

國立臺北大學自然資源與環境管理研究所
108 學年度第二學期 『清潔生產與工業生態』

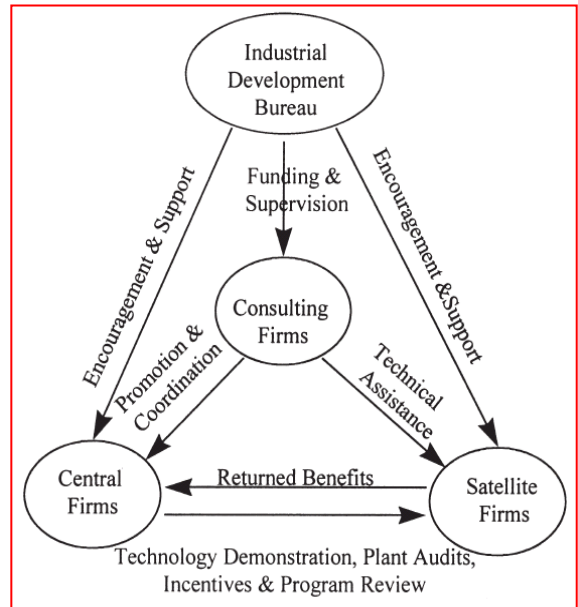
課程進度(08)：生產環節之工業生態學－為環境與永續性而設計
Industrial Ecology through Production Processes: Design for Environmental and Sustainability

● REVISITING SUSTAINABLE ENGINEERING

- Products, Processes, Facilities (Manahan, c.19)
- Corporate Synergy and Center-Satellite System
- Green Procurement (Purchasing)
- Green Chemistry (p.125)
- Green Engineering (p.128)
- Product Life Cycle (p.132)
- Scope of Environmental vs. Temporal Concerns (Walter et al., 2019: Fig.6-15, p.178)

● TECHNOLOGICAL PRODUCT DEVELOPMENT

- Product Development Challenge (Chp.9, p.137)
- Conceptual Tools for Product Designer
 - ⇒ The Pugh Selection Matrix
 - ⇒ The House of Quality
- Design for X: A / C / D / ES / M / MC / R / SL / S / T
- Product Realization Process (National Research Council, 1991: Chp.5, p.98)



● DESIGN FOR ENVIRONMENT & SUSTAINABILITY: CUSTOMER PRODUCTS (Chp.10)

- Choosing Materials => Combining Materials
- Pollution Prevention of the Facilities => Process Changes and Products Changes (*)
- Product Delivery
 - ⇒ General Packaging Considerations: “Paper or Plastic” => the Packaging Materials
 - ⇒ On-Site Recycling and “Take-Back” of Packaging Materials
- Product Use Phase => Dissipative Products
- Design for Reuse and Recycling => Reverse Logistics and Remanufacturing
- Guideline for DfES => [DfE](#); [Joseph Fiksel](#); [bombardier.com](#); [HP](#); [DfE Mind Map](#) (*)

● DFES: BUILDINGS AND INFRASTRUCTURE (Chp.11)

- The (Infra)structures of Society
 - ⇒ Electric Power / Water / Transportation / Telecommunication Infrastructure
- Green Buildings
 - ⇒ The LEED System: U.S. Leadership in Energy and Environmental Design
 - ⇒ BREEAM: U.K. Building Research Establishment Environmental Assessment Method
 - ⇒ Taiwan’s EEWH System: Ecology-Energy Saving-Waste Reduction-Health
- Infrastructure and Building Material Recycling

● HOMEWORK ASSIGNMENT #4 (併入期中考試): Concept Map (Mind Map) of Design for X