The Ripple Effect: A Situational Analysis of Water Quality and Public Health Outcomes in Nigeria

A Public Health Data Insight Report

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Project Type: Independent Analytical Review

Tool Used: Power BI, Microsoft Excel, Canva

View Live Dashboard

1.0 Executive Summary

Clean water is a prerequisite for sustainable health outcomes. This report presents a data-driven exploration of the intersection between water contamination, treatment practices, and public health outcomes in Nigeria. Findings show a disproportionate disease burden in regions with poor sanitation and inadequate water treatment, highlighting the need for multisectoral action.

2.0 Purpose and Scope

2.1 Objective

To analyze regional disparities in water quality, sanitation, and treatment practices in relation to public health indicators.

2.2 Scope

National-level data across Nigeria's six geopolitical zones, including water source distribution, contaminant levels, treatment methods, sanitation and healthcare access, disease counts, and infant mortality rates.

3.0 Methodology

Data was cleaned and analyzed using Excel and Power BI. Techniques included descriptive statistics, trend analysis, and cross-tabulations. Metrics were benchmarked against WHO standards where applicable.

4.0 Key Findings

4.1 Central Nigeria Bears the Highest Disease Burden

Despite moderate healthcare access, this region reports the highest disease count.

4.2 Elevated Contaminant Levels

All sources exceed 5ppm, with surface water being the most polluted.

4.3 Inconsistent Treatment Coverage

'None' is the most common water treatment method.

4.4 Sanitation Gaps

East and Central regions have the lowest sanitation coverage.

4.5 High Infant Mortality

Rates range between 49–56%, indicating systemic health challenges.

5.0 Recommendations

The following table outlines recommended actions along with relevant stakeholders, priority levels, and success indicators.

Stakeholder	Priority	Recommended Action	Success Indicator
Federal Ministry of Health	High	Deploy targeted WASH and disease response programs in Central and Eastern Nigeria.	Reduced disease incidence and hospital visits.
Community Health Workers	Medium	Lead water hygiene campaigns focusing on boiling, filtration, and safe storage.	Increased adoption of safe water treatment methods.
State Water Agencies	High	Implement regular water testing and contamination reporting systems.	Published monthly reports and responsive interventions.
Local Government Authorities	High	Expand sanitation infrastructure in high-density communities.	Improved sanitation access coverage (≥75%).
NGOs & International Donors	Medium	Support public-private partnerships for decentralized water solutions.	Operational PPPs in at least 3 high-burden LGAs.
Public Health Analysts & Data Teams	Medium	Establish interactive local dashboards using Power BI or DHIS2.	Functional dashboards with real-time updates across 6 regions.

6.0 Limitations

Regional aggregation may mask intra-regional variation. Data lacks temporal granularity. Self-reported treatment practices may carry bias.

7.0 Conclusion

This analysis confirms a strong correlation between water quality and public health outcomes. Effective interventions must integrate WASH, behavioral change, and environmental monitoring.

8.0 Annex

8.1 Definitions

BOD: Biochemical Oxygen Demand

PPM: Parts per Million

Infant Mortality Rate: Deaths per 1,000 live births

8.2 Data Source

Simulated for educational and analytical use. View here

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