

國立臺北大學自然資源與環境管理研究所

100 學年度第一學期『環境工程科學概論』

課程講義(十五)：全球尺度環境議題

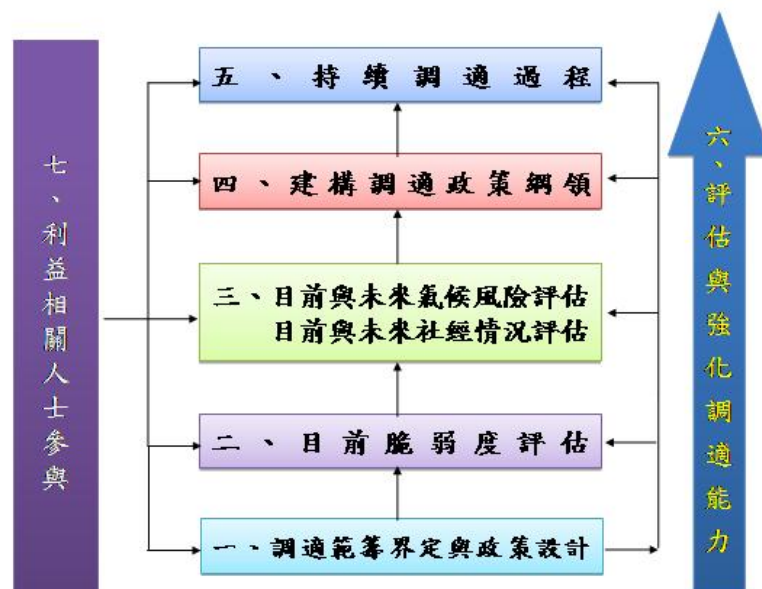
- INTRODUCTION
 - World Summit on Sustainable Development: Rio+10
 - ⇒ WEHAB: Water, Energy, Health, Agriculture, and Biodiversity
 - United Nations Conference on Sustainable Development (UNCSD): Rio+20
 - ⇒ A green economy in the context of sustainable development and poverty eradication
 - ⇒ The institutional framework for sustainable development
 - Global Atmospheric Change: Global Warming => Global Change
 - Deforestation, Desertification, Loss of Habitats, and Loss of Biodiversity
- THE ATMOSPHERE OF EARTH
 - Composition of Clean Dry Air
 - Temperature Profile and the Four Major Layers
 - ⇒ Troposphere, Stratosphere, Mesosphere, and Thermosphere
 - ⇒ Tropospheric Ozone vs. Stratospheric Ozone
 - Global Temperature => How to Measure? => Isotopes and Ice Cores
- THE GREENHOUSE EFFECT
 - Spectrum: Frequency and Wavelength; Blackbody
 - Temperature w/o Greenhouse Effect: 254°K; w/ Greenhouse Effect: 288 °K
 - Carbon Dioxide
 - ⇒ Atmospheric Concentration of CO₂ and The Carbon Cycle
 - ⇒ Carbon Emissions from Fossil Fuels and from Industrial Processes
 - ⇒ Carbon Intensity and Estimating Emissions: The Kaya Identity
 - Other Greenhouse Gases
 - ⇒ Ozone (O₃), Aerosol, and Halocarbons (CFCs, HCFCs, HFCs, PFCs)
 - ⇒ 京都議定書：六種溫室氣體—二氧化碳(CO₂)、甲烷(CH₄)、氧化亞氮(N₂O)、氫氟碳化物(HFCs)、全氟碳化物(PFCs)及六氟化硫(SF₆)
- OTHER CONCEPTS AND SCIENTIFIC FOUNDATIONS
 - Radiative Forcing of Climate Change
 - Global Warming Potential
 - ⇒ Life Time and GWP Time Horizon
 - ⇒ Contributions of GHGs
 - IPCC Reports: FAR (1990), SAR (1995), TAR (2001), and AR4 (2007) => AR5?
 - Stabilizing Greenhouse Gases: Mitigation vs. Adaption
 - Changes in Stratospheric Ozone: Ozone Layer Depletion => ODP

GWP Revision: IPCC AR4 vs. SAR

溫室氣體	化學式	100yr GWP (SAR)	100yr GWP (AR4)
Methane	CH ₄	21	25
Nitrous oxide	N ₂ O	310	298
HFC-23	CHF ₃	11,700	14,800
Sulphur hexafluoride	SF ₆	23,900	22,800
PFC-14	CF ₄	6,500	7,390
PFC-116	C ₂ F ₆	9,200	12,200

國家氣候變遷調適政策綱要架構

國家氣候變遷調適政策綱要架構 (UNDP)



經建會 規劃推動氣候變遷調適架構及計劃網站
<http://apf.cier.edu.tw/index.asp>