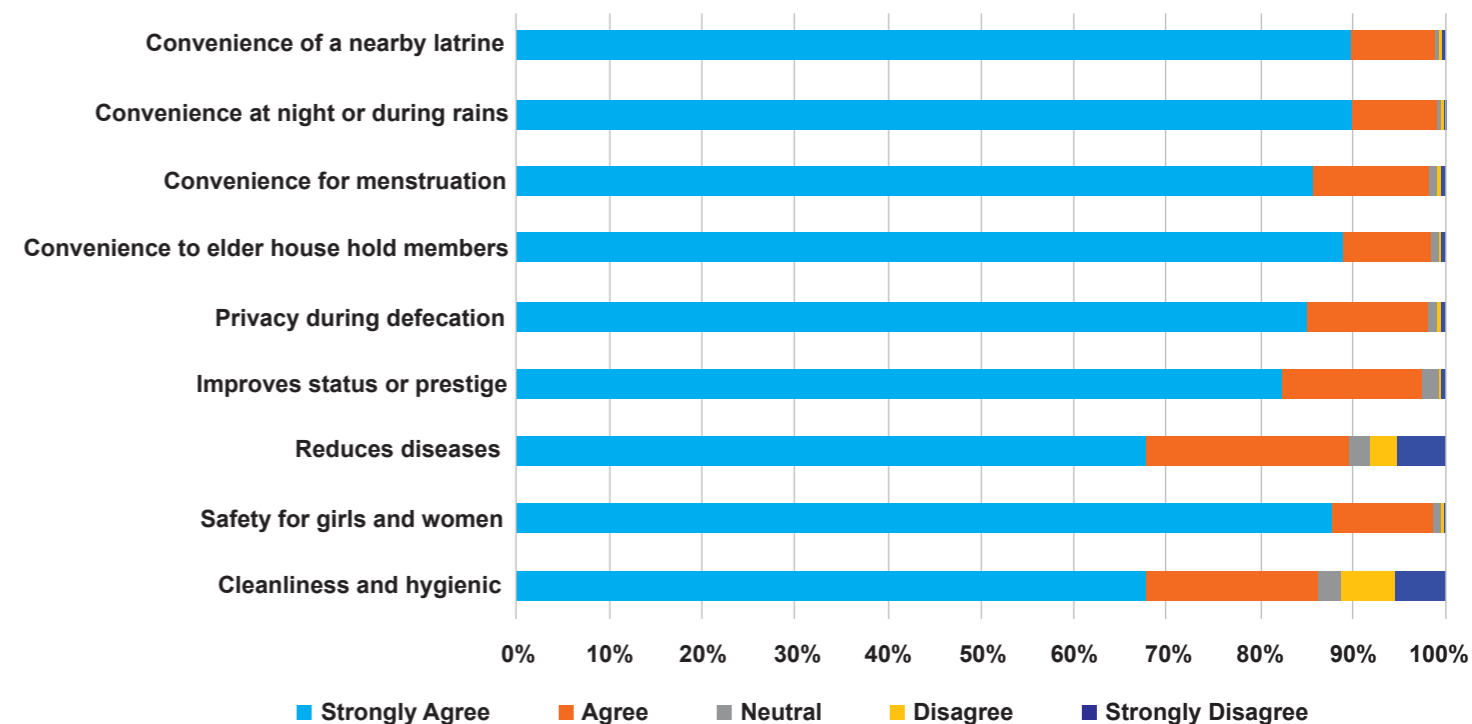
When costs and benefits are compared over a 10 year time period<sup>3</sup>, the financial savings exceed the financial costs to the household by 1.7 times, on average. For the poorest households, the value is higher at 2.4 times (see column 1. in table).

When household time savings (from closer latrine access and less sickness) and the time for cleaning and maintaining the latrine are valued, the benefits exceed costs by 3.0 times (see column 2. in table). When benefits of lives saved are included, the benefits exceed costs by 4.7 times (see column 3. in table). If the government contribution to the latrine cost is included, reflecting a broader societal perspective, the benefits exceed costs by 4.3 times (see column 4. in table).

| Group   | 100% Use of sanitation and hygiene facilities |   |  |   |
|---------|---|---|--|---|
|         | 1. Household financial perspective            | 2. Household financial perspective + time | 3. Household financial perspective + time impact + lives | 4. Societal perspective (includes government subsidy) |
| All     | 1.7   | 3.0                                       | 4.7  | 4.3   |
| Poorest | 2.4   | 4.0                                       | 7.0  | 5.8   |
| Q2      | 1.4   | 3.3                                       | 5.4  | 4.7   |
| Q3      | 1.6   | 2.9                                       | 4.5  | 4.0   |
| Q4      | 1.7   | 2.9                                       | 4.3  | 3.9   |
| Richest | 2.1   | 2.8                                       | 4.0  | 3.7   |

The figure (on adjacent page) shows the intangible benefits which are hard to quantify in monetary terms, but are largely in addition to the benefits evaluated above. The results indicate very strongly that household toilets have a range of important benefits, as perceived by households, covering convenience, privacy, safety and status aspects.

The two impacts with approximately 10% of households raising some doubts over are the disease and cleanliness aspects – which are unlikely to perform well if the toilet is not cleaned properly.



In conclusion, this study has shown that the Swachh Bharat Gramin is highly cost-beneficial from both a financial and an economic

perspective. It should also be noted that some benefits of improved sanitation have not been quantified in this study (reuse value, tourism value, impact on water quality) or not quantified fully (e.g. some diseases could not be assessed due to lack of India- wide data, e.g. Hepatitis A and E, soil-transmitted helminthes).

Hence the financial and economic costs will be greater than those presented here. Furthermore, the impacts of reducing sanitation - related diseases such as diarrhea and tropical enteropathy go way beyond the saved medical expenditure and time of the patient and carer, but reduces suffering and provides added quality of life to the population.

<sup>4</sup>Andres LA, Briceño B, Chase C, Echenique JA (2011). Sanitation and externalities: evidence from early childhood health in rural India. Policy Research Working Paper 6737. The World Bank: Washington DC.

<sup>5</sup>Future values (years 2 to 10) are deflated to the year 2017 using an annual discount rate of 8%. Household latrines are assumed to last for at least 10 years, and with the annual O&M costs it is assumed that the toilet functions properly over (at least) this 10 year period.

Source: (Manpreet Romana) Krishna Bhuyan (L), 50, and Dhanarajia Devi (R), 42, poses for a picture outside a toilet built at their home in village Henza Bigha in district Aurangabad, Bihar