Water quality management training for operational staff

World Health Organization

International Water Association

Introduction

Overview of water safety plans

Introduction Overview of WSPs

Session structure

- Background to WSP
- What is a WSP?
- Why do we need them?
- WSP approach
- Benefits of a WSP
- Requirements
- Exercise

Introduction Overview of WSPs

Background to WSPs

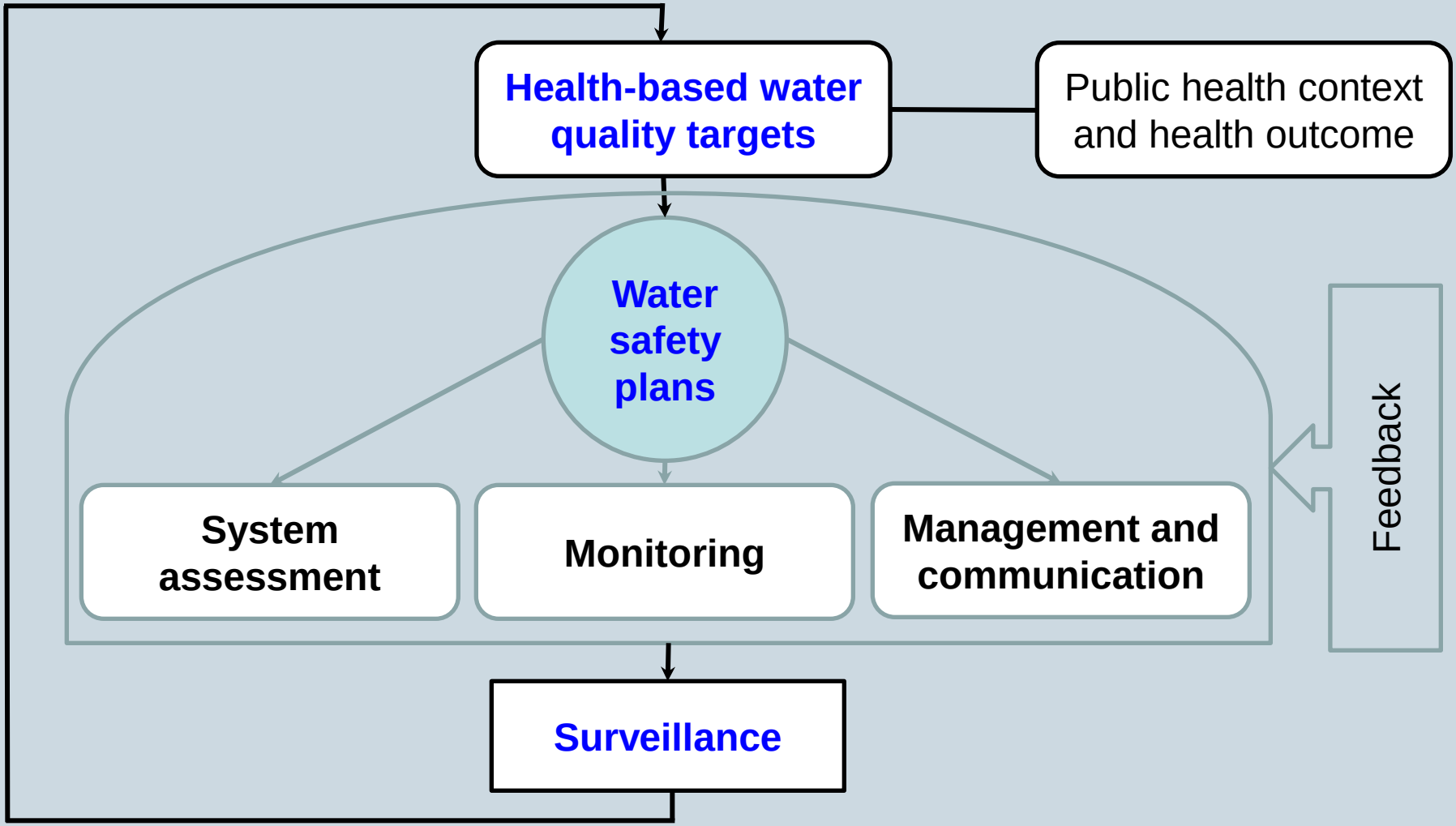
- HACCP principles
- Multi-barrier approach
- IWA Bonn Charter
  - Bonn Charter, 2004 “to provide good safe drinking water that has the trust of the consumers”
  - Integrated and proactive approach for entire system
- WHO
  - 2004 - Guidelines for Drinking-water Quality, 3rd Edition
  - Water Safety Plans – risk management from catchment to consumer
  - 2011 - Guidelines for Drinking-water Quality, 4th Edition

Introduction Overview of WSPs

What is a WSP?

- **A way to ensure safe drinking-water by:**
  - Knowing the system thoroughly
  - Identifying where and how problems could arise
  - Putting barriers and management systems in place to stop the problems before they happen
  - Making sure all parts of the system work properly
- **A comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer**
- **Fits within a framework for safe drinking-water – health driven**

Introduction Framework for safe drinking-water



Introduction Overview of WSPs

Why do we need WSPs?

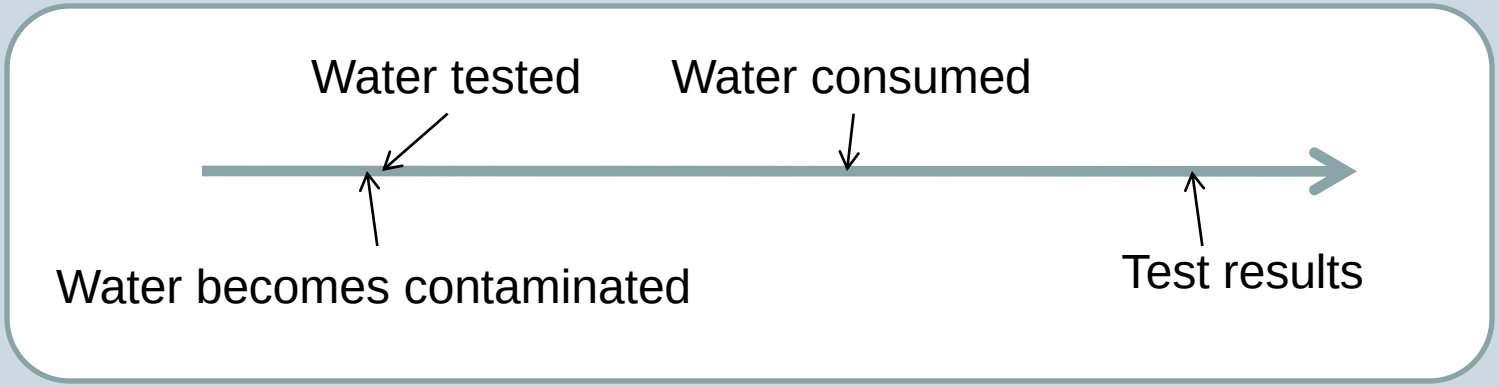
- **783 million lack access to “safe” drinking-water**
- **Traditional ways of ensuring water quality?**
  - Measure water quality:
    - At works
    - At point of use

Picture source: National Water and Sewerage Company Uganda

Introduction Overview of WSPs

Why do we need WSPs?

- **Why end-product testing (compliance monitoring) is not enough?**
  - **Reactive** – problem has already occurred
  - Sampling takes time – response delayed



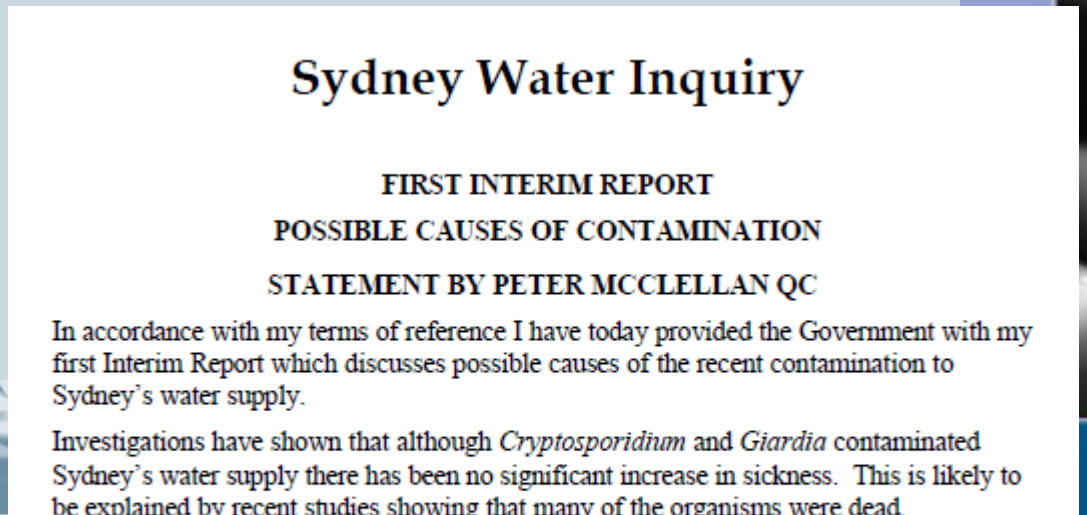
- **End-product testing still important in verification**

Introduction Overview of WSPs

Why do we need WSPs?

•In developed nations, 74 deaths were reported from 69 outbreaks in the 1970s (USA, Canada, United Kingdom, Sweden, New Zealand, Switzerland)

- Mainly due to inadequate system management
- Easily prevented
- Accidents waiting to happen



Sydney Water Inquiry

FIRST INTERIM REPORT

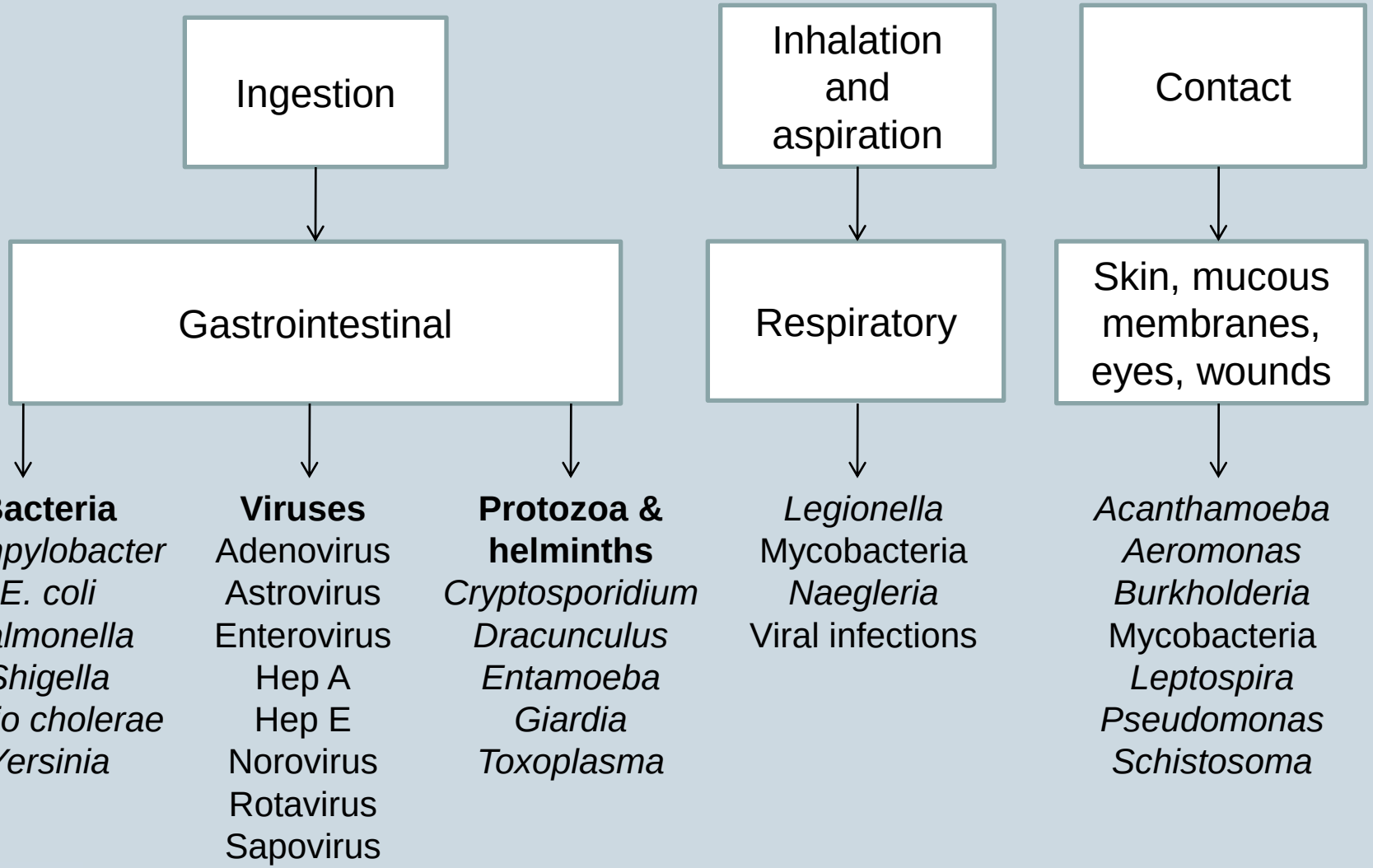
POSSIBLE CAUSES OF CONTAMINATION

STATEMENT BY PETER MCCLELLAN QC

In accordance with my terms of reference I have today provided the Government with my first Interim Report which discusses possible causes of the recent contamination to Sydney's water supply.

Investigations have shown that although *Cryptosporidium* and *Giardia* contaminated Sydney's water supply there has been no significant increase in sickness. This is likely to be explained by recent studies showing that many of the organisms were dead

Introduction Overview of WSPs

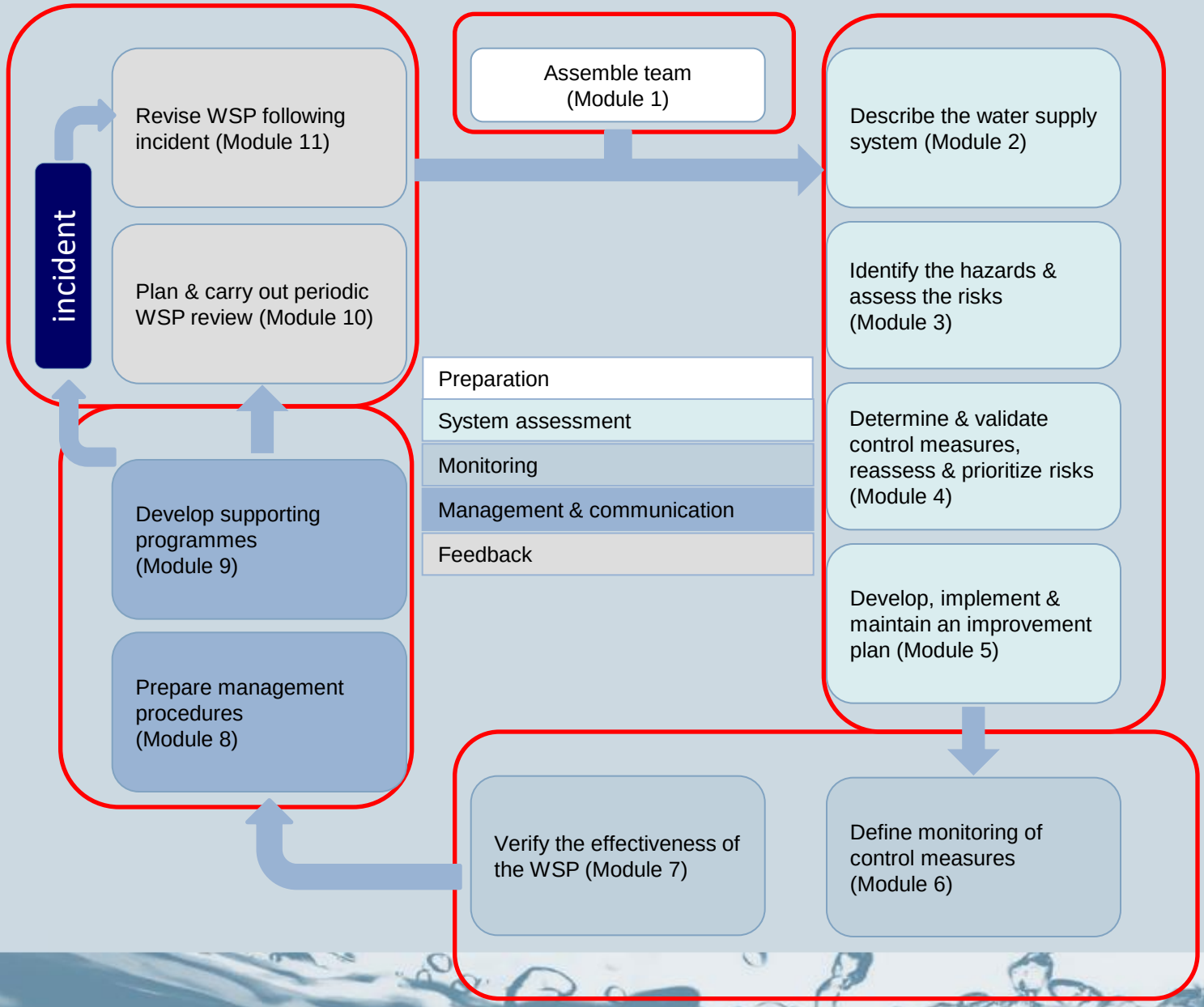


Introduction Overview of WSPs

WSP approach

- **"Route maps" to best provide safe water**
  - Based on **proactive** risk management
  - Entire supply: catchment to point of use
- **Five basic components:**
  - Preparation
  - System assessment
  - Monitoring
  - Management and communication
  - Feedback

Introduction Overview of WSPs



Introduction Overview of WSPs

WSP approach

- **Should address all components of a water supply**
- **Will vary in complexity according to situation**
- **Objectives:**
  - Minimize contamination of source water
  - Reduce or remove contamination by treatment
  - Prevent contamination during storage, distribution and handling

Introduction Overview of WSPs

WSP approach

- **Safety is secured through a multi-barrier approach**
- **Key control points are known and monitored effectively**
- **Does not necessitate starting over:**
  - Build on existing procedures
  - Continuous improvement
  - Transparent and shared experience with all stakeholders

Introduction Overview of WSPs

Benefits of a WSP

Utilities

- Clearer understanding of roles and responsibilities
- Helps to prioritize limited resources most effectively
- Reduced costs

Consumers

- Increased confidence in water supply
- Safer water

Regulators

- Clear risk-based targeting and justification of investment
- Anticipates future regulatory agenda

Introduction Overview of WSPs

Requirements

- **Management commitment**
- **Suitable WSP team (experts from catchment to point of use)**
- **Competent and trained staff**
- **“Right” organizational culture**

Introduction Overview of WSPs

Exercise

- **Group work**
- **Fill in the gaps in Table 0.1. Match up:**
  - water quality parameters
  - corresponding potential health impact
  - potential source of contaminant
- **15 minutes**