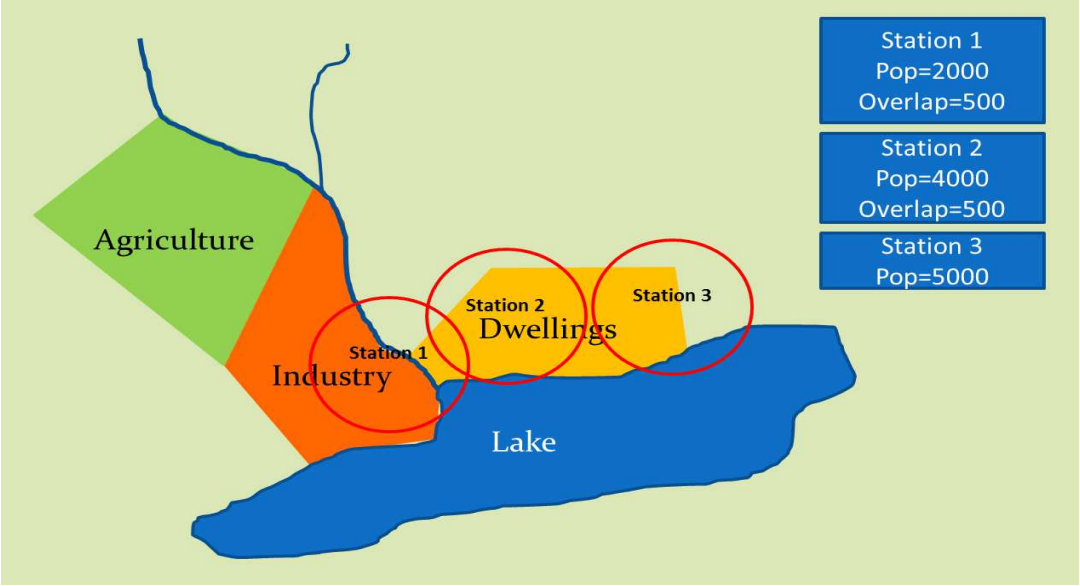
Environment Statistics Training - FDES Chapter 3.5 Human Settlements and Environmental Health

1. Region with 3 air quality monitoring stations
2. Have average readings for $PM_{2.5}$ for one day.



Air quality guidelines (from WHO)

Substance	Type	Guideline	Measure
$PM_{2.5}$	24-hour mean	25	µg/m^3
	annual mean	10	µg/m^3

Readings

Station	Type	Level	Measure
Station 1	24-hour mean	35	µg/m^3
Station 2	24-hour mean	24	µg/m^3
Station 3	24-hour mean	20	µg/m^3

3. Transcribe population covered (separate overlap)
4. Transcribe levels
5. Calculate % of population exposed to each level (note overlap = average level)
6. Calculate contribution of each group (%pop x level / 100)
7. Calculate population-weighted exposure to $PM_{2.5}$ (sum of contributions)
8. Is it above/below WHO guideline?

Station	Population covered	Level	Measure	% of pop.	Contribution
Station 1			µg/m^3		
Station 2			µg/m^3		
Station 1-2 overlap			µg/m^3		
Station 3			µg/m^3		
Total population			**µg/m^3**		