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Special Topic: Water Quality Testing

GEMS Environmental Compliance-ESDM Training Series
USAID/Malawi ▪ March 2013

Session Objectives

- Establish the importance of water quality testing
- Understand USAID requirement for water quality testing
- Discuss development of Water Quality Assurance Plans
- Review testing options

Why test water quality?

- A safe water supply is central to many types of development objectives
 - *Community health (e.g., WASH)*
 - *Agriculture*
 - *Food processing/manufacturing*
 - *Health care provision (e.g., hospitals, clinics, etc.)*
- Testing is the primary means of understanding water quality and of ensuring provision of a safe supply and environmental health
- Water quality testing helps protect the results and the reputation of the project

The USAID approach

- USAID Environmental Procedures address water quality testing through:
 - *Inclusion of water quality-related risks in the IEE (or EA)*
 - *EMMP development and implementation*
 - *Regional best practice*
- Many testing standards conform with international practices in addition to U.S. law
- USAID-funded projects must also adhere to national water quality standards
 - *Malawi National Water Policy (NWP) of 2005*

Water quality standards in Malawi

Ministry of Agriculture, Irrigation and
Water Development



How does USAID require testing?

- The Reg. 216 pre-implementation environmental review process identifies and characterizes potential adverse impacts related to water quality
 - *IEE (or EA) includes conditions to mitigate adverse impacts*
- EMMP integrates the water quality-related conditions
 - *Conditions are “operationalized” through specific mitigation, monitoring, and reporting requirements*
 - *IEE conditions may specify need to conduct water quality testing*
- Based on complexity or risk, specialized compliance documentation may be needed

USAID 'best practice' approach to testing

- The Water Quality Assurance Plan (WQAP)
 - *Preparation of a WQAP is frequently included as an IEE/EA condition to mitigate potential adverse impacts*
 - *WQAP deals specifically with water quality testing*
 - *WQAP is prepared by partner and reviewed/approved by USAID; REA approval is frequently required*
 - *WQAP can be attached to—and implemented in parallel with—EMMP, providing detailed guidance for project staff*

Scope of the Water Quality Assurance Plan

- The Water Quality Assurance Plan typically includes:
 - *Identification of responsible parties*
 - *Standards for initial water quality testing*
 - *Monitoring regime (e.g., contaminants, frequency, method)*
 - *Response Protocol*
 - *Requirement for Arsenic (As) testing of groundwater from USAID-funded well projects—a USAID priority!*

Making the WQAP an IEE condition

- Water quality assurance plan: the Project will develop and implement a Water Quality Assurance Plan that will ensure that all new and rehabilitated USAID-funded water supplies provide safe drinking water, defined as meeting local and WHO water quality standards.
 - This Plan must be approved by the REA prior to initiation of these activities.
 - The plan must include and assign responsibility to the Project for initial water quality testing. When feasible, the program must also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs.
 - The standards for initial and ongoing testing— including types of contaminants for which testing should be conducted, testing methods, testing frequency, and issues such as public access to results— should follow any applicable USAID guidance, as well as local laws, regulations and policies.
 - The plan must include a response protocol in the event that the water does not meet water quality standards.
 - The plan must include testing for Arsenic per Guidance Cable State 98 108651. Specifically, the USAID managing team must assure that the standards and testing procedures described in “Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa,” available [here](#), are met. (Note that this guidance requires initial testing, and quarterly testing for four quarters. *If the program terminates in less than four quarters, remaining testing is the responsibility of the mission. Water violating the 10ppb Arsenic standard may not be supplied for public consumption.*) ¹

Options for water quality testing

- WQAP will specify test method, sampling, etc.
- Testing technology varies
 - *Complexity*
 - *Cost*
 - *Speed*
 - *Accessibility*
 - *Need to consider these factors when developing WQAP*

Options for water quality testing

- Field test kits are available
 - *Numerous As field test kits available; less than \$1 USD/test*
 - *Field testing for Coliform more challenging; mobile kits available, but costly. Need for incubation presents challenge*
- Laboratory analysis
 - *Can provide more reliable results*
 - *May incur significant expense*
 - *Transport from sampling site can compromise results*
- Availability/accessibility are key considerations