

# 國立臺北大學自然資源與環境管理研究所

## 107 學年度第一學期『環境工程科學概論』

課程講義(14)：全球尺度環境議題與環境永續性  
Global Environmental Issues and Environmental Sustainability

### ● INTRODUCTION TO GLOBAL ENVIRONMENTAL ISSUES

- Earth Summit and World Summit on Sustainable Development: Rio / Rio+10  
=> WEHAB: Water, Energy, Health, Agriculture, and Biodiversity
- United Nations Conference on Sustainable Development (UNCSD): Rio+20  
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
- United Nations Millennium Declaration => [Millennium Development Goals \(MDGs\)](#)
- [United Nations Sustainable Development Goals \(SDGs\)](#) => 3P & 5P
- 3P: People, Planet, Prosperity (Profit); 5P: 3P + Peace and Partnership
- Deforestation, Desertification, Loss of Habitats, and Loss of Biodiversity
- Global Atmospheric Change => Global Warming and Climate Change  
溫室氣體：指二氧化碳 (CO<sub>2</sub>)、甲烷 (CH<sub>4</sub>)、氧化亞氮 (N<sub>2</sub>O)、氫氟碳化物 (HFCs) 全氟碳化物 (PFCs)、六氟化硫 (SF<sub>6</sub>)、三氟化氮 (NF<sub>3</sub>)

### ● GLOBAL CHANGE: OTHER CONSIDERATION AND SCIENTIFIC BASIS

- IPCC Reports: FAR (1990), SAR (1995), TAR (2001), AR4 (2007), AR5 (2014)
- Stabilizing Greenhouse Gases: Mitigation vs. Adaptation => Net Zero Emission
- Global Warming => Hydrological and Biological (Environmental) Changes
- Changes in Stratospheric Ozone: Ozone Layer Depletion => ODP  
=> Layers of Atmosphere: Troposphere, Stratosphere, Mesosphere, and Thermosphere  
=> Tropospheric Ozone vs. Stratospheric Ozone

### ● ENVIRONMENTAL SUSTAINABILITY

- Unsustainable Earth => Natural Resource Depletion / Environmental Quality Degradation  
=> Carrying Capacity: Sustainable Yield; Population Growth and Economic Growth
- Resource Depletion and Environmental Degradation  
=> Damage Cost, Maintenance Cost, Remediation Cost => Green GDP/Golden GDP
- Climate Change  
=> UNFCCC Focus: Adaptation, Mitigation, Climate Finance and Technology  
=> Emission Inventory => National, Sectoral, Organizational, and Emission Source
- Corporate Sustainability => Global Compact and Code of Conduct
- Measures of sustainability  
=> [https://en.wikipedia.org/wiki/Sustainability\\_metrics\\_and\\_indices](https://en.wikipedia.org/wiki/Sustainability_metrics_and_indices)  
=> Corporate Sustainability Assessment => <https://www.sustainability-indices.com/>  
=> Indicators vs. Index => [Handbook on Constructing Composite Indicators](#)
- United Nations Sustainable Development Goals and Taiwan SDGs