Multiple data sources for drinking water quality

Workshop on post-2015 Indicators
and Monitoring for Urban WaSH

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30th October 2012

Outline

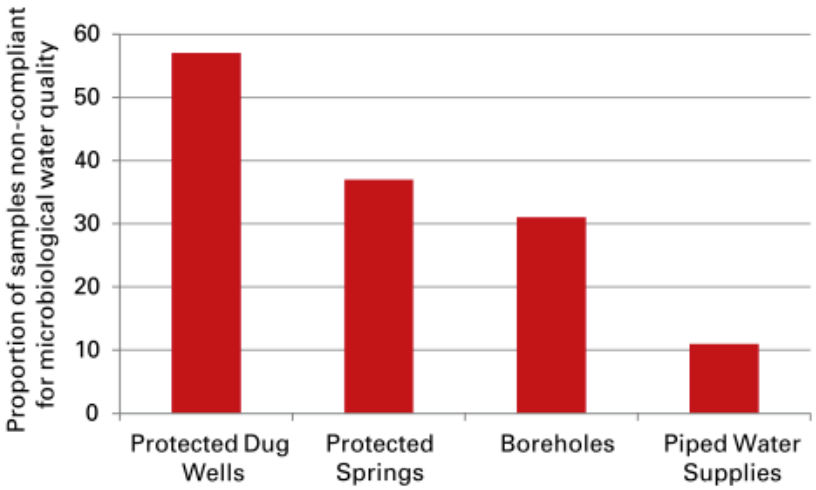
1. Why water quality?
2. Challenges
3. Main approaches
4. New and emerging approaches
5. Can we combine approaches?
6. Recommendations

Why water quality?

- "access to *safe* water" vs "use of an *improved* source"

- RADWQ demonstrated:
  - 7-15% reduction across countries, excluding Jordan.
  - Microbial WQ has the biggest effect (of the health related parameters).
  - Magnitude of the adjustment could be substantial, potentially billions

- Can we include priority water quality parameters in global monitoring?



Average noncompliance levels with microbial water quality guideline values by improved source type for the RADWQ studies

JMP (2011) Drinking-water: equity, safety and sustainability

Challenges

Defining “safe”

Bias towards large urban utilities

Availability of data (urban vs rural)

High cost of testing, especially rural

Where to sample?

Frequency of testing

Monitoring of disadvantaged groups

Seasonality

Main approaches

Using national data from regulators or utilities

- *RegNet, US Safe Water Act and others*
- *IBNet?*

Multipurpose household survey

- *Including a water test in DHS, MICS etc.*

Dedicated water quality survey

- *RADWQ*

Approaches: new and emerging

Tools and sources

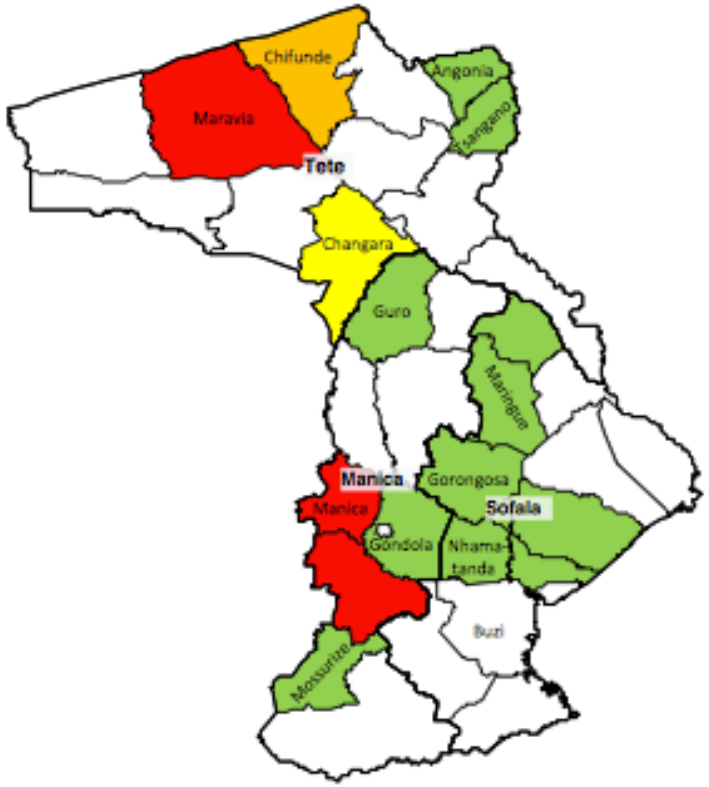
- mWASH
- Water point mapping
- Crowd sourcing

Tests and methods

- Simpler field tests
- Alternative methods
- Other proxies?

Sampling approaches

- For gap filling, targeting the informal secto
- Fixed and random



Risk based mapping in three provinces of Mozambique (*for illustration purposes only*)

Can we combine approaches?

Three possible steps:

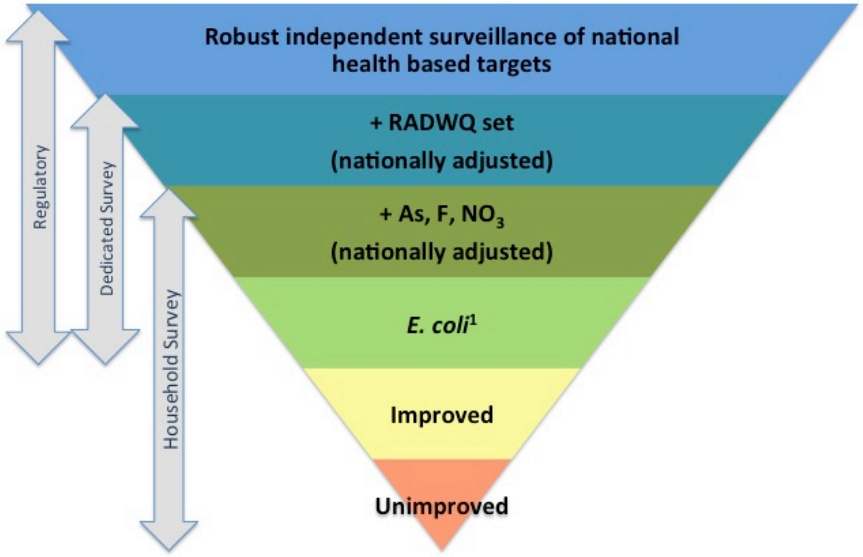
1. Stratify
2. Adjust for intensity of sampling
3. Gap filling

Recommendations

Aim for regulator water quality data

Combine data from multiple sources

Explore different ways of addressing safety



Water quality monitoring hierarchy
(Adapted from JMP Technical Taskforce on monitoring drinking-water quality, 2010)

[1]*Total coliforms or thermotolerant are (more stringent) alternatives*

Questions?

Comparison of main approaches

	Technical	Financial	Political	Example
Multipurpose household surveys	Match with current JMP data sources Water quality at household, but not source or extra household settings Linked to other household data, good for relating WASH to other household characteristics Single timepoint, fixed timing	Established funding for household surveys, water quality testing may increase overall cost by less than 5% Costs per sample may be lower than dedicated surveys due to savings on transport and labor, especially if a subsample is taken.	Data perceived as reliable Integrated monitoring may help to link to other development targets. Can be used to check national data. Limited involvement of and ownership by national WASH sector Highlights household water quality	DHS (Peru and Bangladesh)
Dedicated water quality survey	Additional burden of reporting. Disaggregation very limited unless sample is very large Water quality at source and/or household (can also be adapted for extra household settings) Possible to include sanitary survey Single timepoint, flexible timing	No established funding source Cost may not vary considerably between countries as the sample size is determined by sources used not population Cost estimated at $21k to $95k per country, depending on parameters	Data perceived as reliable. Responsible organization(s) will need to select regions or countries Data belongs to WASH sector and the results can readily be acted upon	RADWQ
Regular monitoring (provided by regulators or utilities)	Data available from many countries Anticipate substantial bias (more samples from larger and better managed water utilities) Water quality generally at tap or in distribution network Frequency of sampling varies greatly Possible to address water quality in public places Collection and analysis of data could complex. More representative of water safety than one-off surveys	Data is available and would be inexpensive to collect, but potentially expensive to analyze. Monitoring is expensive and can cost around $15 (large urban) and $30 (small urban or rural) per 1000 capita. Budget could be used to augment testing in areas where it is limited or non-existent	Data may not be perceived as reliable. Potentially restricted access to data or limited willingness to share, especially if results are poor Data in some countries may not adequately differentiate between extra household settings Usually point of collection, not point of consumption Increased transparency of water quality results	RegNet