PH1A: Define drinking water quality standards

REGULATORY FUNCTION: **PUBLIC HEALTH** | **PH1A**

OBJECTIVE PH1

There are rules ensuring public health standards for safe drinking water and sanitation

ACTION CARD PH1A

DEFINE DRINKING WATER QUALITY STANDARDS

COST: Low **FREQUENCY:** One time

TARGET GROUPS: Regulators, ministries of health, service operators

DESCRIPTION

In some cases, public health regulators transpose and update health-based limits or minimum requirements for drinking water quality, with reference values assigned to different water quality parameters. In other cases, regulators have the role of enforcing them. Often, countries look to the 'WHO guidelines for drinking water quality' as a reference guide, containing specific sheets that detail known public health implications of contaminants in water, and make recommendations for maximum permissible thresholds. Regulators are obliged to strictly follow these guidelines when agreeing water quality parameters with operators.

EXPECTED OUTCOMES

- National regulators convert public health norms and standards into drinking water quality standards.
- Service operators are legally bound by drinking water standards when providing drinking water services.
- Consumer health is adequately protected.

EXAMPLE 1: KENYA

In **Kenya**, standards are developed by the Kenya Bureau of Standards (KEBS). The role of the Water and Sanitation Regulatory Board (WASREB) is to enforce the following basic requirements for drinking water, that it is: free from pathogenic (disease causing) organisms; contains no chemicals that have adverse or long-term effects on human health; is fairly clear (i.e. low turbidity, little colour); is not saline (salty); contains no compounds that cause an offensive taste or smell; and does not causing an encrustation of the water supply system nor stains clothes washed in it.

Schedule 5 Microbiological limits for drinking water and containerized drinking water (Source: Adopted from KS 05-459: Part 1: 1996)

SL. NO.	Type of micro-organism	Drinking Water	Containerized Drinking Water	Methodsof Test
(i)	Total viable counts at 37°C, per ml, max	100	20	KS 05 – 200+
(ii)	Coliforms in 250ml	Shall be absent	Shall be absent	KS 05 – 200
(iii)	E. Coli in 250ml	Shall be absent	Shall be absent	KS 05 – 200
(iv)	*Staphylococcus aureus* in 250ml	Shall be absent	Shall be absent	KS 05 – 200
(v)	Sulphite reducing anaerobes in 50ml	Shall be absent	Shall be absent	KS 05 – 200
(vi)	*Pseudomonas aeruginosa fluorescence* in 250ml	Shall be absent	Shall be absent	KS 05 – 200
(vii)	*Streptococuus faecalis*	Shall be absent	Shall be absent	KS 05 – 200
(viii)	Shigella in 250ml	Shall be absent	Shall be absent	KS 05 – 200
(ix)	Salmonella in 250ml	Shall be absent	Shall be absent	KS 05 – 200

SL .NO	SUBSTANCEOR CHARACTERISTIC	UNIT	DRINKING WATER	BOTTLED DRINKING WATER	METHODS OF TEST
(i)	Color	True color units	15+	15+	KS 05 – 459
(ii)	Taste and odor		Shall not be offensive to consumers	Shall not be offensive to consumers	KS 05 – 459
(iii)	Suspended matter		Nil	Nil	KS 05 – 459
(iv)	Turbidity	NTU, max	5	1	KS 05 – 459
(v)	Total dissolved solids	mg/1, max	1,500	1,500	KS 05 – 459
(vi)	Hardness as CaCo3	mg/1, max	500	500	KS 05 – 459
(vii)	Aluminum as A1	mg/1, max	0.1	0.1	KS 05 – 459
(viii)	Chloride as Cl-	mg/1, max	250	250	KS 05 – 459
(ix)	Copper as Cu	mg/1, max	0.1	0.1	KS 05 – 459

EXAMPLE 2: NICARAGUA

In Nicaragua, Technical Standard No. NTON 11-051-19 approved on September 30, 2020 defines drinking water as that which fulfils quality standards for drinking water as described in the WHO Guidelines for Drinking Water Quality and stipulates that water for human consumption and hand-washing of agricultural workers must be drinking water.

EXAMPLE 3: URUGUAY

In Uruguay, UNIT Standard 833:2008 issued by the Uruguayan Institute of Technical Standards establishes a series of requirements that must be met in drinking water for human consumption, regardless of water collection point, treatment type, production and distribution system. The requirements were adopted through a review process essentially based on World Health Organization (WHO) Guidelines. Of the total parameters that have been standardized in the country, 13.04% are below the values defined by the WHO, 7.83% are above WHO values and 46.96% match WHO values, while the WHO does not have reference values for the remaining 32.17% of parameters.

LINKS

Kenya: WASREB Water Quality Guidelines: https://wasreb.go.ke/downloads/Water_Quality_&_Effluent_Monitoring_Guidelines.pdf

WHO Guidelines for Drinking Water Quality: https://www.who.int/water_sanitation_health/publications/drinking-water-quality-guidelines-4-including-1st-addendum/en/

Nicaragua: WHO Guidelines for Drinking Water Quality, Technical Standard No. NTON 11-051-19:

https://www.who.int/water_sanitation_health/publications/drinking-water-quality-guidelines-4-incluido-1st-addendum/en/

http://legislacion.asamblea.gob.ni/normaweb.nsf/9e314815a08d4a6206257265005d21f9/4695f50dc80af6a306258631005864ed?OpenDocument

Uruguay:

http://www.ose.com.uy/descargas/Clientes/Reglamentos/unit_833_2008_.pdf; https://iris.paho.org/handle/10665.2/55388

INTERNAL CAPACITIES NEEDED AND THE ROLE OF PARTNERS

Establishing drinking water quality standards requires a blend of technical and legal expertise, including an understanding of the current level of water treatment, laboratory testing capacity, and the ambient water quality status of water sources. Development partners could provide technical support ministries of health to translate recommended maximum permissible thresholds from the WHO guidelines to suit local contexts. Regulators can also benefit from such training, by building internal monitoring capacity for actions that they commonly perform on behalf of ministries of health.