

# 國立臺北大學自然資源與環境管理研究所

## 108 學年度第一學期『環境工程科學概論』

### 課程講義(13)：廢棄物處理與資源回收 Solid Waste Treatment and Recycling

#### ● INTRODUCTION

- Solid Waste Treatment and Disposal Facility
  - ⇒ Externality: NIMBY (Not In My Back Yard)－嫌惡設施 => Positive Externality
- Collection, Treatment, Disposal, Recycling, and Energy Recovery
- Open Dump, Sanitary Landfill; Incinerators; Recycling and Recovery
- Recycling Schemes: 3Rs, 4Rs, 5Rs (Reuse, Recycling, Recovery, Reduce, R??)  
「資源循環零廢棄」: Reduction (減量)、Reuse (再使用)、Recycling (物料回收)、Energy Recovery (回收能源) 及 Land Reclamation (土地新生) 等 5R 推動策略。
  - ⇒ Sustainable Materials Management, Sound Material-Cycle Society, Circular Economy
- Source Reduction (源頭減量) => Waste Minimization; Cleaner Production
- Collection and Transfer Operation => 「四合一」回收系統、垃圾費隨袋徵收
- Waste-to-Energy Combustion and Landfills => 灰渣：底渣＋飛灰
- Treatment of Garbage: Composting, Anaerobic Digestion, Soil Conditioner, etc.
- Eco-Labeling and Life Cycle Assessment => Diapers and Hot-Drink Cups

#### ● REGULATIONS AND LAWS

- 廢棄物清理法 vs. 資源回收再利用法
  - ⇒ 「廢棄物清理法」: 1974; 「資源回收再利用法」: 2002
  - ⇒ 「資源循環利用法草案」: 2004 年開始研議整併, 2013 年行政院草案版
  - ⇒ 「[廢棄物減量及循環利用法草案](#)」: 2016 年林淑芬立委版本 => [後續??](#)
  - ⇒ 廢棄資源循環利用法草案、廢棄資源物再生與廢棄管理法草案
- 家戶垃圾 (一般廢棄物); 事業廢棄物: 一般事業廢棄物、有害事業廢棄物
  - ⇒ [Solid Waste, Municipal Solid Waste \(MSW\), Garbage \(Food Waste\), Rubbish, Trash, Noncombustible, and Discards](#) => Industrial Solid Waste => Hazardous Solid Waste
- 資源回收再利用: 再生資源、回收再利用、再使用、再生利用 => 熱能回收?

#### ● CIRCULAR ECONOMY AND CRADLE TO CRADLE

- Circular Economy => the “Butterfly Diagram”
  - ⇒ Technological Cycle; Biological Cycle
- Cradle to Grave => Cradle to Cradle
- Sustainability => Circularity

- HOMEWORK ASSIGNMENT #7 (2019/12/24): 請收集相關資料以定義: (1) 垃圾清運量、(2) 每人每日垃圾產生量、(3) 資源回收率, 並就行政院環境保護署公告之資料, 繪圖說明上述數值的趨勢變化情形。