STANDARD SECTOR INDICATOR CODE: HE-055	**Trained to Purify and Properly Store Drinking Water:** Number of individuals trained/educated on purifying and proper storage of drinking and cooking water.		
HEALTH SECTOR	**Sector Schematic Alignment** • **Project Area:** Maternal, Neonatal, and Child Health • **Project Activity Area/Training Package:** Infant and Young Child Health • **Project Area:** Environmental Health • **Project Activity Area/Training Package:** WASH: Water, Sanitation, and Hygiene		
Type: Output	**Unit of Measure**: Individuals		**Disaggregation:** **Sex:** Male, Female **Age:** 0-9 years, 10-17 years, 18-24 years, 25+ years

To be counted for this indicator the following criteria must be met:
- The individuals 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 Water must be able to be withdrawn in a sanitary manner such as through a tap, spigot, spout or other narrow opening.

Ways to purify water: defined as 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

- **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.

- o 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.

- o *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.

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 have detectable *E. coli* in any 100 milliliter (ml) sample.

Rationale: Unsafe drinking water along with poor sanitation and hygiene are the main contributors to an estimated 4 billion cases of diarrheal disease each year and causing more than 1.5 million deaths annually, 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 diseases in development and emergency settings. Promoting household water treatment and safe water storage 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:** Volunteers should use data collection tools to measure progress against project indicators. For this Standard Sector Indicator, a tracking sheet that collects the names, age, sex, and profession of participants who were trained in safe water storage and treatment will capture the needed data.

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:** Because this is an output indicator that does not measure any change, there is no need to take a baseline measurement before reporting the results of this indicator. However, Volunteers should take baseline measurements for any outcome indicators that are related to this output

indicator. Refer to the project framework to review related outcome indicators.

4. **Frequency of measurement:**   An output indicator only needs to be measured once—in this case, every time the Volunteer holds a training event (or series of events) safe water treatment and storage, he/she will want to keep track of the number of unique individuals who participated in the event(s) and report on it in the next VRF.

5. **Definition of change**: Outputs do not measure any changes. However, if desired, a minimum expectation can be set for meeting the output, which can be particularly useful in the area of training. For instance, a Peace Corps project may decide that for any training participant to be counted as having been sufficiently trained in a certain area, he/she needs to attend at least "X% of the training" or "X number of days of the training." If a specific requirement is not set forth here in the indicator data sheet, it is up to project staff to determine what minimum criteria they want to set (if at all).

6. **Reporting**: In the case of output indicators, Volunteers only have one box to fill in on their VRF: "total # (number)."

7. **Reporting on Disaggregated Data in the VRT**: This indicator is disaggregated by "Sex" and "Age". When reporting in the VRF, a Volunteer should disaggregate the total number of individuals 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: No link