VISUAL FIELD GUIDE

Water Supply

A GUIDE FOR QUICK IDENTIFICATION OF SERIOUS ENVIRONMENTAL CONCERNS IN SMALL-SCALE WATER SUPPLY ACTIVITIES

About the Visual Field Guide Series

Visual Field Guides are intended for use during field visits by USAID and implementing partner staff.

They are intended to ensure that the most common serious environmental deficits in activity design and management are quickly and easily identified for corrective action.

The field guides complement the more detailed guidance found in USAID's Environmental Guidelines: www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices.

For the Visual Field Guides landing page, go to www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/visual-field-guides.

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PROBLEMS: A **YES** answer to any of the following indicates an environmental deficit in activity design or management. For USAID-funded activities, corrective action will be required. Notify the Chief of Party and the USAID Project Manager.

1. **Is the tank or well that supplies water for domestic use uncovered?**

Issue: *Easily results in contamination of water with pathogens. Can provide a breeding habitat for disease vectors, including mosquitoes.*

The photo depicts an uncovered well.

YES NO

2. **Is there stagnant water around the water supply point?**

Issue 1: *May provide a habitat for disease vectors and attract livestock. See Question 3.*

Issue 2: *Likely to contaminate well water.*

YES NO

3. **Do livestock share the water supply point?**

Issue 1: *Contaminates water with livestock feces and body fluids.*

Issue 2: *May attract disease vectors (particularly flies), which are a source of contamination.*

YES NO

4. **Is there soil erosion in the vicinity of the water supply point?**

Issue 1: *Usually reduces the supply point's service period by undercutting concrete aprons, well covers, and pump footings.*

Issue 2: *Often leads to stagnant water around the supply point. See Question 2.*

YES NO

Take a Water Sample

Water quality tests determine potability. *Prior to public provision,* all USAID-funded water supplies should be tested for arsenic and fecal coliform at a minimum—and ideally for all the contaminants listed below. (Test kits are available for both arsenic and fecal coliform. See recommendations below.)

A field visit is an opportunity to take a water quality sample for testing. A sample *definitely* should be taken if any of the risk factor conditions noted in this field guide are present.

If you do not have a test kit, collect a sample in a clean glass jar. Keep the jar out of excessive heat and direct sunlight. Samples should be delivered for a lab or kit test within two days.

Currently, there is no way to determine whether groundwater contains arsenic before drilling a well. As such, USAID requires quarterly arsenic testing during the first year of all USAID-funded projects supplying groundwater.

Selected Water Quality Standards for Human Health*

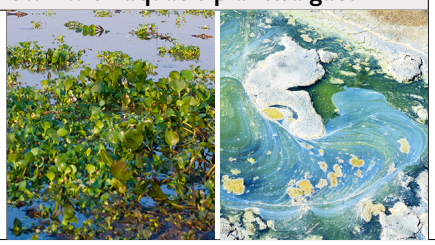
- Arsenic < 0.01 mg/L (10 ppb)
- Lead < 0.01 mg/L
- Total Coliforms *not detectable in any 100mL sample*
- Copper < 2 mg/L
- Nitrate (as NO_3) < 50 mg/L
- Nitrite (as NO_2) < 0.2 mg/L for long-term exposure
- Fluoride < 1.5 mg/l

*WHO, *Guidelines for Drinking-Water Quality (3rd Edition),* 2006

Test kits

- Hach Arsenic Test Kit (approved by USAID): www.hach.com
- Coliform test kits:
  - Idexx Colilert: www.idexx.com/en/water/water-products-services/colilert/
  - Coliscan Easygel®: www.micrologylabs.com/

POTENTIAL PROBLEMS: A **YES** answer to any of the following indicates that **an environmental concern MAY exist; follow-up is required**. Notify the Chief of Party and the USAID Project Manager.

1. **Is there a pit latrine, waste dump, or obviously contaminated surface water within 30 meters of a shallow well?** *Issue: Likely results in the contamination of the well with pathogens or chemicals.* *Note: Look beyond the boundaries of the project site. As in the picture, trees or buildings can hide facilities of concern.* 	YES NO
2. **Do nearby surface waters show evidence of being abnormally low for the season?** *Issue: May indicate overdraw of groundwater or excess diversion, with adverse impacts on ecosystems and users.* *In coastal areas, overdraw of groundwater may lead to saline water intrusion.* 	YES NO
3. **Are nearby surface waters overgrown with aquatic plants/algae?** *Issue: Often indicates that surface waters are contaminated with fertilizers and/or sewage. If so, shallow groundwater is also likely to be contaminated.* 	YES NO
4. **If local children drink from the water source, do they contract water-borne illnesses more frequently and/or more severely than in the past?** *Issue: Indicates potential water contamination.*	YES NO
5. **Taste the water: Does it taste bad or salty? Do users complain of a bad taste?** *Issue: Indicates potential water contamination or saline intrusion (overdraw of groundwater).*	YES NO
6. **Observe the water: Is it off-color? Is there sediment? Does it smell bad? Do users complain about any of these issues?** *Issue: Indicates potential water contamination.*	YES NO
7. **On a seasonal level, do wells go dry at the inspection site or in the surrounding area that did not go dry in the past?** *Issue: Indicates potential overdraw of groundwater.*	YES NO
8. **Is water leaking from tanks/pipes/supply points?** *Issue: Constitutes wasteful use of a critical environmental resource, especially in areas with limited water.*	YES NO