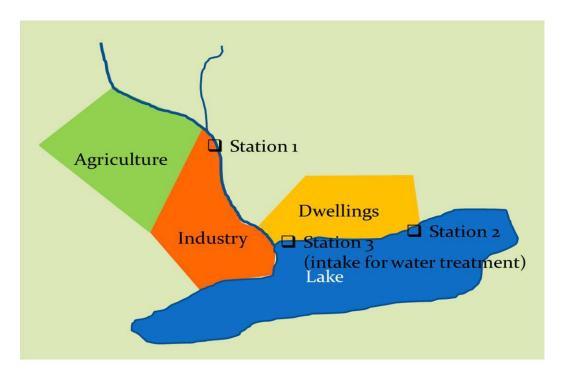
# **Environment Statistics Training - FDES Chapter 3.1 Environmental Quality**

- 1. Region with 3 water quality monitoring stations
- 2. Compare water quality data with WHO guidelines
- 3. Higher than guideline = exceedence



## Drinking water guidelines (from WHO)

Substance	Source	Guideline	Measure
Fecal coliform (e coli)	Dwellings, Livestock	0	count/100 ml
Chromium	Industrial, Dwellings	0.05	mg/l
Cadmium	Industrial, Dwellings	0.003	mg/l
	Industrial, Fuel,		
Benzene	Dwellings	10	μg/l
Nitrate (NO <sub>3</sub> -)	Agriculture	50	mg/l
2,4-D (2,4-			
dichlorophenoxyacetic acid)	Agriculture	30	mg/l

#### Units

mg = 1/1000g

 $\mu g = 1/1000000g$ 

## **Environment Statistics Training - FDES Chapter 3.1 Environmental Quality**

- 4. Note yes if exceeded, no if not exceeded guidelines
- 5. Calculate % of parameters (on same date) exceeded
- 6. Is water safe to drink (no exceedences)
- 7. What is biggest water quality problem (% of samples exceeded)

#### Water quality data

Station	Date	Parameter	Reading	Units	Exceed?	% parameters exceeded	Safe to drink?
		Nitrate	80	mg/l			
	01/01/2017	2,4-D	10	mg/l		†	
		Fecal coliform	0	count/100ml		†	
	03/03/2017	Nitrate	40	mg/l			
		2,4-D	20	mg/l		†	
		Fecal coliform	0	count/100ml		†	
1	05/06/2017	Nitrate	90	mg/l			
		2,4-D	40	mg/l		†	
		Fecal coliform	2	count/100ml		†	
		Nitrate	120	mg/l			
	03/09/2017	2,4-D	60	mg/l		†	
	,,,	Fecal coliform	0	count/100ml		†	
	01/01/2017	Benzene	5	μg/l			
		Cadmium	0.005	mg/l		†	
2		Fecal coliform	3	count/100ml		†	
	03/03/2017	Benzene	6	μg/l			
		Cadmium	0.002	mg/l		†	
		Fecal coliform	5	count/100ml		1	
	05/06/2017	Benzene	12	μg/l			
		Cadmium	0.006	mg/l		1	
		Fecal coliform	12	count/100ml		1	
	03/09/2017	Benzene	2	μg/l			
		Cadmium	0.001	mg/l		1	
		Fecal coliform	3	count/100ml		1	
3	01/01/2017	Nitrate	40	mg/l			
		Chromium	0.07	mg/l		7	
		Fecal coliform	0	count/100ml		1	
	03/03/2017	Nitrate	30	mg/l			
		Chromium	0.04	mg/l		7	
		Fecal coliform	0	count/100ml		]	
	05/06/2017	Nitrate	60	mg/l			
		Chromium	0.03	mg/l		]	
		Fecal coliform	0	count/100ml		]	
	03/09/2017	Nitrate	80	mg/l			
		Chromium	0.04	mg/l		7	
		Fecal coliform	0	count/100ml		7	

#### Percentage of exceedences by substance

	Number	Number of	
Substance	samples		% of samples exceeded
Fecal coliform			
Chromium			
Cadmium			
Benzene			
Nitrate			
2,4-D			