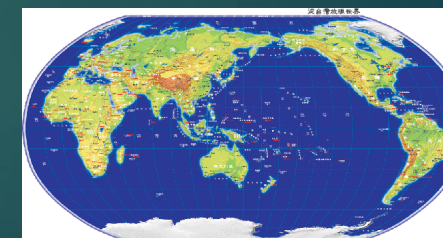


Working together towards Sustainable and Responsible Petrochemical Industry



攜手邁向永續負責的石化產業

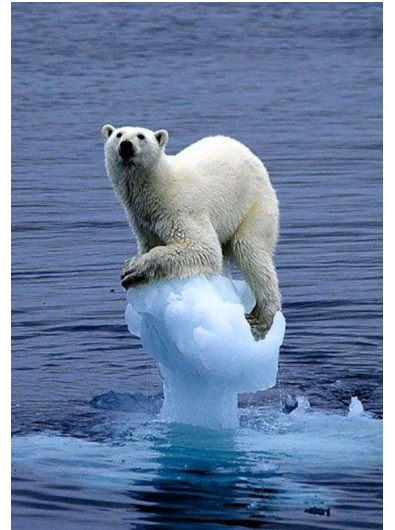


YENSHIANG SHIH (施顏祥)

Universal Concerns

普世關注議題

- ▶ Climate change mitigation
 - ▶ Pollution control enforcement
 - ▶ Public safety regulation
 - ▶ Life quality improvement
-
- ▶ 氣候變遷調適、污染管制、公眾安全強化、生活品質提升



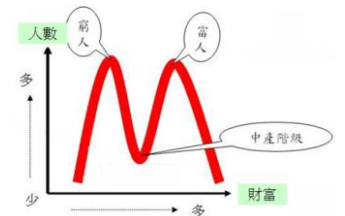
Regional Economic Issues

區域經濟議題

- ▶ Economic development policy
- ▶ Industrial upgrade transformation
- ▶ Social inequality improvement



- ▶ 經濟發展政策、產業升級轉型、社會公平



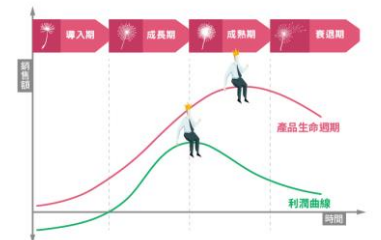
PCI Characteristics

石化特性議題

- ▶ Essential life ingredients
- ▶ Growing chemical market
- ▶ Bulky and risky operations
- ▶ Strong competition



- ▶ 生活必需、成熟市場、量大危險、競爭激烈



PCI Trends and Issues

石化趨勢議題

- ▶ Strong regional demand
 - ▶ Shell oil and gas impact
 - ▶ Coal conversion trend
 - ▶ Specialty chemicals opportunity
 - ▶ Green production push
-
- ▶ 區域市場需求、頁岩油氣盛產、煤化工轉弱、
特用化學品多樣化、綠色生產管理要求



Emerging Industrial Issues

當前熱議

- ▶ Low-carbon economy:
- ▶ Single-use plastics restriction
- ▶ Electrical vehicles demand
- ▶ Renewable energy installation



- ▶ 低碳經濟推動、塑膠限制、電動車發展、
再生能源推進



Category Research Methodology

Apply 6W Model to mine for Consumer Insight



PCI and Public Safety

公眾安全關切

- ▶ Industrial safety regulation
 - ▶ Occupational safety regulation
 - ▶ Public safety regulation
 - ▶ Life quality improvement
 - ▶ NO PUBLIC SAFETY, NO PCI
-
- ▶ 工業安全強化、職業安全提升、大眾安全提升、生活品質改進



Events public shocked

重大化工災害震驚

2014 Kaoshiung explosion

2015 Tianjin Explosion

2019 Jianguo Explosion



Responsibility Extension

責任延伸推進

- ▶ Consumers' awareness
 - ▶ Extended CSR
 - ▶ Extended producers' responsibilities
 - ▶ Extended stakeholders
 - ▶ Extended responsible care
-
- ▶ 消費意識提升、生產者責任擴大、責任照護、利害關係人擴大、企業社會責任擴大



Sustainable Growth

可持續成長



- ▶ Social values changed
 - ▶ Growth pattern changing
 - ▶ Sustainability emphasized
 - ▶ Essential CSR included
-
- ▶ 價值觀改變、成長模式改變、
可持續性強調、企業社會責任彰顯



UN SDGs (Development Goals)

聯合國永續發展目標



Green Chemical Principles

綠色化工原則

- ▶ Three general principles:
- ▶ Prevention
- ▶ Assurance
- ▶ Sustainability
- ▶ 危害防止、安全確保、永續發展



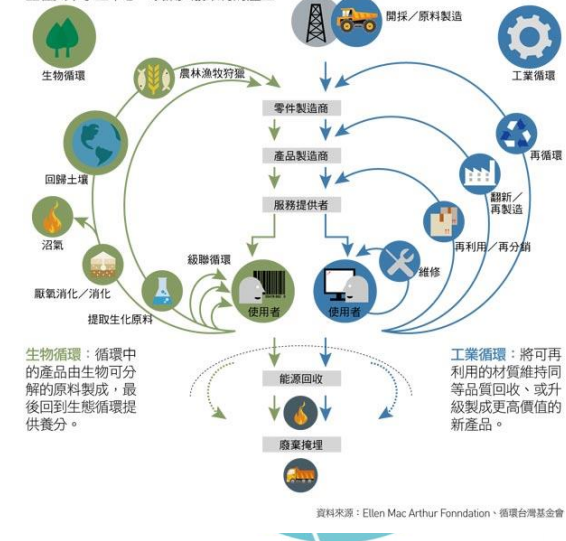
Sustainable/Circular Concerns

永續循環關切

- ▶ Sustainability movement
- ▶ Materials flow management
- ▶ Net energy analysis
- ▶ Reduction , reuse, recycle to circular economy
- ▶ 永續追尋、物質流管理、能源系統分析、資源循環再生觀念

循環經濟概念圖

在最理想的循環經濟系統中，所有產品、材料皆可被納入生物與工業兩個循環，並在其中永生不息，以減少廢棄物的產生。



New Circular Concepts

循環新觀念

- ▶ Circular design introduction
 - ▶ Cradle to cradle promotion
 - ▶ 3 R to zero waste movement
 - ▶ Chemical leasing business study
-
- ▶ 循環設計導入、搖籃到搖籃努力、零廢棄嘗試、化學租賃研究



Sustainable Guidelines

永續循環經濟指引

- ▶ Circular Economy: BS 1800 Standard
- ▶ Circular Economy: UL 3600 Standard
- ▶ Circular Design Guide
- ▶ EU Eco design Guidelines
- ▶ DJSI: ESG Selections
- ▶ G20 / TCFD Guidelines
- ▶ 國際標準驗證相關機構推進永續循環經濟指引



Taiwan PCI Strategies

台灣石化策略

- ▶ Value-added enhancement
 - ▶ Technology research improvement
 - ▶ Circular park planning
 - ▶ Environment protection strengthened
 - ▶ Oversea investment expansion
-
- ▶ 高值化成長、技術開發推進、循環材料園區規劃
環保管理加強、海外投資擴充



Greenland Ice Melt Warning

落葉知秋 

- ▶ Greenland ice melt reaching tipping point
The only thing can do is adapt (22/01/2019)
- ▶ Time to change
- ▶ Sustainable PCI industry, Responsible CPI companies,
Respectable CPI leaders
- ▶ LET PCI WORK TOGETHER TO TRANSFORM
FOR OUR FUTURE BUSINESSES



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Source: National Geographic - 2019

Sustainable Initiatives for APIC

石化永續倡議



- ▶ Informal dialogue:
 - ▶ Sustainable APIC guidelines
 - ▶ Responsible APIC guidelines
 - ▶ APIC voluntary programs
-
- ▶ 石化永續指引、石化自願方案

