

Institute of Natural Resource Management National Taipei University Class Handout of the Fall Semester, 2013

Lectures 15: 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 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

- Temperature w/o Greenhouse Effect: 254°K; w/ Greenhouse Effect: 288 °K
- Radiative Forcing of Climate Change
- Global Warming Potential (GWP)
 - ⇒ Life Time and GWP Time Horizon; Contributions of GHGs
- Greenhouse Gases (GHG)
 - ⇒ 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) => 空氣污染物
 - ⇒ The Second Commitment Period: NF₃

• 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 #8：請下載並閱讀《[臺灣氣候變遷科學報告](#)》。