Water Quality Challenges In Ghana

by sustainovators

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Abstract:

This report presents recent evidence of water quality challenges in Ghana, identifies the populations most affected, examines historical and systemic drivers (including mining, poor sanitation and infrastructure gaps), and points out some organizations and individuals working to redress these injustices. Key findings show predominant contamination by microbes, increasing heavy metal pollution linked to illegal mining, colloquially termed “galamsey” in Ghana, and persistent inequalities in access and infrastructure. Our report concludes with specific recommendations for monitoring, policy and community-level actions to eradicate water pollution and improve water security in Ghana.

Introduction:

Safe water is a big foundation to health, education and livelihoods. Yet in Ghana, progress toward universal access faces serious quality problems such as faecal contamination, industrial and mining-related chemical pollution and supply systems strained by aging infrastructure and unequal service delivery. These issues disproportionately affect low-income, rural and marginalized communities, increasing disease risk and climate vulnerability. According to the United Nation’s

Children Fund (UNICEF), even though access to water in Ghana has improved significantly, one person out of every ten has to spend more than thirty minutes to access an improved source of drinking water. Another eleven per cent of the population still drink from surface and unsafe water sources. "*Seventy six per cent of households in Ghana are at a risk of drinking water that is contaminated with faecal matter" — unicef.org.*

A woman carrying a basin on her head as she heads back home in Savelugu, Ghana. Image is sourced from unicef.org/ghana

Methods:

This is a review of peer-reviewed articles, national and international agency reports and reputable news coverage (UNICEF, WaterAid, WHO and investigative reports). I prioritized sources published since 2018 where possible and highlighted studies addressing microbial contamination, ground water geochemistry and impacts of artisanal mining(galamsey).

Findings:

Extent and nature of contamination:

Microbial contamination (faecal bacteria): National surveys and point-of-use studies report high levels of Escherichia coli and other indicators of faecal contamination in water used by households. UNICEF supported analyses estimate many households remain at risk of drinking faecally contaminated water. Point of use testing in multiple studies has found mid-to-high Escherichia coli counts in a large fraction of samples, particularly in rural areas and in households that store water.

Chemical Contamination (heavy metals and geogenic contaminants): Groundwater studies and monitoring across Ghana's basins like Pra, Tano, and Ankobra reveal elevated concentrations of iron, nitrate, arsenic and in mining affected areas, mercury and other heavy metals. Historical and recent sampling shows arsenic levels can exceed WHO guideline values in some boreholes; artisanal mining is a major contributor to mercury and arsenic contamination in rivers and shallow groundwater.

Acute waterborne disease risk: Recurrent cholera outbreaks and diarrhoeal disease burdens persist in Ghana, driven by contamination of drinking water and gaps in sanitation and hygiene. Recent WHO and national surveillance reports document outbreaks and call for strengthened WASH interventions.

Who is most affected?

Rural communities and small towns: Lower infrastructure investment, reliance on unimproved sources and longer distances to services increase risk.

Peri-urban low income areas: Dense settlement, inadequate drainage and poor sanitation lead to contamination.

Communities near artisanal mining sites: Residents face chemical exposure, ecosystem damage and loss of livelihoods when rivers and soils are polluted.

Historical and Systemic Causes:

Illegal/artisanal mining (galamsey): Expansion of unregulated gold mining has generated sedimentation, mercury and arsenic discharge, and river turbidity, degrading water quality and aquatic resources. Weak EPA enforcement and economic drivers sustain the practice.

Sanitation gaps and water storage practices. Incomplete sanitation coverage and unsafe household storage transmit faecal contaminants into drinking water and water bodies.

Agencies:

Government Agencies: Ghana Water Company Limited, Environmental Protection Agency, Ministry of Sanitation & Water Resources are responsible for service provision, monitoring and enforcing laws against illegal mining activities.

International Bodies & NGOs: UNICEF, WHO, WaterAid and local NGOs work on WASH programming. These organizations support monitoring, infrastructure projects and school WASH interventions.

WASH is an initiative focused on improving access to and use of Water, Sanitation and Hygiene services and practices within communities and institutions.

Impacts on vulnerable groups:

Water quality problems amplify existing inequalities in the sense that children, pregnant women, elderly, low income households and persons with disabilities carry heavier health and economic costs. Proximity to polluted rivers in mining communities, or living in informal settlements increases exposure to water contamination.

Recommendations:

Strengthen monitoring and transparent data: Environmental agencies should implement regular, publicly accessible water quality testing at source and point-of-use, prioritizing high risk districts and mining affected communities.

Targeted regulation and remediation of mining impacts: The government should enforce anti-galamsey laws while providing alternative livelihoods for small-scale miners. This will significantly reduce the chances of them moving to different locations to engage in illegal mining activities again.

Expand WASH services: Agencies should invest in decentralized treatment and infrastructure upgrades in peri-urban and rural communities.

Community engagement and school programs: The government and agencies should support school based water safety plans, hygiene education and water-safe storage promotion. I believe this will be the most effective method because what could possibly be better than training the future generation in environmentally friendly practices.

Facts and Statistics:

1. Seventy six percent of households in Ghana are at a risk of drinking water contaminated with faecal matter. Source: unicef.org/ghana
2. Only four percent of households treat water suitably before drinking and ninety three percent of households do not treat water at all. Source: unicef.org/ghana
3. In a nationally representative sample (26,324 households), 8.9% used unimproved drinking water sources and 81.6% used unimproved sanitation. According to that same survey, open defecation was practiced by 15.2% of households. Source: pmc.ncbi.nlm.nih.gov
4. In a systematic review of sachet water in Ghana (2,276 samples), 76% showed microbial contamination. Specifically, total coliforms were found in many studies (61% of studies), and 36% reported faecal coliforms. Pathogens detected included *E. coli* (54% of positive samples), *Salmonella*

spp. (14%), *Shigella* spp. (11%), *Enterococcus* spp. (11%), among others. Source: pmc.ncbi.nlm.nih.gov

5. In rural Ghana, 99.2% of surveyed well water samples were contaminated with Gram-negative rod bacteria; 6.5% tested positive for *Salmonella* spp. pmc.ncbi.nlm.nih.gov
6. In Mpraeso (a smaller town), mean counts for total coliform in groundwater wells ranged from ~299 to 2,267 MPN per 100 mL; faecal coliforms from ~111 to 1,235 MPN per 100 mL. Source: [Omari et al., 2012]
7. Each year, approximately 19,000 Ghanaians (including 5,100 children < 5 years) die from diarrhoeal disease attributed largely to poor water, sanitation, and hygiene (WASH). Source: worldbank.org
8. In Ghana, 7,653 deaths were caused by WASH-related diseases in 2019 alone (~21 people per day). Source: WHO
9. In a recent study, soils near mining regions showed mercury levels averaging ~56.4 ppm (much above WHO safety thresholds) and arsenic levels up to 10,060 ppm—~4,000% above recommended limits. Source: reuters.com
10. In the Greater Accra region, about 5 million people still rely on questionable water sources. Only 13% of water access is combined with improved sanitation and hygiene standards. Source: (Boahen et al., 2023)

Conclusion:

Ghana's water quality challenges are multi-faceted: microbial contamination, geogenic hazards and mining related pollution intersect with social inequality and infrastructure gaps. Addressing this requires coordinated action between government agencies and international organizations. Protecting water quality is both a public-health imperative and a social justice challenge.

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Visuals:

Source: unicef.org/ghana

Source: National Geographic

Source: Google Images

Source: theghanareport

Source: wateraid

CLEAN WATER CAMPAIGN

THE FACTS YOU NEED TO KNOW!

67%

Of Ghanaians are at a risk of drinking water polluted by faecal matter

STATISTICS

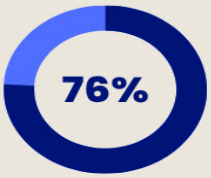
4%

Of Ghanaian households treat water suitably before drinking

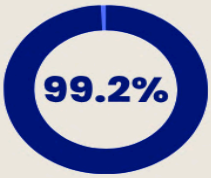
WATER QUALITY FACTS

- 60% of Ghana's freshwater sources are polluted by industrial waste, mining runoff, and household dumping.
- Rural households spend up to 25% of daily income on safe water access during dry seasons
- Galamsey introduces mercury, arsenic, and cyanide into rivers such as the Pra, Offin, and Ankobra, posing major health risks

STATISTICS



Of sachet water contains microbial contaminants.



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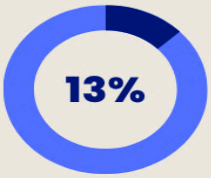

Of water access is combined with improved sanitation and hygiene standards.

TAKE ACTION TODAY!

- Protect river buffers
- Promote waste separation & recycling
- Adopt rainwater harvesting systems
- Educate and Empower the youth

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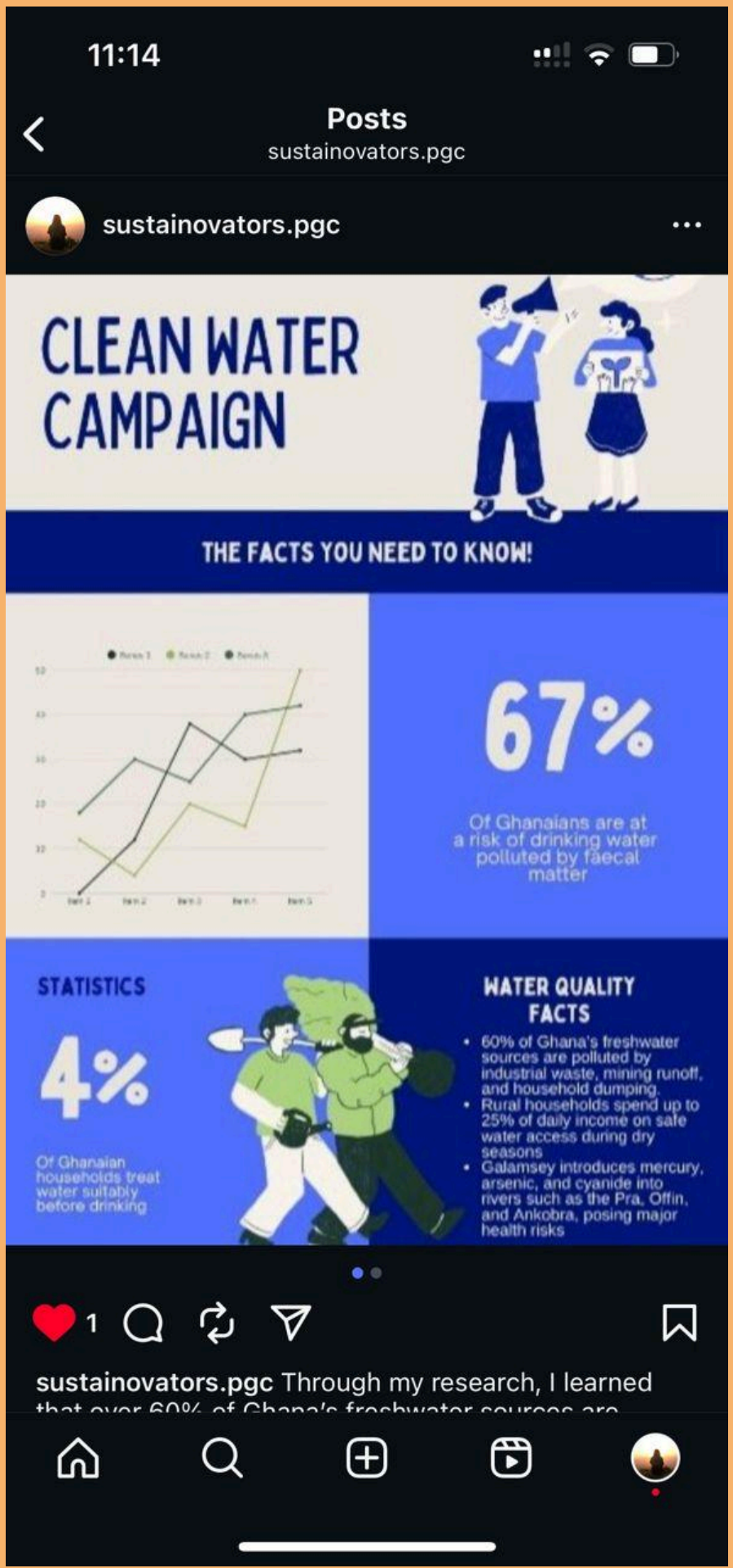
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contains microbial contaminants.
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TAKE ACTION TODAY!
Protect river buffers
Promote waste separation & recycling
Adopt rainwater harvesting systems
Educate and Empower the youth
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sustainovators.pgc Through my research, I learned that over 60% of Ghana's freshwater sources are polluted, mainly due to mining, waste, and poor drainage. But it doesn't have to stay this way.
Protecting riverbanks, improving waste systems, and empowering communities with water education can change the story — one action at a time. Together, we can make clean water accessible for all and build a more sustainable future. 💙
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