

國立臺北大學自然資源與環境管理研究所

111 學年度第一學期『環境工程科學概論』

課程講義(02)：基本概念與環境議題

- KEY FACTORS OF ENVIRONMENTAL SCIENCE AND ENGINEERING
 - Definition of “Environment”

[環境基本法](#)第2條：環境係指影響人類生存與發展之各種天然資源及經過人為影響之自然因素總稱，包括陽光、空氣、水、土壤、陸地、礦產、森林、野生生物、景觀及遊憩、社會經濟、文化、人文史蹟、自然遺蹟及自然生態系統等。

[環境影響評估法](#)：生活環境、自然環境、社會環境及經濟、文化、生態
 - Media or Carriers: Air, Water, Soil, Solid Waste...
 - Chemical, Biological, and Physical Pollution => Aesthetic Degradation
 - Aspects：空水廢毒噪＋「節能減碳」：藍天綠地、青山淨水、健康永續
=> 低碳宜居、淨零綠生活、「循環型經濟」「現代桃花源」=> [陶朱隱園](#)? [半畝塘](#)?
 - [環境部組織法草案](#) => [新聞發布 | 行政院環境保護署 \(111-06-15\)](#)
=> 綜合規劃司、環境保護司、大氣環境司、水質保護司、監測資訊司
=> 氣候變遷署、資源循環署、化學物質管理署、環境管理署
=> 國家環境研究院
 - Spatial Scales – Local, Regional, Continental, and Global
 - Time Scales – Second, Minute, Day, Year, Decade, Generation, Century, etc.
 - Orientation – Economy-Oriented, Human-Oriented, Ecology-Oriented
 - Industrial Sectors, Material and Energy, Concentrating vs. Diluting => Circularity
- ENVIRONMENTAL ISSUES / ENVIRONMENTAL CONCERNS
 - 全球尺度：氣候變遷、臭氧層破壞、棲息地與生物多樣性之減少等=> Covid-19?
Global Scale: Climate Change, Ozone Layer Depletion, Loss of Habitats/Biodiversity
 - 區域性尺度：酸雨、細懸浮微粒、能見度問題、水體污染、土壤酸化／鹽化等
Regional Scale: Acid Deposition, Visibility, Water Pollution, Soil Acidification/Salinization
 - 地區性尺度：光化學煙霧、土壤及地下水污染、廢棄物、噪音振動問題等
Local Scale: Photochemical Smog, Soil and Groundwater Contamination, Solid Waste, Noise
 - 利害相關者(Stakeholders): Social Responsibility => Corporate Sustainability and ESG
 - 焚化底渣、煉鋼爐渣、石灰石開採、塑膠垃圾、美耐皿、風力發電、石虎、草鴉
 - Environmental Concerns
(Chp.2 -- Reddy et al., 2019, *Sustainable Engineering Drivers, Metrics, Tools, and Applications*)
=> Global Warming and Climate Change; Ozone Layer Depletion
=> Desertification and Deforestation; Loss of Habitat and Biodiversity
=> Air Pollution, Smog, and Acid Rain (Acidic Deposition)
=> Water Usage and Pollution, Eutrophication, Salinity => See Water Desalination
=> Wastes and Disposal; Land Contamination; Land Use Patterns
=> Visibility; Odors; Aesthetic Degradation; Thermal Pollution; Noise => Light Pollution