

## Research and Learning Brief

March 2021



Figure 1: Ghanaian girl washes her hands with soap and clean water.

# Improving Key Water, Sanitation and Hygiene Practices in Peri-Urban and Rural Ghana Through a Behavior-Led Approach

## Background

Years of effort and focus by the Government of Ghana and its partners have yielded significant improvements in the country's child morbidity and mortality rates. Still, every year, at least 4,000 Ghanaian children die from diarrhea, and 23% experience chronic malnutrition linked to poor water and sanitation.<sup>1</sup>

To help improve these numbers, USAID funded the seven-year Water, Sanitation and Hygiene for Health (W4H) project to establish sustainable access to dignified, safe, and improved water supply and sanitation, and to promote behaviors and attitudes necessary for healthy lifestyles in Ghana. The project objectives are to: (1) Increase use of improved household sanitation; (2) Improve community water supply services; (3) Improve sector governance and policies; (4) Expand the practice of key hygiene behaviors; (5) Leverage public-private partnership investment to magnify the impact of USG funding; and (6) Improve water supply and sanitation infrastructure for schools and health facilities.

In its sixth year, Ghana WASH 4 Health applied an approach to behavior-led programming called Behavior Integration to all project objectives. Evidence was gathered through behaviorally focused formative research to confirm the selected priority behaviors and to map pathways to changing these behaviors. In its seventh and final year, the project conducted an impact assessment of Behavior Integration, measuring its ability to impact behaviors over a period of nine months. Though these findings are not an indication of the sustainability of the changes in behavior, they do demonstrate that the initial change in behavior does not need to take years, only months.

## Key Findings

- The project assessed the impact of select behavioral objectives over a nine-month period in the final year of the project. (Due to COVID-19 restrictions, it was not possible to assess all behavioral objectives.)
- In households with children under five, practice of behaviors related to the safe storage and proper retrieval of drinking water increased 13% and 34%, respectively;
- The use, maintenance of improved household latrines and proper disposal of child's feces increased by more than 4%, 18%, and 11% respectively; and
- Handwashing with soap under running water at two critical times (before eating and after defecating) improved by more than 37% and 26%, respectively.

**These initial findings indicate that the project's approach to behavior change, known as Behavior Integration, can yield changes to entrenched obstacles and increase the likelihood of WASH behavior change in months, rather than years.**

<sup>1</sup> <https://newsghana.com.gh/unicef-who-report> Mar 19, 2018

## Problem Statement

In Ghana each year, at least 4,000 Ghanaian children die from diarrhea, and some 23% experience chronic malnutrition linked to poor water and sanitation.<sup>2</sup> Water service delivery is robust in Ghana (90% in urban areas and 80% in rural areas), and 60% of households have access to an improved source for their main drinking water (53% urban, 69% rural). However, only one in every five households (21%) has an improved sanitation facility, and a similar number still practice open defecation (22%). Stunting, or a significantly shortened stature caused by chronic under-nutrition, is an important marker and maker of child well-being. In Ghana, almost one in five children (19%) under five years old are stunted, and under-nutrition (both stunting and wasting), is an underlying cause of 45% of child deaths. Globally, one important cause of the high rate of under-nutrition among children under five is poor hygiene. Fifty percent of under-nutrition is associated with infections caused by poor WASH practices, and a quarter of all stunting is attributable to children who suffer five or more episodes of diarrhea during the first two years of life.

## Project Background

The behavioral objective for the WASH for Health project was to expand key hygiene behaviors in five regions (Central, Western, Volta/Oti, Greater Accra, and Northern/Savannah) of Ghana, including nutrition-sensitive WASH behaviors that explicitly addressed the connections between nutrition and WASH. At the end of Year 5, W4H was granted a costed extension for two additional years of work. The project chose to apply the Behavior Integration approach to all project objectives, not just expansion of key hygiene behaviors, which required a re-alignment around behaviors for all components of WASH for Health.

At the beginning of Year 6, to apply Behavior Integration to the entire project, the W4H team: (1) selected priority behaviors for all objectives; (2) analyzed and mapped pathways to change through the development of Priority Behavior Profiles (see Fig. 1); (3) and selected interventions indicated by the resulting pathways to change, leveraging the critical factors, and effectively involving the appropriate supporting actors – creating a cross-cutting, integrated, behavior-led strategy and workplan fully aligned around shared accountability for the priority behaviors by all units of WASH for Health.



Figure 2: Ghanaian man stands outside his improved latrine.

### Key Terms

- **Behavior Integration** – An approach to behavior-led programming which ensures behaviors are put upfront and intentional pathways to change are mapped; where the full ecosystem is engaged to ensure the needed elements are in the same place at the same time for the same people; where appropriate behavioral outcomes are determined to measure success; and where all parts of a project share accountability for the behavioral outcomes.
- **Behavior-led** – Programming in which the project **starts by establishing the priority behaviors it wants to change** (as opposed to the interventions it wants to carry out) as the key to achieving the project goal.
- **Intentional pathways to change** – An analytical framework for **creating clear linkages from the project's priority behaviors to its chosen interventions**. A pathway to change starts with a desired behavioral outcome. It delineates the steps the primary actor must take to carry out that desired behavior, the barriers and motivating factors that influence the primary actor's practice of the behavior, and the supporting actors and the actions they must take to enable the primary actor's practice of the behavior. Finally, the pathway links to interventions to help the primary actor overcome or leverage the barriers or motivators (and the secondary actor to support them in doing so) and to adopt the desired behavior. A tool such as Behavior Integration's **Behavior Profile** can help structure the analysis to define the intentional pathway to change for a behavior.

<sup>2</sup> <https://newsghana.com.gh/unicef-who-report> Mar 19, 2018

BEHAVIOR PROFILE: SAFE DISPOSAL OF HUMAN FECES			
HEALTH GOAL		Improve maternal and child survival	
BEHAVIOR		Family members safely dispose of human feces	
		71 Percentage of households with improved and non-shared toilet facilities	
			
BEHAVIOR ANALYSIS			STRATEGY
BEHAVIOR AND STEPS	FACTORS	SUPPORTING ACTORS AND ACTIONS	POSSIBLE PROGRAM STRATEGIES
What steps are needed to practice this behavior?	What factors may prevent or support practice of this behavior?	Who must support the practice of this behavior, and what actions must they take?	What strategies will best focus our efforts based on this analysis? ↑ Strategy requires Communication Support
<b>Behavior</b>	<b>STRUCTURAL</b> <b>Accessibility:</b> Family members are unable to safely dispose of human feces because improved latrines are often unavailable locally or materials to build them are insufficient.	<b>INSTITUTIONAL</b> <b>Policy Makers:</b> Adopt open defecation free (ODF) policy and sanitation regulations for the country.	<b>ENABLING ENVIRONMENT</b> <b>Financing:</b> Offer financing or credit mechanisms for household sanitation improvements and sanitation businesses.
<b>Family members safely dispose of human feces</b>	<b>Accessibility:</b> Family members are unable to build a latrine because physical constraints often make building a latrine difficult (e.g. height of ground water, hardness of ground).	<b>COMMUNITY</b> <b>Community Leaders:</b> Support local sanitation marketing efforts and construction training to improve accessibility.	<b>Partnerships and Networks:</b> Form surveillance cadres (government, international and local NGOs) to track ODF communities.
<b>Steps</b>	<b>Accessibility:</b> Family members do not safely dispose of human feces because they have insufficient resources to build a latrine.	<b>Community Leaders:</b> Build institutional latrines (schools, clinics).	<b>SYSTEMS, PRODUCTS AND SERVICES</b> <b>Products and Technology:</b> Investigate new sanitation technologies for geographically constrained situations.
1. Decide to build or access a latrine	<b>SOCIAL</b>	<b>HOUSEHOLD</b>	<b>Quality Improvement:</b> Facilitate improved private-sector markets to increase access to latrine options and construction, small-scale supplies, or delivery options.
2. Build or access an improved latrine	<b>Attitudes and Beliefs:</b> Family members do not throw baby feces into the latrine because they do not believe it is dirty.	<b>Family Members:</b> Save a portion of available income for sanitation needs.	<b>DEMAND AND USE</b> <b>Communication:</b> Use regular community forums to share data and progress on ODF status and discuss challenges.
3. Always use the latrine for human feces, including feces from babies	<b>Attitudes and Beliefs:</b> Family members do not use a latrine because they prefer to use the outdoors where the air is fresh.		<b>Skills Building:</b> Train local cadres of masons and builders.
4. Cover the latrine hole	<b>Attitudes and Beliefs:</b> Family members use a latrine to safely dispose of human feces because they feel proud and prestigious when they have their own household latrine.		
5. Maintain latrine and surroundings	<b>Knowledge:</b> Family members do not use a latrine to safely dispose of human feces because they do not know how to build an improved latrine.		

Figure 3: Safe Feces Disposal Behavior Profile showing pathways to change. Additional sample Behavior Profiles available [here](#).

The resulting strategy reflected that behavior change occurs within a system that requires structural, social, and internal factors are addressed or leveraged; and that institutional, community, and family supporting actors are identified to support the adoption of behaviors.

All units of the WASH for Health project took shared accountability for the behavioral outcomes and worked to create a whole ecosystem that enabled the desired behavioral outcomes.

To support implementation, the team developed a comprehensive [Communication Package](#) featuring a set of interactive communication materials, such as facilitation guides, discussion scenarios, radio spots, dramas, a game, and more on priority behaviors for district- and community-level workers, and households, all of which worked in concert with other elements of the project (see Fig. 2).



Figure 4: Key promise and prioritized WASH & NuWASH behaviors from the Ghana W4H Communication Package.



Figure 5: Global Handwashing Day activities; Caregiver assisting child with handwashing.

## Priority Behaviors Selected

Although Behavior Integration was not formally applied until Year 6 of the project, the social and behavior change team had selected some priority behaviors from project inception.

In the first three years, the project's strategy was designed to promote the following priority WASH behaviors:

1. Caregivers in households of children under five properly use and maintain an improved household latrine
2. Caregivers of children under two safely dispose of their children's feces in a latrine
3. Caregivers in households of children under five wash hands with soap under running water before eating and after defecating
4. Caregivers in households of children under five treat, store and retrieve drinking water safely

To address the connections between nutrition and WASH that can promote optimal growth and development in children under 5, at the end of Year 3, the project prioritized nutrition-sensitive WASH behaviors (NuWASH) including:

1. Caregivers create a clean space for their children to eat and play
2. Caregivers handle their children's food safely
3. Caregivers wash their hands before handling food for their children and wash the hands of their children before they eat
4. Mothers exclusively breastfeed for the first 6 months

At the end of Year 5, W4H was granted a costed extension for two additional years and was asked by USAID to include WASH behaviors in schools and health facilities, resulting in the following priority behaviors:

1. Clients drink safe water at health facilities
2. Basic school children wash their hands with soap under running water before eating and after defecating at school

For each of these ten priority behaviors, the team developed and focused on a set of key sub-behaviors to most effectively address the issues identified in the formative research and to give due weight to the complexity of each priority behavior. Additionally, because handwashing has been shown to have a huge impact on stemming diarrheal diseases and in preventing the transmission of COVID-19<sup>3</sup>, the team intensified its efforts around handwashing in the last two years of the project.

<sup>3</sup> CDC 2020

## Evaluation Methodology

Evaluation data were collected household in person using surveys, community member focus group discussions, and community observations in 15 communities of 10 districts with 226 respondents. The number of respondents and locations visited were reduced by half to maintain proper COVID guidelines. Also, it was not possible to visit health facilities or schools, so changes to behaviors at those locations have not yet been measured. The map below shows evaluation sites (Figure 4).

As this project only shifted to a full Behavior Integration approach at the beginning of Year 6, no initial baseline was established for these behavioral outcomes. Midline results were taken in March 2020 and again in December 2020. Final evaluation results will be available in August 2021.

Because of budgetary constraints and limitations on travel due to COVID during the study period, the team selected a minimal, representative set of behavioral outcomes to track over the nine-month period of time. These were:

**Priority Behavior: Caregivers in households of children under five treat, store, and retrieve drinking water safely.**

1. Sub-behavior 1: Caregivers in households of children under five properly store their drinking water in a clean, covered container out of reach of small children;
2. Sub-behavior 2: Members of households of children under five retrieve their drinking water from the covered container with a clean, separate, long-handled cup.

**Priority Behavior: Caregivers in households of children under five properly use and maintain an improved latrine.**

3. Sub-behavior 3: Caregivers in households of children under five maintain their improved household latrine properly, including clearing the surrounding area of weeds and scrubs, and repairing the outside as needed;
4. Sub-behavior 5: Caregivers in households of children under five dispose of the children’s feces in their improved household latrine;
5. Sub-behavior 6: Members of households of children under five use their improved household latrine properly including cleaning it regularly and clearing it of flies.

**Priority Behavior: Caregivers in households of children under five wash their hands at two critical times.**

6. Sub-behavior 7: Members of households of children under five wash their hands with soap under running water before eating;
7. Sub-behavior 8: Members of households of children under five wash their hands with soap under running water after defecation.

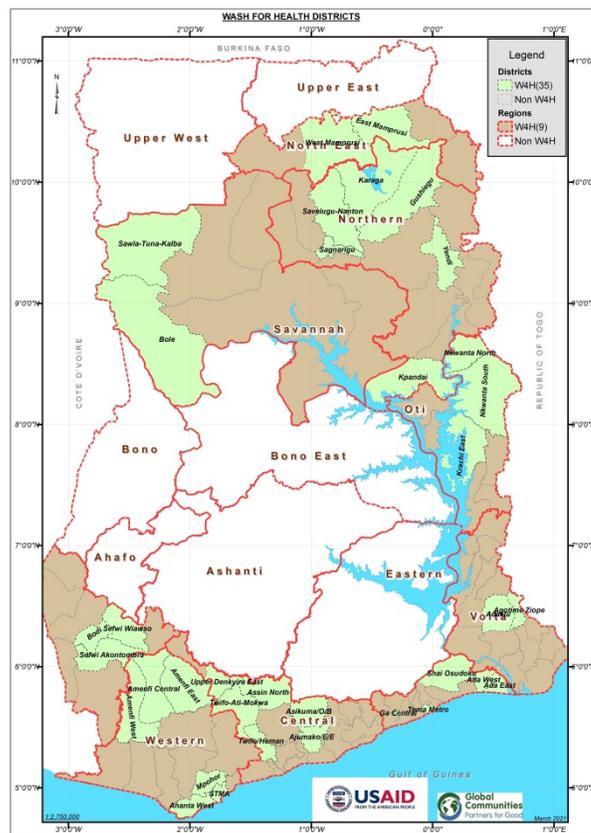


Figure 6: Map of evaluation sites.



Figure 7: Schoolgirl washes her hands with soap and clean water.

## Results

Implementation of the most recent iteration of the W4H behavior-led strategy, based on Behavior Integration is ongoing. Initial results, marking changes from March 2020 to December 2020, are detailed below.

For the two sub-behaviors related to the priority behavior, “Caregivers in households of children under five treat, store, and retrieve drinking water safely,” the project saw a 13% increase *in* caregivers in households of children under five properly storing their drinking water in a clean, covered container out of reach of small children. There was also a 34% increase in members of households of children under five retrieving their drinking water from the covered container with a clean, separate, long-handled cup.

For the priority behavior, “Caregivers in households of children under five properly use and maintain an improved latrine”:

1. The sub-behavior, “Caregivers in households of children under five maintain their improved household latrine properly, including clearing the surrounding area of weeds and scrubs, and repairing the outside as needed,” increased 18%;
2. The sub-behavior, “Caregivers in households of children under five dispose of the children’s feces in their improved household latrine,” increased 11%; and,
3. The sub-behavior, “Members of households of children under five use their improved household latrine properly including cleaning it regularly and clearing it of flies,” increased 4%.

Sub-behaviors of the priority behavior, “Caregivers in households of children under five, wash their hands at two critical times,” showed marked improvement over this nine-month period. The sub-behavior, “Members of households of children under five, wash their hands with soap under running water before eating,” increased 37%; while the sub-behavior “Members of households of children under five wash their hands with soap under running water after defecation,” increased 26%.

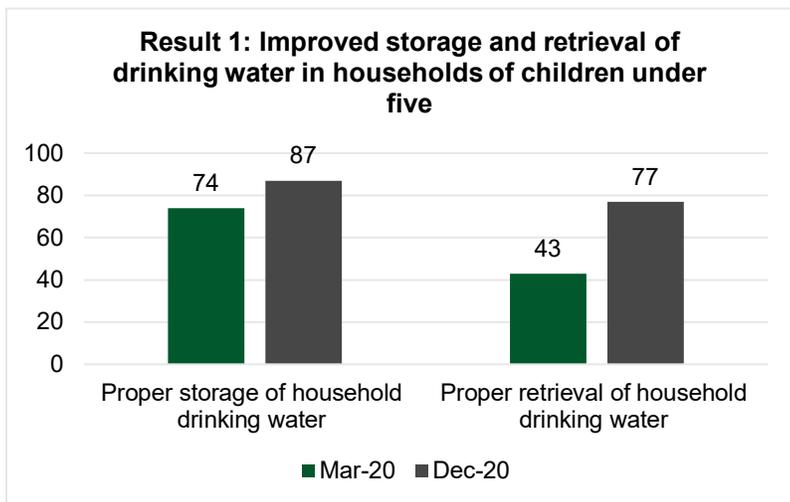


Figure 8: Improved storage and retrieval of drinking water in households of children under five.

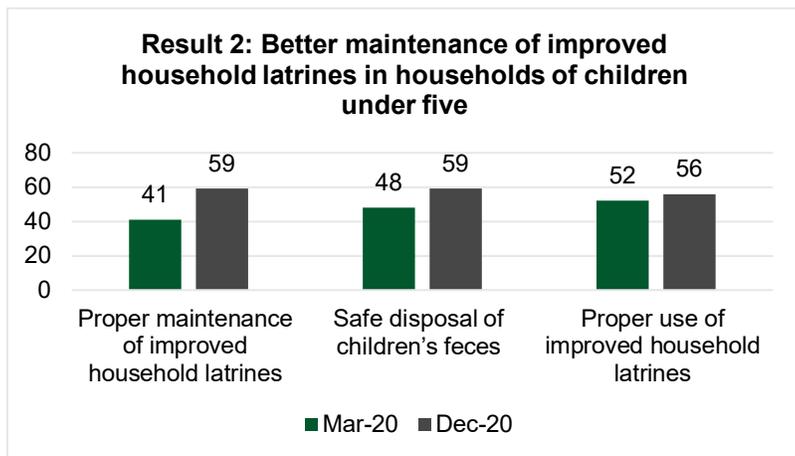


Figure 9: Improved storage and retrieval of drinking water in households of children under five.

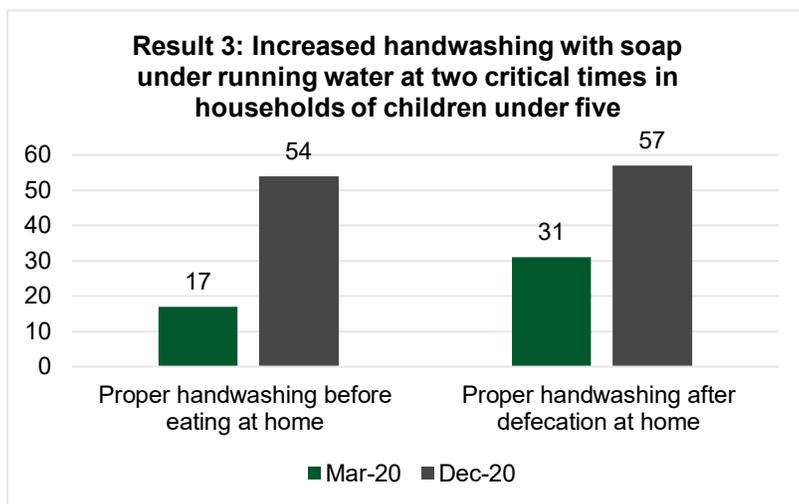


Figure 10: Increased handwashing with soap under running water at two critical times in households of children under five.

## Findings

Using Behavior Integration - where targeted behaviors are established upfront and intentional pathways to change are mapped; where the full ecosystem is engaged to ensure the needed elements are in the same place at the same time for the same people; where appropriate behavioral outcomes are determined to measure success; and where all parts of a project share accountability for the behavioral outcomes – can result in changes to behaviors and increase the likelihood of behavior change in a few months, not years. Though these findings are not an indication of the sustainability of the changes in behavior, they do demonstrate that the initial change in behavior does not need to take years, only months. More study will be needed to assess the sustainability of these changes in behaviors.

Implementation of the most recent iteration of the W4H behavior-led strategy incorporating targeted WASH behavioral outcomes in schools and health facilities is ongoing, and initial data indicate substantial gains in sanitation and nutritional priorities in households. The measurable changes in the targeted behavioral outcomes over a short period of time – nine months from March 2020 to December 2020 – are impressive, especially as this period coincided with COVID-19 lockdowns.



Figure 11: Schoolchildren wash their hands with soap and clean water.

## Acknowledgements

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