Progress on the Sanitation Ladder during the MDGs

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A Moving Target

To halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water.
A Moving Target

To halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water

Millennium Summit (MDGs)
To halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water.

A Moving Target

Follow-up to Millennium Summit

By 2015 to halve the proportion of people without sustainable access to safe drinking water.
A Moving Target

Halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water and the proportion of people who do not have access to basic sanitation.
A Moving Target

Halve, by the year 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

The baseline for most MDG targets was set as 1990
Sanitation Sub-Target for MDGs

The MDGs were established as global goals but, inevitably, were applied to individual countries

Many countries were set up to fail:
• The “reduce by half” formulation disadvantaged poor countries that started off with low coverage

Binary (improved/unimproved) metric meant many beneficial and appropriate interventions did not count:
• No credit for shared facilities or for preventing open defecation
• Also no credit for increased wastewater treatment
Demand for a Ladder

Flaws were recognized early-on (Bartram, 2007) and there were concerns that MDG incentives would:

• Encourage countries to focus on pushing those with some sanitation access to “improved” (low-hanging fruit)

• Neglect those with the worst sanitation and the least resources

• Not recognize many sanitation interventions that could protect health
Demand for a Ladder

Typical MDG sanitation narrative:

• Little progress on sanitation
• Sub-Saharan Africa: most countries are red on maps (little progress or <50% coverage)
Demand for a Ladder

Objectives:

• Examine progress on the sanitation ladder during the MDG period
• See if there is quantitative evidence that countries neglected those lower on the ladder
• Uncovering positive stories for countries that made progress not captured by MDGs
Methods: data sources

• Sanitation: data from JMP website
  • Improved, Shared, Unimproved, OD
  • Estimates for 1990-2015 (downloaded Spring 2017)
Methods: gap-filling

• Not all data were available for all countries
  • Linear regression for missing years
  • Shared sanitation data often missing
• Watsan “clusters” from Onda et al. (2014) were used to group countries
  • Five clusters, better correlated in watsan variables than groups/regions based on income/geography
  • Cluster averages used to estimate missing data
• For 43 countries not included in clusters, MDG region and HDI category were used
Methods: inclusion/exclusion

• Included most of global population:
  • 190 countries
  • 99.8% of global population

• Excluded countries:
  • Under 100K population or 100 km\(^2\)
  • Those with no JMP data

• “Safely managed” not included in MDGs or our analysis
The Sanitation Ladder

- **MDG Targets**
  - Indicator for meeting MDG target – Differentiated Improved (Not Shared) from all other sanitation status
  - Monitoring – JMP has long been reporting in greater resolution, including “lower rungs”
Sanitation Progress - the MDGs

- Progress that counted under MDGs
- All these count the same

- Improved (not shared)
- Shared
- Unimproved
- Open defecation
Sanitation Progress - the MDGs

• Progress that **did not** count under MDGs
• These are important steps to protect public health and environment
• Sanitation MDG was not fit for purpose?
Progress on Sanitation Ladder

- Our analysis
- Any move upward on the ladder improves the Ladder Score
Calculating Sanitation Ladder Score

- Ladder Score is calculated by multiplying the proportion of the population on each “rung” by the corresponding multiplier for that rung.
  - Higher is better
  - If 100% Improved, score = 100
  - If 100% OD, score = 0
- We tried other Ladder Score multipliers
Calculating Sanitation Ladder Score

- Most developing countries have population on each rung.
- Example: Kenya in 2015
Calculating Sanitation Ladder Score

- Most developing countries have population on each rung.
- Example: Kenya in 2015
Calculating Sanitation Ladder Score

• Most developing countries have population on each rung.

• Example: Kenya in 2015

Ladder Score =

\[ 30 \times 1 + 27 \times 0.67 + 31 \times 0.33 + 12 \times 0 = \]
Calculating Sanitation Ladder Score

- Most developing countries have population on each rung.
- Example: Kenya in 2015

**Ladder Score** = 30×1 + 27×0.67 + 31×0.33 + 12×0 = 58.2%
Calculating Sanitation Ladder Progress

- Progress on the sanitation ladder was defined using the MDG “reduce by half”
- Ladder Progress = how much of the gap between 1990 Ladder Score and 100% was closed by 2015
Kenya - 2015

Kenya - 2015 Total 58.2%

- Improved NOT Shared: 30%
- Shared: 27%
- Other Unimproved: 31%
- Open Defecation: 12%
Comparison between Ladder Progress and MDG Progress – All Population

![Comparison between Ladder Progress and MDG Progress – All Population](image)
Comparison between Ladder Progress and MDG Progress – Urban
Comparison between Ladder Progress and MDG Progress – Rural

![Graph comparing Ladder Progress and MDG Progress for different regions](image)
Sanitation Progress:
MDG Categories

1. Met Target
2. Good Progress
3. Moderate Progress
4. Limited/No Progress
MDG VS Ladder Progress

Moderate MDG Progress

Good MDG Progress
Bangladesh 1990

Bangladesh - 1990 Total 50.3%

34% Improved NOT Shared
34% Shared
16% Other Unimproved
16% Open Defecation
Bangladesh 2015

Bangladesh - 2015 Total 82.8%

- Improved NOT Shared: 61%
- Shared: 28%
- Other Unimproved: 1%
- Open Defecation: 10%
Bolivia 1990

Bolivia (Plurinational State of) - 1990 Total 40.9%

- Improved NOT Shared: 45%
- Shared: 28%
- Other Unimproved: 12%
- Open Defecation: 15%
Bolivia (Plurinational State of) - 2015 Total 68.1%

- Improved NOT Shared: 50%
- Shared: 21%
- Other Unimproved: 12%
- Open Defecation: 17%
Bolivia (Plurinational State of) - 2015 Urban

- Improved NOT Shared: 61%
- Shared: 27%
- Other Unimproved: 8%
- Open Defecation: 4%

Total Urban Population: 81.7%
Bolivia (Plurinational State of) - 1990 Rural 17.3%
Bolivia (Plurinational State of) - 2015 Rural 38.4%

- Improved NOT Shared: 46%
- Shared: 6%
- Other Unimproved: 21%
- Open Defecation: 27%
Ethiopia 1990

Ethiopia - 1990 Total 5.6%

92%

3% Improved NOT Shared
4% Shared
1% Other Unimproved
1% Open Defecation
Ethiopia 2015

Ethiopia - 2015 Total 47.2%

- Improved NOT Shared: 29%
- Shared: 28%
- Other Unimproved: 14%
- Open Defecation: 29%
Ethiopia: Urban 1990

- 39% improved not shared
- 20% shared
- 30% other unimproved
- 11% open defecation

Ethiopia - 1990 Urban 44%
Ethiopia: Rural 1990

Ethiopia - 1990 Rural 0%

- Improved NOT Shared
- Shared
- Other Unimproved
- Open Defecation
Ethiopia: Rural 2015

Ethiopia - 2015 Rural 43.4%

- Improved NOT Shared: 34%
- Shared: 28%
- Other Unimproved: 30%
- Open Defecation: 8%
Conclusions

• No quantitative evidence that the binary MDG metric decreased progress further down the ladder
  • Most countries made more progress on the Ladder Score than MDG progress

• Many countries made major progress on the Ladder, yet were defined as making little/moderate progress on sanitation MDG

• A simple metric for Ladder Progress is needed
  • Need to be careful about how the benchmarks are set
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