LS 2X03 - Lecture 11 – Air Quality and Human Health

- 1. What are the Health Impacts of Air Pollution?
- 2. Major Sources of Air Pollutants
- 3. Indoor Air Quality
- 4. Air Quality and Climate Change

Key Concepts

- Health Impacts of Air Pollution
- Major Sources of Air Pollutants
- Trends in Air Quality in Canada
- Air Quality Worldwide
- Indoor Air Quality: sources of pollution, causes of disease, burden of disease and mortality, populations impacted
- Links between Climate Change and Air Quality



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The "killer smog" of London in 1952

- 1. What are the Health Impacts of Air Pollutants?
- Effects on Human Health:



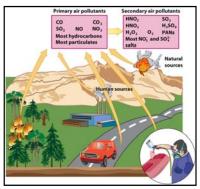


Healthy Lung

Diseased Lung

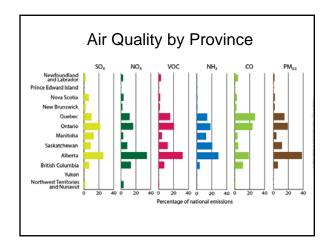
What is the Spectrum of Human Health Impacts? Eyes Natal cavity Pharynx Oral cavity Trachea Largnx Bronchioles Impaired physical performance medication use symptoms Impaired pulmonary function subclinical (subtle) effects proportion of population affected Air sac (alveolus)

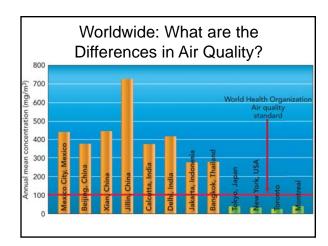
2. Major Sources of Air Pollutants



Air Quality in Canada In 2013, emission levels of SO_X, NO_X, VOC and CO were: Annual emissions changes as % of 1990 Annual emissions changes change

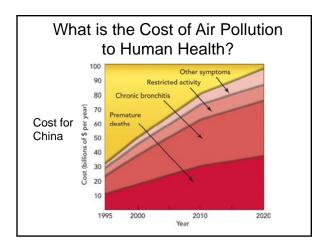
Air Quality in Canada (2) In 2013, emissions of SOX, NOX, VOC, NH₃ and PM_{2.5} were: Oll and gas industry Other industries Transportation (rood, field, iff, marine) Off road vehicles Fuel for electricity and miscellaneous Palts and solvents Agriculture (Ilvestock and fertilizer) Open sources Open sources Percentage of national emissions

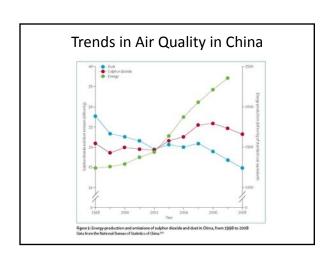






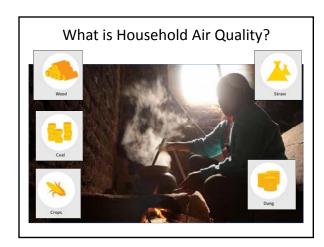


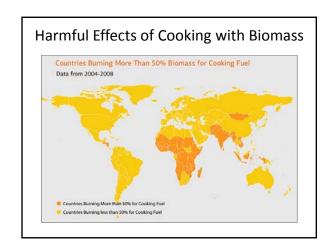


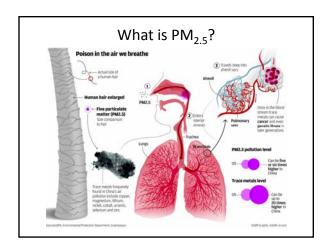


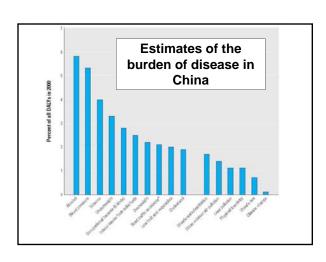


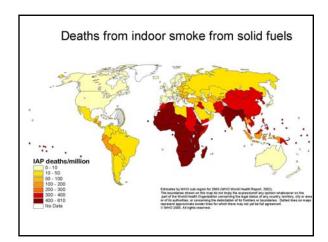
















Droughts & Respiratory illness



Wildings & IZespilatory lilles	Wildfires	&	Respiratory	illnes
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- Pollutants from forest fires can affect air quality for thousands of kilometres
- e.g.:



End of Lecture Question

While there is a high cost to further measures which would reduce air pollution, many new findings suggest that health effects can be seen at ever lower concentrations of air pollutants

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TO DO!

- 1. For next Lecture: read Article 11
- 2. Tutorials next week: Work session in preparation for Group Presentations
- 3. Group Discussion: print and bring a copy of the Group Discussion Answer Sheet