WHO's Global Health Observatory reveals a stark problem – a vast imbalance in deaths attributable to unsafe water, sanitation, and hygiene (WASH) across countries and regions.

2. Key Insights

- Low-income countries bear a disproportionate WASH mortality burden, with 9 of the 10 highest national death rates occurring in Sub-Saharan Africa.

- India (497,738) and Nigeria (144,157) together account for over 55% of the 1.19 million global WASH deaths in 2019, reflecting the compounded risk of large populations and inadequate services.

- Significant gender inequality exists in WASH mortality within certain countries. In India and Pakistan, female death rates exceed male rates by 61% and 68% respectively, suggesting additional barriers for women and girls.

- Outlier countries like Russia and Indonesia have substantially higher WASH mortality compared to development peers, indicating lagging infrastructure.

3. Impacts on Health, Society, Environment and Carbon

Health:

WASH-related diseases, such as diarrhoea, cholera, and typhoid fever, are major contributors to morbidity and mortality in low-income countries. The dataset shows that countries with high WASH mortality rates, like Chad (99.2 deaths per 100,000) and Somalia (99.2 deaths per 100,000), likely face a significant burden of these preventable illnesses. Poor WASH access can lead to repeated infections, worsening malnutrition and stunting in children, and reducing overall life expectancy. Addressing WASH inequalities can substantially improve public health outcomes and reduce healthcare costs in high-burden countries.

Society:

Inadequate WASH access disproportionately affects women and girls, who often bear the responsibility for water collection and household hygiene. In countries with high WASH mortality rates, women may spend several hours daily fetching water, missing out on education and economic opportunities. For example, in Lesotho, where the female WASH mortality rate is 99.5 deaths per 100,000, improving water access could free up time for women to pursue schooling and income-generation. Investing in WASH can enhance gender equity and social development.

Environment:

Poor sanitation and wastewater management practices associated with high WASH mortality rates can have detrimental environmental impacts. Open defecation and improper sewage disposal can contaminate water bodies, harming aquatic ecosystems and biodiversity. In India, where the WASH mortality rate is 36.4 deaths per 100,000, untreated sewage is a major contributor to river pollution, threatening the health of both humans and wildlife. Improving sanitation infrastructure and promoting safe waste management can mitigate these environmental risks and promote sustainable development.

Carbon Intensity:

WASH interventions have the potential to reduce carbon intensity in several ways. First, expanding access to safe water can reduce the need for energy-intensive water treatment processes and the use of bottled water, which has a high carbon footprint. Second, proper wastewater treatment can capture methane, a potent greenhouse gas, and potentially use it as a renewable energy source. Third, improving sanitation can decrease the practice of open burning of waste, which releases carbon dioxide and other pollutants. However, it is essential to consider the carbon footprint of WASH infrastructure construction and operation, favouring low-carbon technologies where possible. Countries with high WASH mortality rates have an opportunity to leapfrog to sustainable WASH solutions that minimize carbon intensity.

4. Recommendations

1) Increase targeted aid and technical assistance to high WASH mortality countries, prioritizing sub-Saharan Africa and South Asia.

3) Provide incentives for water utilities to expand infrastructure to underserved rural areas in outlier middle-income nations.

4) Incorporate WASH targets into national climate plans, capturing methane reduction and resilience benefits. Unlock climate financing.

5) Strengthen data systems tracking WASH coverage and water quality to guide evidence-based policymaking and investments.

5. Assumptions and Limitations

- WASH mortality estimates rely on robust civil registration and disease surveillance systems, which may be incomplete in lower-capacity countries.

- Classifying deaths as WASH-related requires accurate cause-of-death data. Misclassification or underreporting of diarrheal and enteric deaths may underestimate WASH burden.

- The state of WASH infrastructure is inferred from mortality data as a proxy, but actual levels of safe water and sanitation access may vary.

- There may be additional confounding variables affecting the observed WASH mortality inequalities apart from income and geography.

6. Map Evaluation

The color-coded world map of national WASH mortality rates offers a striking visualization of the global inequality in water and sanitation access. The concentration of red-shaded high-mortality countries across Sub-Saharan Africa contrasts sharply with the low-risk blue zones in Europe and North America, reflecting the vast disparities in infrastructure and development. The map also highlights regional outliers like Lesotho and Papua New Guinea where WASH deaths markedly exceed neighbouring countries. South Asia's varied risk profile hints at large subnational inequalities in access within countries like India. This spatial representation of WASH mortality can be a powerful tool for advocates and policymakers to mobilize action towards universal WASH coverage under the Sustainable Development Goals.

A map of the world

Description automatically generated

References

- Burden of disease

SDG 3.9.2 - Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH))

<https://apps.who.int/gho/data/node.main.INADEQUATEWSH?lang=en>