

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

課程講義(13)：空氣污染概論

Introduction to Air Pollution and Air Quality Management

Recommended Readings	實施空氣品質指標(Air Quality Index, AQI) 超標啟動預警 World Air Quality Index => World Air Pollution Statistics: statistics
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- INTRODUCTION AND SOME HISTORIC REMARKS
 - Ambient Air Quality vs. Emission Source Control => Bubble Theory
 - Gaseous and Particulate Pollutants => Green House Gases
 - Episodes of Air Pollution and Historical Disasters => Alert and Restriction
- CRITERIA POLLUTANTS AND AIR QUALITY STANDARDS
 - Carbon monoxide CO: CO-Hb => CO₂
 - Oxides of Nitrogen NO_x; Oxides of Sulfur SO_x
 - Photochemical Smog and Ozone => PAN (Peroxyacetyl Nitrate) and O₃
 - Particulate Matter PM (TSP, M₁₀ and PM_{2.5}) and Lead
 - Air Quality Index (AQI) vs. Pollutant Standard Index (PSI)
 - Volatile Organic Compounds (VOCs) and Polycyclic Aromatic Hydrocarbon
- 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 => Tag Control?
 - Mass Transit Systems => BRT? Light Rail? Cable Car?
- 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 Microorganisms.
 - Indoor Air Quality Standard => Sick Building Syndrome => Announced Premise