
Water and Sanitation, and Sustainable Communities in Rural Ghana

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Problem statement



Lack of access to clean water in rural Ghana disproportionately burdens women and girls, negatively impacting their quality of life and widening the inequality gap.

See article: https://www.huffpost.com/entry/astounding-number-of-women-girls-forced-to-fetch-water-in-sub-saharan-africa_n_5745ea85e4b0dac7ad3b87e

Policy Context

- 31% of Ghanaians lack access to improved sanitation.
- 81% of people in rural communities have no pipe-based water.
- Rural communities often depend on surface/ground water, springs and rivers.
- Due to the lack of access to clean water, millions are suffering from poor health and poverty.
- The responsibility of water and sanitation falling on women and girls also increases the gender inequality.
- Northern Rural Ghana



Women and children are seen carrying water on their heads for daily use in northern Ghana. /CGTN

<https://news.cgtn.com/news/2021-03-23/Women-in-Ghana-face-water-crisis-YRrIFaW7C/index.html>

Policy Formation

- Ghana Water and Sewerage Corporation (GWSC)
- The United Nations General Assembly
- Community Water and Sanitation Programme (NCWSP)

<https://www.cwsa.gov.gh/about-us/establishment/>



Women waiting to get water from a borehole. /CGTN

(Cover: Women collecting water from a dam in northern Ghana. /CGTN)

How Water Works

- Sub-saharan Africa has a substantial amount of clean underground water
- Hand dug wells (shallow)
- Boreholes(40+ meters)
- Solar water pumps
- Water treatment plant



https://www.embracerelief.org/charitable-donation-for-clean-water/?gclid=Cj0KCQjwxJqHBhC4ARIsAChg4avz_nc1k6dzh4N8Ab5m3DMKnHQa1jmcwDU2CQq-KodVHfrpMqlwWgaAuOmEALw_wcB

Policy Formation - Proposed Solutions

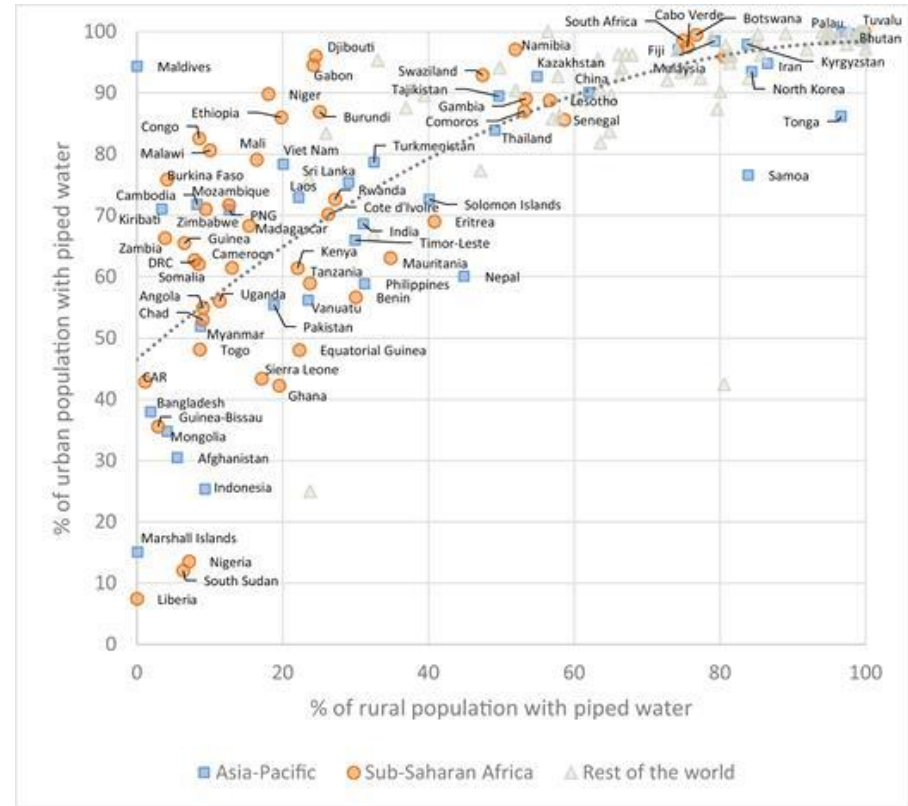
- Northern Ghana
- Underground water
- Consideration of location;
 - Proximity to people.
 - Time till proper infrastructure is set up
- Creation/Enforcement of policies on illegal mining.
- Creating proper sewage and waste disposal systems.



<https://www.britannica.com/place/Ghana>

Policy Analysis

- Why rural Ghana?
- There is enough water to meet the world's demands (World Water Development Report, 2015)
- Water systems benefit everyone.
- Relieves burdens on females
- Measuring effectiveness (pre/post survey)
- Compare mortality/prevalence rates of illnesses.



Source: <https://academic.oup.com/oxrep/article/36/1/171/5696680>

Policy Implications

- Attendance in school in rural areas may increase.
- Decrease in prevalence of water-borne illnesses.
- Time redistribution could increase family relationships.
- Improved sanitation and policies on mining improves integrity of underground water.

Recommendations

- Educations; Programs promoting the link between proper sanitation and well being may convince communities investing in an sanitation services is worthwhile.
- Water treatment plans as permanent solution

| Treatment technologies | Capital Cost ^a | Operating cost (per liter) ^b | Effectiveness ^c | Energy Consumption ^d | Environmental Impacts ^e | Waste Generated ^f |
|--------------------------------------|-----------------------------------|---|---|----------------------------------|------------------------------------|------------------------------|
| Bottled water | \$1 | \$1 | High | Manufacturing, transportation | Low | Plastic bottles |
| Ceramic clay pot "kosim" | \$14 | \$0 | High | None | Low | Exhausted sorbents |
| Groundwater Well ^b | Highly variable and site specific | \$0 | High | None after drilling | Low | None |
| LifeStraw [®] | \$24 | 0.015 | High | None | Low | Litter |
| Cloth filter | \$5-10 | \$0 | Low | None | Low | None |
| Slow sand filter | \$16-25 | \$0 | High | Pumps, vents, and discharge | Low | None |
| Solar water disinfection (UV) (size) | \$0 | \$1 | Moderate, function of sunlight, cloud cover | None | Low | Litter |
| Water satchet | \$0 | \$0.008 | High | Manufacturing and transportation | Plastic waste, litter | Plastic bags |
| Water treatment plant | \$7,000-\$40,000 | variable | High | Significant | Land required, potential pollution | Water treatment plant sludge |

The colors indicates level of acceptability for each parameter. Green is high acceptability, yellow is neutral, orange is moderate, and red is for low acceptability

References

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