

# Community Water Solutions:

*Bringing Clean Water to Communities in Need*



CWS is a 501(c)(3) non-profit corporation  
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# Global Water Challenge

*Persistent lack of access to clean drinking remains an acute global challenge*

- Today, **884 million people** worldwide lack access to safe drinking water



**1 in 6 lack access\***

- Approximately **4 million people die** each year from preventable water-related diseases;
- **90% of these deaths** are children under 5.
- In Africa, **700,000 people die** each year from waterborne diseases.
- Water purification techniques used in high-income nations are **neither economically nor technically feasible** in many developing nations.



*Note: Image from Charity:Water*

# Ghana's Water Challenge: What problem does CWS Solve?

- **Lack of access to improved water sources:** 50% of the 1.8 million people in northern Ghana lack access to improved water sources.
- **Poor water quality:** Turbidities of >200 NTU and high microbial contamination is seen in local surface waters.
- **Public health risk:** In northern Ghana, each day 15-25% of kids younger than five are suffering from diarrheal disease (GSS, 03)
- **Critical need:** Desperate need for improvements in drinking water quality, but lack of options (particularly in rural areas)
  - Lack of government spending on rural water infrastructure
  - Boreholes infeasible in some places due to saline groundwater
  - HWTS relatively expensive and difficult to monitor
- **Current situation:** Women spend hours each day at local dugouts collecting highly-contaminated drinking water for their families

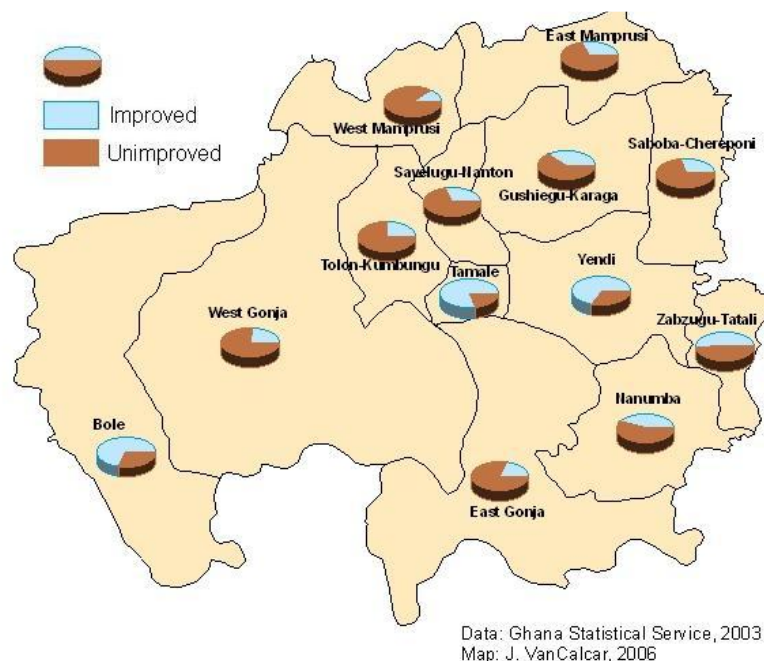




# Lack of Access to Clean Drinking Water – Northern Ghana

*Highly turbid and fecally contaminated surface waters such as dugouts and unprotected wells are the primary source of drinking water in northern Ghana*

## Northern Ghana: Percentage use of Improved Drinking Water Sources



### Improved Sources Include:

- Boreholes
- Public/private standpipe
- Protected springs / wells

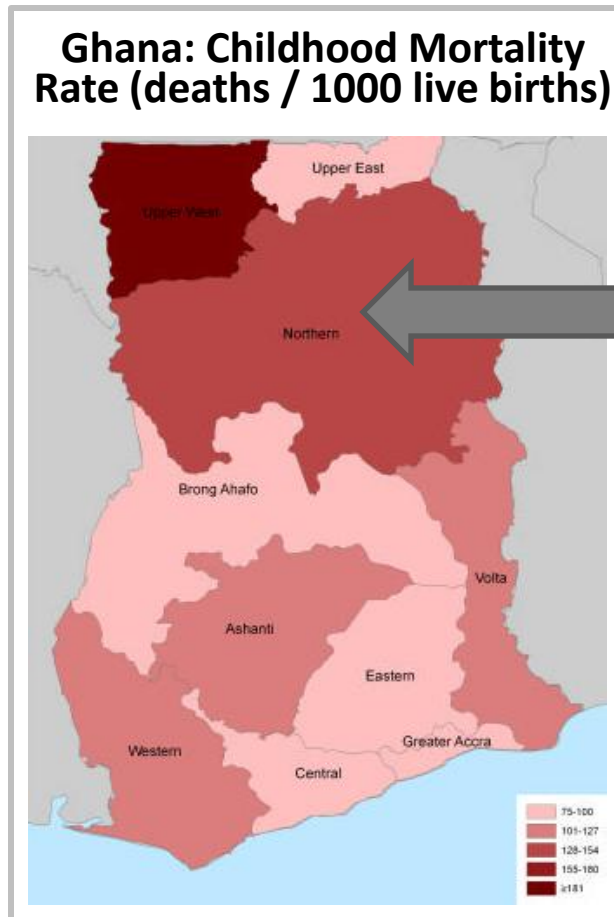
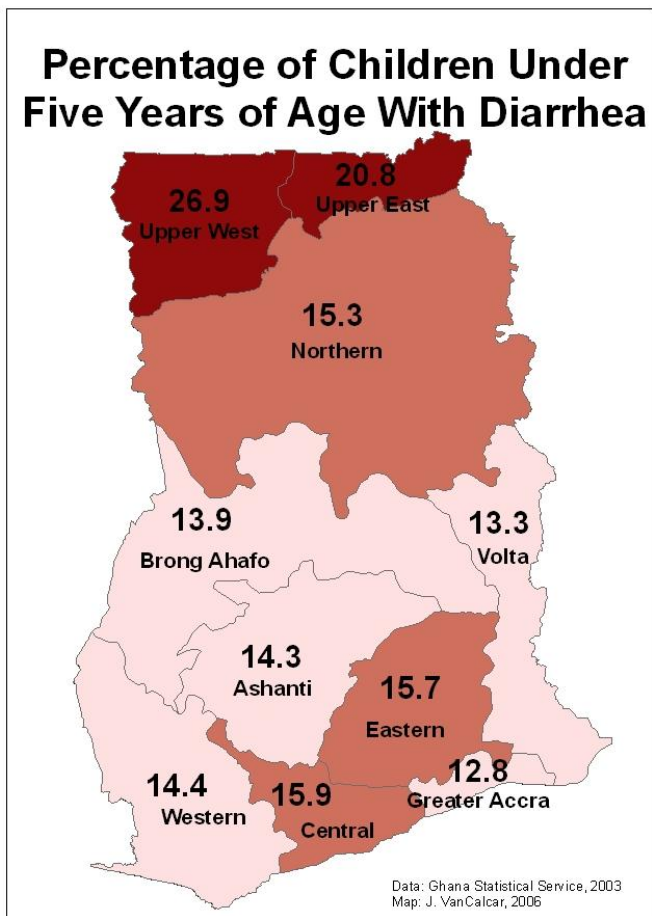
### Unimproved Sources Include:

- All surface water sources
- Unprotected springs / wells
- Tanker trucks



# Health Impacts: Drinking Water Quality

*Northern Ghana has childhood mortality rates of greater than 155 deaths / 1000 births, 25% of which result from preventable diarrheal disease*



*CWS has chosen to focus initially on regions where our work can have the greatest impact on health*

Source: Ghana Statistical Service; World Health Organization [http://www.afro.who.int/home/countries/fact\\_sheets/ghana.pdf](http://www.afro.who.int/home/countries/fact_sheets/ghana.pdf)

# Meeting Local Needs

*Where infrastructure lags and boreholes aren't feasible, household water treatment is the primary clean water option, but no one product meets local needs*

Local Requirements <i>Treatment Options</i>		Local Availability	Ease-of-Use	Turbidity Efficacy	Microbial Efficacy	Economic Sustainability
Particle Removal	Cloth Filter	High	High	Low	Low	High
	Alum	High	Medium	High	Medium	High
	Ceramic Filter	High	Medium	High	Medium	High
	BioSand Filter	Low	Medium	High	Medium	Medium
	Candle Filter	Low	Medium	High	Medium	Medium
Disinfection	SODIS (UV)	Medium	Low	Low	Medium	High
	Liquid Chlorine	Low	Medium	Low	High	High
	Aquatabs Chlorine	High	High	Low	High	High
Bagged Water	Sachet (urban only)	High	High	High	High	Low

**The CWS Model: Effective, low-cost, simple to use**

*CWS has combined low-cost, simple technologies with an innovative community-level water treatment model that can be adapted to the needs of any community.*

# CWS Solution: Differentiate by providing simple, low-cost technologies customized to local needs

## 1. Low-cost community water treatment centers

- Treatment process cleans and disinfects highly turbid water local surface waters
- Community-level treatment and distribution enables monitoring



## 2. Safe storage and chlorination to avoid recontamination in the home

## 3. For-profit water treatment centers generate enough capital to sustain the local water business

- Owned and operated by the community
- Local women treat enough water for the entire village, and community members pay a small fee to fill their containers with clean water





# The CWS Model: Village Implementation

*It takes about 1 month for the CWS team to implement a water business in a village - once implemented, these businesses are technically and financially sustainable*

**Step 1:**  
**Assess local water conditions**



**Step 2:**  
**Build treatment center**



**Step 3:**  
**Manufacture & distribute**  
**safe storage containers**



**Step 4: Train CWS women**



**Step 5: Open for business**



**Step 6: Monitoring**





# Key Success Factors: Village Implementation

*The CWS model is the only sustainable source of safe, clean drinking water available today to the villages we serve*

- 1) **Economic Sustainability:** Operating costs low enough that a community can pay them itself, forever, once the equipment is in place
- 2) **Logistical Sustainability:** Independent of any resource or skill that is not always easily available within the community itself
- 3) **Social Sustainability:** Builds on the established behaviors and preferences of individuals, families, and communities
- 4) **“Market” Appeal:** Satisfies users by producing water that has attractive appearance and taste, and convenient storage and distribution

# CWS work to-date: Successful projects in three villages

*In only our first year, CWS has successfully worked with three villages in Northern Region Ghana to implement locally managed water treatment business*

- 1) **Reach:** Kasaligu, Nyamaliga, Jarigu three rural villages located near Tamale in Northern Region Ghana
- 2) **Impact:** Provided clean water access to approximately 2500 people, including more than 600 children under 5 years of age
- 3) **Sustainability:** Monitoring has shown 50% adoption of the treatment center; 100% of those surveyed were correctly using the safe storage bucket for clean water.
- 4) **Quotes from the Communities:**
  - *"I feel stronger when I drink the water from the center."* – Local woman
  - *"I like to take water from the treatment center because I know it makes my children healthier."* – Community Chairman, Kasaligu
  - *"I am happy to work at the treatment center. It is good for my community and I can make some extra money."* - Hawa, Nymaliga



# Join us in providing a sustainable source of safe water!



For more information please see us at: [Communitywatersolutions.org](http://Communitywatersolutions.org)  
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