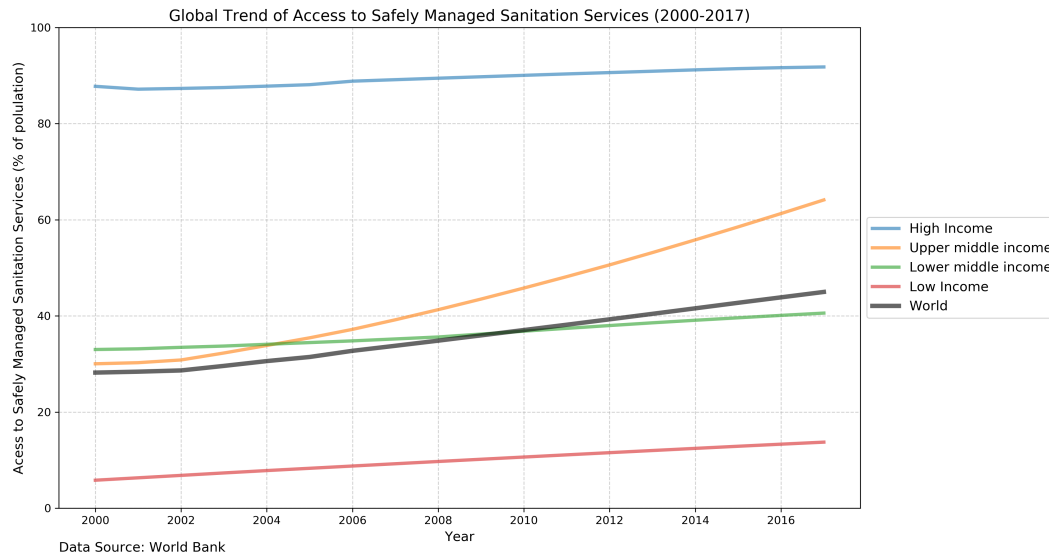


# Global Trend of Access to Safely Managed Sanitation Services

The purpose of this report is to provide a preliminary analysis on how access to Safely Managed Sanitation Services (SMSSs) relates to the income grouping of different economies [1].

The SMSSs access levels and the population data, retrieved from WB API, were pre-processed and cleaned, removing the countries and years with no records. The cleaned dataset covers data from 2000 to 2017 for 94 countries, grouped in four income levels.

As illustrated in the following plot, the percentage of the world population with access to SMSSs has nearly doubled from 2000 to 2017, yet about 55% of the world population do not have access to SMSSs in 2017.



Access to SMSSs has been increasing in all income groups; however, the upper-middle (UMC) and high-income (HIC) groups have the fastest and slowest growth rates of around 2% and 0.3% per year, respectively. The consistent wide gap between HIC countries (more than 90% access) and the rest of the world supports the intuitive perception about the positive correlation between the income level grouping and access to SMSSs. Compared to all other groups, the UMC group's high growth rate suggests that this income group continues to close its gap with HIC countries and widen its gap with lower-middle (LMC) and low-income (LIC) countries. The most concerning income groups are lower-middle (LMC) and low-income (LIC) groups with current poor access as well as a very slow increasing rate (about 0.46% per year). With this increasing rate, access to proper sanitation would remain one of the world's critical challenges for the next decades.

This analysis's critical limitation is the lack of data for many countries, mostly from low and lower-middle-income categories—for example, this dataset misses India's records, which alone comprise 17% of the world population. Given that India's access to basic sanitation has improved substantially (about 260% ) since 2000 [2], it is fair to assume that access to SMSSs might have enhanced significantly too. It can affect the trend of access to SMSSs in the LMC category considerably. The current analysis is also limited to the data that does not consider the countries' transitions between income groups. For example, large countries, such as India and China, have transitioned from the low-income category to the lower-middle-income and upper-middle-income categories, respectively, which could have led to a dramatic shift in income classes.

## References

- [1] C Naughton and J Mihelcic. Introduction to the importance of sanitation. *JB Rose and B. Jimenez-Cisneros Global water pathogens project, Part 1 The health hazards of excreta: Theory and control*, pages 3–11, 2017.
- [2] World Bank. India’s access to basic sanitation data, 2020. data retrieved from World Development Indicators, <https://data.worldbank.org/indicator/SH.STA.BASS.ZS?locations=IN>.