



Centre for Affordable  
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This presentation is used with  
Lesson Plan 16: Physical  
Parameters in the Drinking Water  
Quality Testing Trainer Manual

Available at

[www.cawst.org/resources](http://www.cawst.org/resources)



# Physical Parameters of Drinking Water Quality



# Learning Expectations

- Discuss the importance of physical testing.
- List key physical parameters of drinking water and how to test for them.
- Demonstrate ability, with limited supervision, to test turbidity using a turbidity tube.



# Physical Parameters Of Drinking Water

- **Smell** – moldy, organic, foul, sweet
- **Taste** – bitter, sweet, salty, minerals, organic
- **Feel** – Temperature (cool water is preferred)
- **See** – Colour and turbidity (cloudy appearance)

# What Can You Smell and Taste?

- Earthy, musty, moldy
  - Produced by some types of bacteria
- Grass, hay, straw, wood
  - Algae and decaying vegetation
- Marshy, swampy, septic, sewage, rotten egg
  - Sulphur – human or natural
- Chlorine
  - Residual from drinking water treatment
- How is it measured?
  - Use your senses
  - Do not breathe in the smell directly
  - Use your hand to waft vapors towards your nose

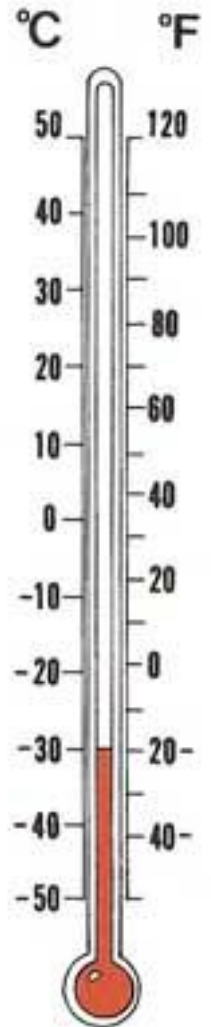


Credit: Chemical Paradox

# What Can You Feel?

## Temperature

- How is it measured?
  - Thermometer in Celsius or Fahrenheit
- Ideal temperature is 4–10°C (39-50°F)
- What do you prefer to drink? Cool or warm water?



# What Can You See?

## Colour

- Reddish, brown, or yellow
  - Iron
- Black
  - Bacteria growth
  - Manganese
- Dark brown or yellow
  - Industrial waste
  - Decaying vegetation
- Foam
  - Detergents



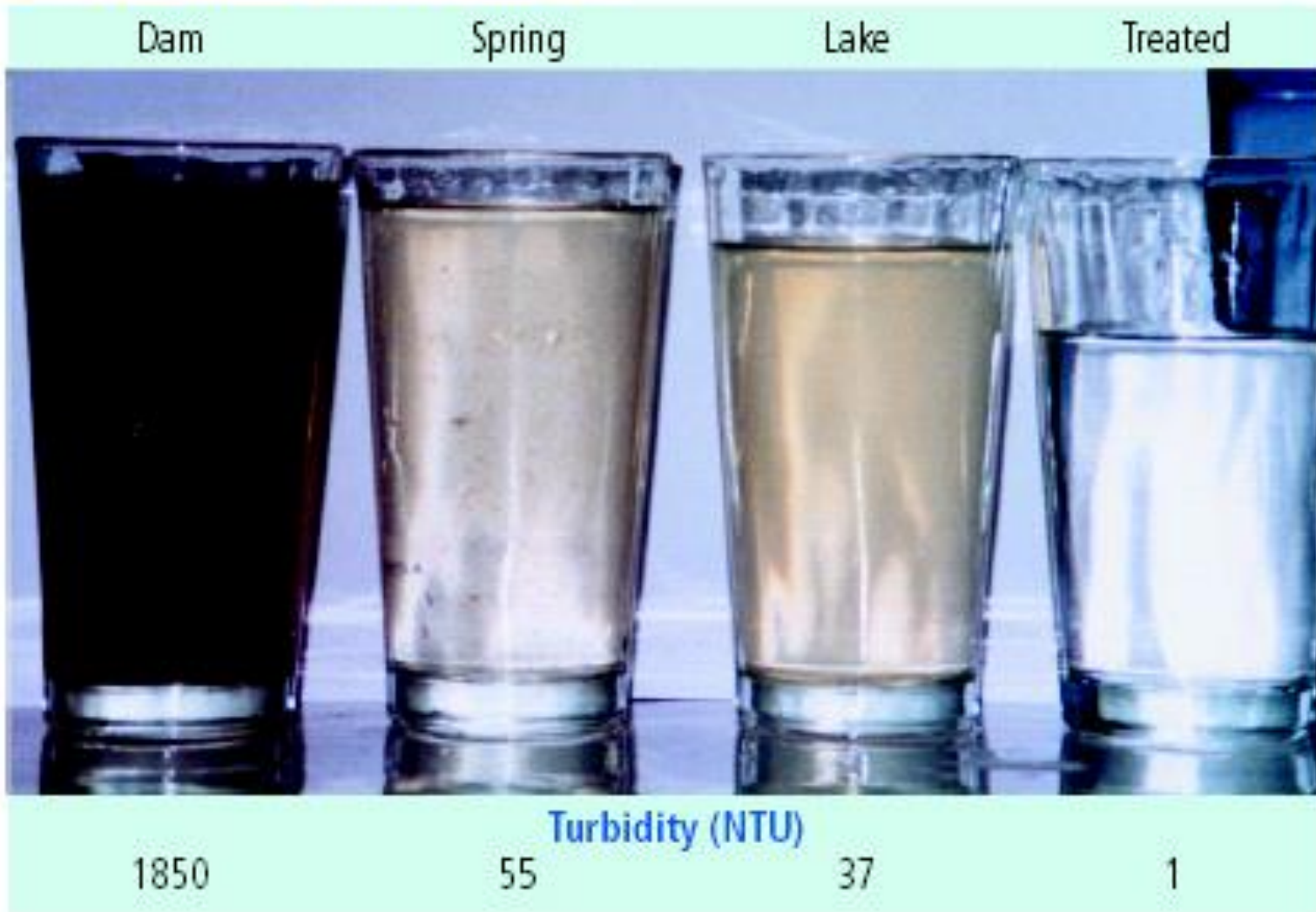


# What Can You See?

## Turbidity

- What is turbidity?
  - Suspended particles of sand, silt or clay giving water a cloudy appearance
- No direct health impacts
- Indicator of microbiological contamination
- Reduces effectiveness of chlorine treatment
- May produce other by-products when chlorine is added

## Kenyan Drinking Water Samples



Credit: P & G Health Sciences Institute

# Turbidity

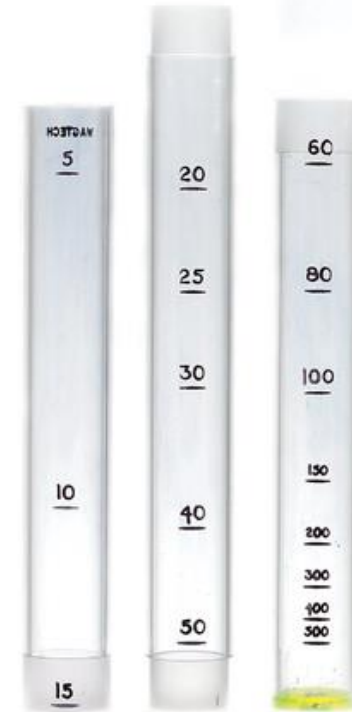
- How is it measured?
  - Turbidity tube or digital turbidimeter
  - NTU = Nephelometric Turbidity Unit
  - Nephelometer measures intensity of light scattered by the suspended particles
- WHO recommends that turbidity be no more than 1 NTU, and preferably much lower, for proper disinfection
- Biosand filter inlet water <50 NTU

# Turbidity Tubes



Two part turbidity tube  
used in a portable kit

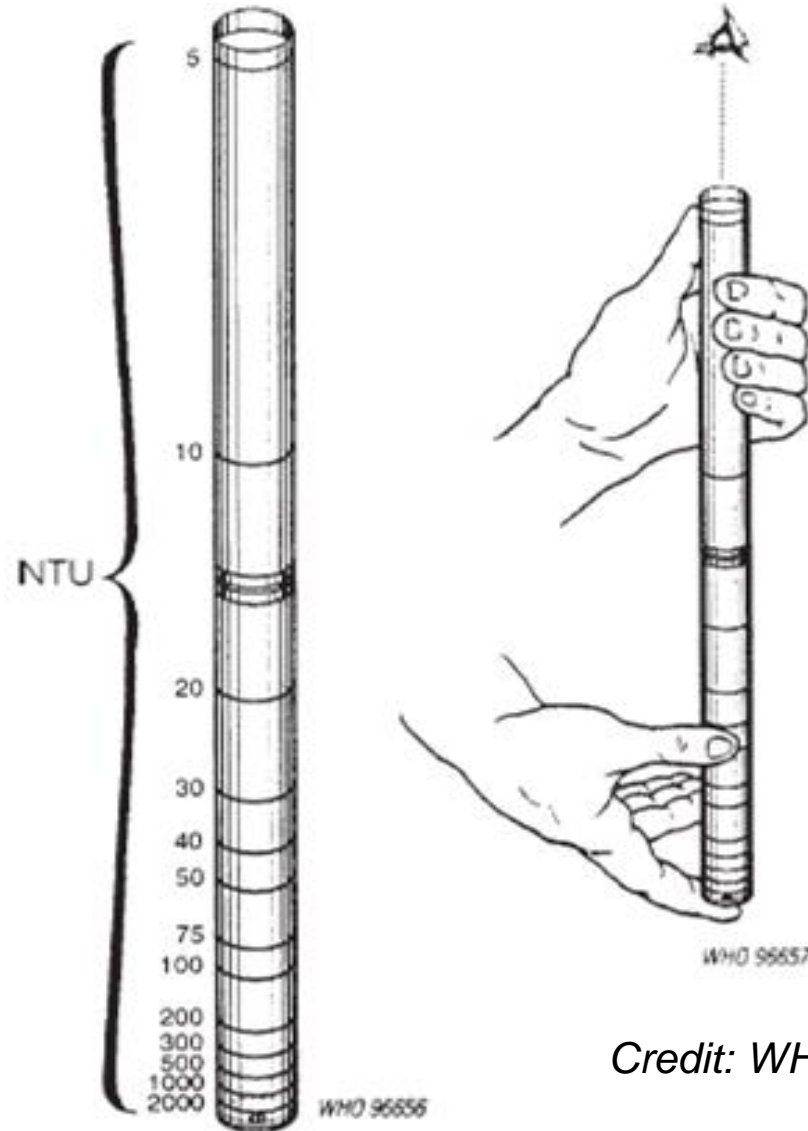
Credit: Palintest, International UK



Two part turbidity tube  
used in a portable kit

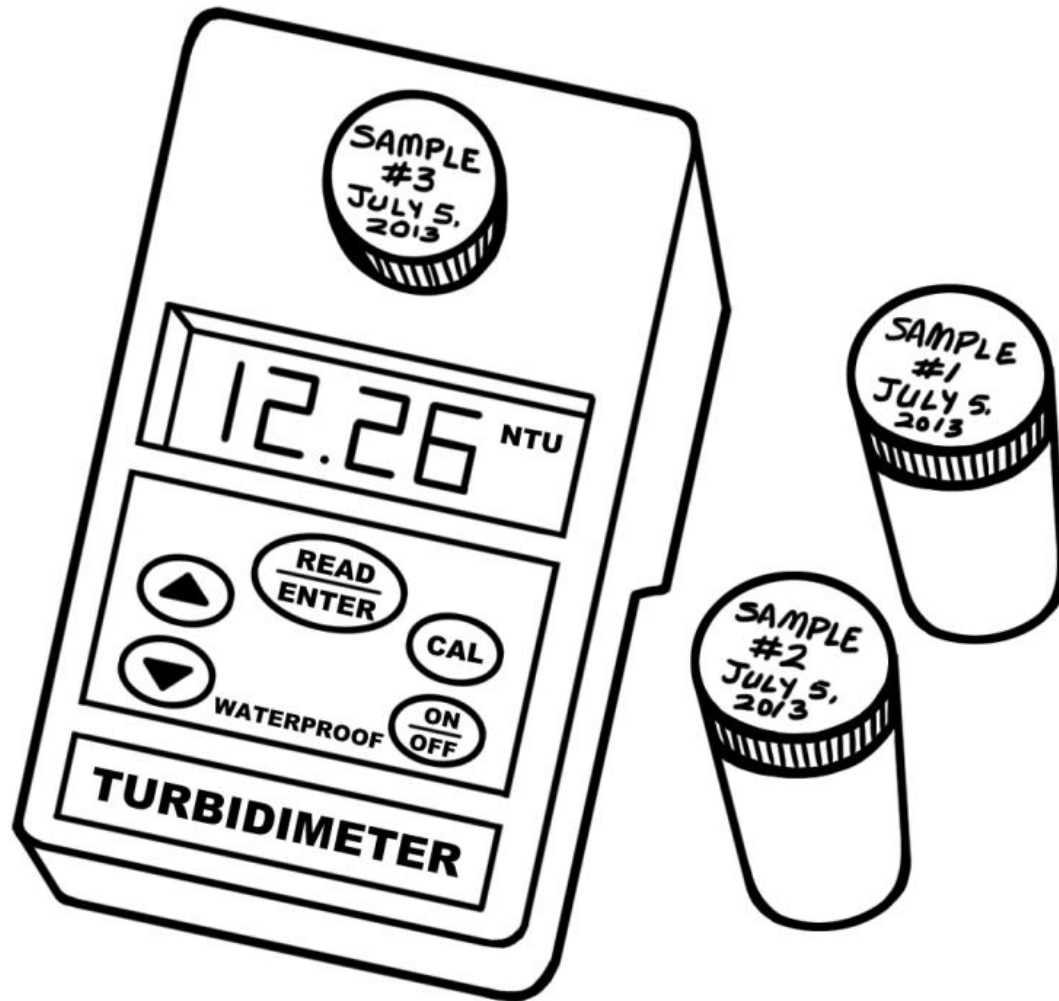
Credit: Palintest, International UK

# Using a Turbidity Tube



*Credit: WHO, 1997*

# Digital Turbidimeter



# Review

1. Do physical parameters have direct health effects?
  - No but they may indicate chemical or microbiological contamination
2. What causes turbidity?
  - Turbidity is caused by sand, silt and clay floating in water