國立臺北大學自然資源與環境管理研究所

102 學年度第一學期『環境工程科學概論』(在職專班)

課程講義(17)：全球尺度環境議題

Global Environmental Issues

- 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
    ⇒Main themes: Green Economy 綠色經濟 and Institutional Framework 制度架構
    Critical issues: decent jobs, energy, sustainable cities, food security and sustainable agriculture, water, oceans and disaster readiness 就業 能源 城市 糧食 水 海洋 災害
  - □ Global Atmospheric Change: Global Worming => 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
  - □ Temperature w/o Greenhouse Effect: 254ºK; w/ Greenhouse Effect: 288 ºK
  - □ Radiative Forcing of Climate Change
  - □ Global Warming Potential (GWP)
    ⇒ Life Time and GWP Time Horizon; Contributions of GHGs
  - □ Greenhouse Gases (GHG)
    ⇒Ozone (O_3), Aerosol, and Halocarbons (CFCs, HCFCs, HFCs, PFCs)
    ⇒京都議定書：六種溫室氣體－二氧化碳（CO_2）、甲烷（CH_4）、氧化亞氮（N_2O）、氫氟碳化物（HFCs）、全氟碳化物（PFCs）及六氟化硫（SF_6）=>空氣污染物
    ⇒The Second Commitment Period: NF_3

- OTHER CONCEPTS AND SCIENTIFIC FOUNDATIONS
  - □ IPCC Reports: FAR (1990), SAR (1995), TAR (2001), and AR4 (2007) => AR5?
  - □ Stabilizing Greenhouse Gases: Mitigation vs. Adaptation
  - □ Global Warming => Hydrological and Biological (Environmental) Changes
  - □ Changes in Stratospheric Ozone: Ozone Layer Depletion => ODP

- HOMEWORK ASSIGNMENT #7：請下載並閱讀《臺灣氣候變遷科學報告》。