

國立臺北大學自然資源與環境管理研究所  
103 學年度第一學期『環境工程科學概論』

課程講義(14)：空氣污染概論  
Introduction to Air Pollution

- INTRODUCTION AND SOME HISTORIC REMARKS
  - Ambient Air Quality vs. Emission Source Control
  - Gaseous and Particulate Pollutants
  - Episodes of Air Pollution and Historical Disasters
- CRITERIA POLLUTANTS AND AIR QUALITY STANDARDS
  - Carbon monoxide CO: CO-Hb
  - Oxides of Nitrogen NO<sub>x</sub>; Oxides of Sulfur SO<sub>x</sub>
  - Photochemical Smog and Ozone => PAN (Peroxyacetyl Nitrate) and O<sub>3</sub>
  - Particulate Matter PM (TSP, M<sub>10</sub> and PM<sub>2.5</sub>) and Lead
  - Air Quality Index (AQI) vs. Pollutant Standard Index (PSI)
  - Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs)
- AIR QUALITY MANAGEMENT
  - Zoning and Control Strategies: Non-Attainment Area 空氣污防制區
  - State Implementation Plan (SIP)
  - Command-and-Control vs. Economic Incentives => Total Emission Control
- MOBILE EMISSION SOURCES
  - Emission Standards vs. Fuel Standards; Gasoline Engines vs. Diesel Engines
  - Exhaust System Controls => Catalytic Converter (Precious Metals)
  - Alternative Fuels and Hybrid Vehicles
- STATIONARY SOURCES
  - Control Strategies: Combustion, and Pre- or Post-combustion controls
  - Pollution Control Devices: Gaseous and Particulate Pollutants
    - ⇒ Scrubber, Bag-house, Electrostatic Precipitator (EP), FGD, SCR, SNCR...
  - Emission Trading: Conventional Pollutants and Greenhouse Gases
- INDOOR AIR QUALITY
  - Tobacco Smoke, Asbestos, Radon, Formaldehyde, Mold, and Micro-organisms.
  - Indoor Air Quality Standard => announced premises 公告場所
- HOMEWORK ASSIGNMENT #6 (Due 2014/12/30): 請概要說明空氣中之細懸浮微粒 (粒徑小於 10 微米之粒狀污染物, fine particles - PM<sub>2.5</sub>) 可能對人體造成那些健康上的危害, 並列出其對應之空氣品質標準。