

STANDARD SECTOR INDICATOR CODE: HE-058	Individuals Drinking and Cooking With Properly Stored and Treated Water: Number of individuals reporting that in the day preceding the assessment they only drank and cooked with properly stored and treated water.	
HEALTH SECTOR	Sector Schematic Alignment <ul style="list-style-type: none"> • Project Area: Environmental Health • Project Activity Area/Training Package: WASH: Water, Sanitation, and Hygiene 	
Type: Intermediate-term Outcome	Unit of Measure: Individuals	Disaggregation: Sex: Male, Female Age: 0-9 years, 10-17 years, 18-24 years, 25+

To be counted for this indicator, all of the following criteria must be met:

- The individual lives in a household where water is properly treated or comes from an improved source **AND**
- The individual lives in a household where water is properly stored **AND**
- The individual reports that in the previous day and night, he/she only cooked and drank properly stored and treated water **OR** cooked and drank water that was from an improved source and stored properly
- The individual must have attended training on procedures for properly treating and storing water.
- The training must have been provided by the PCV or their partner in an individual or small group setting. Research shows ideal group size is 25 individuals or less, although in some instances group size can be significantly larger. PC/Post staff determines what comprises a small group setting.
- Attendance at educational session/s must be documented by the Volunteer or their partner.

Definitions:

Characteristics of a Safe water storage vessel: The container must be clean and durable and have a lid. The opening of the container should be large enough to easily fill and clean the vessel but small enough to reduce the potential of introducing contaminants from hands, dipping utensils, dust, vectors, or other sources. Water must be able to be withdrawn in a sanitary manner such as through a tap, spigot, spout or other narrow opening.

Safe water: is defined as water that is disinfected and stored safely prior to drinking. According to WHO safe water is water that upon testing does not be have detectable *E. coli* in any 100 milliliter (ml) sample.

Ways to purify water: 1) filtered through a cloth then boiled for a minimum of one minute, 2) treated with iodine 3) treated with chlorine bleach using an appropriate ratio of water to disinfectant i.e.; 1/8 teaspoon of bleach to one gallon of filtered water, 4) solar water disinfection (also known as SODIS) is a method of disinfecting water using only sunlight and plastic PET bottles.

- **Boiling** is the most certain way of killing all microorganisms. Water temperatures above 160° F (70° C) kill all pathogens within 30 minutes and above 185° F (85° C) within a few minutes. So in the time it takes for the water to reach the boiling point (212° F or 100° C) from 160° F (70° C), all pathogens will be killed, even at high altitude. To be extra safe, let the water boil rapidly for one minute, especially at higher altitudes since water boils at a lower temperature (see page 68.)
- **There are two types of chemical purification:** those using iodine and those using chlorine. The effectiveness of all chemical treatment of water is related to the temperature, pH level, and clarity of the water. Cloudy water often requires higher concentrations of chemical to disinfect. If the water is cloudy or filled with large particles, strain it, using a cloth, *before* treatment. Large particles, if swallowed, may be purified only "on the outside."
 - Add the chemical to the water and swish it around to aid in dissolving. Splash some of

the water with the chemical onto the lid and the threads of the water bottle so that all water areas are treated. The water should sit for *at least* 30 minutes after adding the chemical to allow purification to occur. If using tablets let the water sit for 30 minutes *after* the tablet has dissolved. The colder the water, the less effective the chemical is as a purifying agent. Research has shown that at 50° F (10° C), only 90 percent of *Giardia* cysts were inactivated after 30 minutes of exposure. If the water temperature is below 40° F (4° C), double the treatment time before drinking. It is best if water is at least 60° F (16° C) before treating. You can place the water in the sun to warm it before treating.

- Iodine is light sensitive and must always be stored in a dark bottle. It works best if the water is over 68° F (21° C). Iodine has been shown to be more effective than chlorine-based treatments in inactivating *Giardia* cysts. Add 5 drops per quart of Liquid 2% Tincture of Iodine when the water is clear. Add 10 drops per quart when the water is cloudy. Potable Aqua is an iodine tablet product; follow the manufacturer's instructions for use.
- *Be aware that some people are allergic to iodine and cannot use it as a form of water purification.* Persons with thyroid problems or on lithium, women over fifty, and pregnant women should consult their physician prior to using iodine for purification. Also, some people who are allergic to shellfish are also allergic to iodine. If someone cannot use iodine, use either a chlorine-based product or a non-iodine-based filter, such as the PUR Hiker Microfilter, MSR WaterWorks, or the Katadyn Water Filter.
- **Chlorine Treatment** Chlorine can be used for persons with iodine allergies or restrictions. Remember that water temperature, sediment level, and contact time are all elements in killing microorganisms in the water. Treat with chlorine bleach using an appropriate ratio of water to disinfectant, i.e., add 1/4 teaspoon (16 drops) of bleach per gallon of water if the water is cloudy and 1/8 teaspoon (8 drops) if the water is clear.
- **Solar Water Disinfection (SODIS):** The SODIS method is very easy to apply. A transparent and colorless PET bottle is cleaned with soap. Then, the bottle is filled with water and placed in full sunlight for at least 6 hours. The water has then been disinfected and can be drunk.

"Improved" sources of drinking water include:

- **Household connection** is defined as a water service pipe connected with in-house plumbing to one or more taps (e.g. in the kitchen and bathroom) or piped water connection to a tap placed in the yard or plot outside the house.
- **Public standpipe** is a public water point from which people can collect water. Public standpipes can have one or more taps and are typically made of brickwork, masonry or concrete.
- **Tubewell or borehole** is a deep hole that has been driven, bored or drilled, with the purpose of reaching groundwater supplies.
- **Protected dug well** is a dug well that is protected from runoff water by a well lining or casing that is raised above ground level and a platform that diverts spilled water away from the well. A protected dug well is also covered, so that bird droppings and animals cannot fall into the well.
- **Protected spring.** The spring is typically protected from runoff, bird droppings and animals by a "spring box", which is constructed of brick, masonry, or concrete and is built around the spring so that water flows directly out of the box into a pipe or cistern, without being exposed to outside pollution.
- **Rainwater** refers to rain that is collected or harvested from surfaces (by roof or ground catchment) and stored in a container, tank or cistern until used.
- **Treated/purified water:** This includes water that has been: 1) filtered through a cloth then boiled for a minimum of one minute, 2) treated with iodine using an appropriate ratio of water to disinfectant 3) treated

with chlorine bleach using an appropriate ratio of water to disinfectant 4) treated using solar water disinfection method 9 also known as SODIS) for disinfecting water using only sunlight and plastic PET bottles

"Unimproved" sources of drinking-water include:

- Unprotected spring. This is a spring that is subject to runoff, bird droppings, or the entry of animals. Unprotected springs typically do not have a "spring box".
- Unprotected dug well. This is a dug well for which one of the following conditions is true: 1) the well is not protected from runoff water; or 2) the well is not protected from bird droppings and animals. If at least one of these conditions is true, the well is unprotected.
- Cart with small tank/drum. This refers to water sold by a provider who transports water into a community. The types of transportation used include donkey carts, motorized vehicles and other means.
- Tanker-truck. The water is trucked into a community and sold from the water truck.
- Surface water is water located above ground and includes rivers, dams, lakes, ponds, streams, canals, and irrigation channels.
- Bottled water is considered to be improved only when the household uses drinking-water from an improved source for cooking and personal hygiene; where this information is not available, bottled water is classified on a case-by-case basis.

Rationale: Unsafe drinking water, along with poor sanitation and hygiene, are the main contributors to an estimated 4 billion cases of diarrheal disease annually, causing more than 1.5 million deaths, mostly among children under 5 years of age. Treating water at the household level has been shown to be one of the most effective and cost-effective means of preventing waterborne disease in development and emergency settings. Promoting household water treatment and safe storage (HWTS) helps vulnerable populations to take charge of their own water security by providing them with the knowledge and tools to treat their own drinking water.

Measurement Notes:

- 1. Sample Tools and/or Possible Methods (for Peace Corps staff use):** Volunteers should use data collection tools to measure progress against project indicators. For this Standard Sector Indicator, Peace Corps post staff can access a sample tool on the intranet page through [this link](#) and adapt it at the post level for their Volunteers' use. Once a tool has been developed, post staff should have a few Volunteers and their partners pilot it, and then distribute and train Volunteers on its use.
- 2. General Data Collection for Volunteer Activities:** All Volunteer activities should be conducted with the intention of achieving outcomes – knowledge change (short-term), skills demonstration (intermediate-term), and behavioral changes (intermediate to long term) as defined by the progression of indicators within the objectives of a project framework. The progression of measurement for all Volunteer activities should begin with baseline data being conducted prior to the implementation of an activity (or set of activities), followed by documenting any outputs of the activities and then later at the appropriate time, measurements of specific outcomes (see the bullet on "frequency of measurement").
- 3. Activity-Level Baseline Data Collection:** Activity-level baseline data should be collected by Volunteers/partners before or at the start of their activities with an individual or group of individuals. It provides a basis for planning and/or assessing subsequent progress or impact with these same people. This indicator builds off of two indicators that measure the skill and knowledge needed to correctly purify/treat and store drinking and cooking water: **HE-055: *Trained to Purify and Properly Store Drinking Water*** and **HE-056: *Demonstrated How to Correctly Treat Water***. To measure how many of the individuals the Volunteer/partner are working with actually drinking and cooking with properly stored and treated water, Volunteers should use the suggested data collection tool to take a baseline measurement regarding the outcome(s) defined in this data sheet. Volunteers

should collect baseline information early in their work with community members, and may use their judgment to determine timing because the information will be more accurate if the Volunteer has built some trust with these individuals first. The same tool used to collect baseline information will be used to take the follow-on measurement (see the bullet on “frequency of measurement”). The follow-on measurement should be taken after the Volunteer has conducted his/her activities (in this case, conducted training on purifying and properly storing drinking water).

Because Volunteers are expected to implement relevant and focused activities that will promote specific changes within a target population (see the “unit of measure” above), taking a baseline measurement helps Volunteers to develop a more realistic snapshot of where individuals within the target population are in their process of change instead of assuming that they are starting at “0.” It also sets up Volunteers to be able to see in concrete terms what influence their work is having on the individuals they work with during their service. Please note that data collection is a sensitive process and so Volunteers will not want to take a baseline measurement until they have been able to do some relationship and trust-building with the person/people the Volunteer is working with, and developed an understanding of cultural norms and gender dynamics.

- 4. Frequency of Measurement:** After taking the baseline measurement (described above), Volunteers should take at least one follow-on measurement with the same individual(s), typically after completing one or more activities focused on achieving the outcome in this indicator and once they have determined that the timing is appropriate to expect that the outcome has been achieved. Please note that successful documentation of a behavior change or new practice may not be immediately apparent following the completion of activities and may need to be planned for at a later time. Once Volunteers have measured that at least one individual has achieved the indicator, they should report on it in their next VRF.

Volunteers may determine to take more than one baseline and one follow-on measurement with the same individual (or group of individuals) for the following valid reasons:

- Volunteers may want to measure whether or not any additional individuals initially reached with activities have now achieved the outcome in the indicator, particularly for any activities that are on-going in nature (no clear end date);
- Volunteers may want to enhance their own learning and the implementation of their activities by using the data collected as an effective monitoring tool and feedback mechanism for the need to improve or increase their activities;
- A Peace Corps project in a particular country may choose to increase the frequency of measurement of the indicator and Volunteers assigned to that project will be required to follow in-country guidance.

In all cases, any additional data collection above the minimum expectation should be based on the time, resources, accessibility to the target population, and the value to be gained versus the burden of collecting the data. Following any additional measurements taken, Volunteers should report on any new individuals achieving the outcome in their next VRF.

- 5. Definition of Change:** The minimum change to report against this indicator is an individual, in the day preceding the assessment, only drank and cooked with properly stored and treated water as compared to what was measured initially at baseline. In the case of this indicator, if the person the Volunteer/partner works with was already drinking and cooking with properly stored and treated water prior to beginning to work with the Volunteer/partner, then the Volunteer would not be able to count him/her for this activity because the Volunteer’s work did not actually lead to the desired change. However, if as a result of working with the

Volunteer/partner, the individual decided to start using only properly stored and treated water for drinking and cooking purposes, that would count because the Volunteer's work influenced the adoption of this practice.

6. **General Reporting in the VRF:** The "number achieved" (or numerator) that Volunteers will report against for this indicator in their VRFs is the number of individuals who, in the day preceding the assessment, only drank and cooked with properly stored and treated water, after working with the Volunteer/partner. The "total number" (or denominator) that Volunteers will report on for this indicator in their VRFs is the total number of individuals who participated in the activities designed to meet this indicator.
7. **Reporting on Disaggregated Data in the VRF:** This indicator is disaggregated by "Sex" and "Age". When reporting in the VRF, a Volunteer should disaggregate the individuals who achieved the outcome by 1) male and female and 2) 0-9 years, 10-17 years, 18-24 years, and 25+ years.

Data Quality Assessments (DQA): DQA are needed for each indicator selected to align with the project objectives. DQAs review the validity, integrity, precision, reliability, and timeliness of each indicator. For more information, consult the Peace Corps MRE Toolkit.

Alignment with Summary Indicator: Behavior change to improve health