

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

課程進度(02)：清潔生產、綠色生產力、永續消費、企業永續  
Cleaner Production, Green Productivity, Sustainable Consumption, Corporate Sustainability

● RESOURCE EFFICIENT AND CLEANER PRODUCTION (<http://www.uneptie.org/scp/cp/index.htm>)

□ From Cleaner Production to “Resource Efficient and Cleaner Production”

The term Cleaner Production was defined by UNEP in 1990 as: “The continuous application of an integrated environmental strategy to processes, products and services to increase efficiency and reduce risks to humans and the environment”. This definition has been used as the working definition of all programmes related to the promotion of cleaner production and still continues to be a valid definition.

Nonetheless, the confluence of global economic and environmental crisis that has occurred in recent years has consolidated the understanding of the interdependence between our economic and environmental systems and provided a new impetus to international efforts to promote the transition towards more sustainable industrial systems and Green Industry. This has required the broadening of the definition of cleaner production to include resource efficiency which is a key element of the transitions towards Green Industry and Green Economy.

Cleaner production requires changing attitudes, responsible environmental management and evaluating technology options. Other preventive approaches, such as eco-efficiency and pollution prevention, serve similar goals.

□ What is Resource Efficient and Cleaner Production (RECP)

Resource Efficient and Cleaner Production continuously applies integrated and preventive strategies to processes, products and services. This increases efficiency and reduces risks to humans and the environment. RECP specifically works to advance

- ⇒ Production Efficiency – through optimization of productive use of natural resources (materials, energy, water) at all stages of the production cycle;
- ⇒ Environmental Management - through minimization of the adverse impacts of industrial production systems on nature and the environment;
- ⇒ Human development – through minimization of risks to people and communities, and support to their development.

□ 《[中华人民共和国清洁生产促进法](#)》(2002/06/29 通過、2012/02/29 修正)

⇒ 本法所称清洁生产，是指不断采取改进设计、使用清洁的能源和原料、采用先进的工艺技术与设备、改善管理、综合利用等措施，从源头削减污染，提高资源利用效率，减少或者避免生产、服务和产品使用过程中污染物的产生和排放，以减轻或者消除对人类健康和环境的危害

□ Additional Definition of Cleaner Production

- ⇒ Industrial Ecology and Cleaner Production (Handbook of Industrial Ecology: Chap.4)
- ⇒ Cleaner Production (Sustainable Industrial Design and Waste Management: Chap. 2)

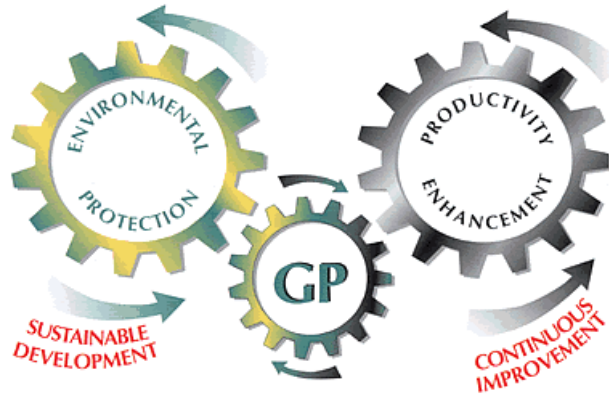
● GREEN PRODUCTIVITY

□ APO Definition of Green Productivity

⇒ [APO Definition](#): Green Productivity (GP) is a concept that evolved to address the growing concern of consumers and stakeholders of business communities. Alarmed by ever-increasing negative impacts of development activities on the environment, society has started demanding environment-friendly goods, processes, and services. To address that demand, the APO developed the concept of GP as a strategy for enhancing productivity while improving

environmental performance. It is the application of appropriate productivity and environmental management tools, techniques, and technologies to reduce the environmental impact of organization's activities, goods, and services. GP aims to ensure environmental protection while making business profitable. GP recognizes that the environment and development are two sides of the same coin. For any development strategy to be sustainable, it needs to have a focus on quality, profitability, and the environment, referred to as the triple focus of GP.

GP methodology consists of six major steps, broken down into 13 tasks. These tasks are accomplished using GP tools such as checklists, material balance, Pareto charts, etc. in combination with GP techniques such as 5S, the 3Rs, etc.



⇒ A Measurement Guide to Green Productivity  
[http://www.apo-tokyo.org/publications/wp-content/uploads/sites/5/ind\\_gp\\_mggp.pdf](http://www.apo-tokyo.org/publications/wp-content/uploads/sites/5/ind_gp_mggp.pdf)

⇒ Handbook on Green Productivity  
[http://www.apo-tokyo.org/publications/wp-content/uploads/sites/5/gp-hb\\_gp.pdf](http://www.apo-tokyo.org/publications/wp-content/uploads/sites/5/gp-hb_gp.pdf)

□ A Quick Introduction to Green Productivity:

Green Productivity (GP) is a strategy for simultaneously enhancing productivity and environmental performance for overall socio-economic development that leads to sustained improvement in the quality of human life. It is the combined application of appropriate productivity and environmental management tools, techniques and technologies that reduce the environmental impact of an organization's activities, products and services while enhancing profitability and competitive advantage.

● **SUSTAINABLE CONSUMPTION AND PRODUCTION** (<http://www.unep.fr/scp/>)

□ UNEP Division of Technology, Industry, and Economics

-- Sustainable Consumption & Production (SCP) Branch

The overall objective of the SCP branch is to promote and facilitate the extraction, processing and consumption of natural resources in a more environmentally sustainable way over the whole life cycle. In the achievement of this objective the SCP branch works towards ensuring that:

⇒ Resource efficiency is increased and pollution is reduced over product life cycles and along supply chains

⇒ Investment in efficient, clean and safe industrial production methods is increased through public policies and private sector action

⇒ Consumer choice favors resource efficient and environmentally friendly products.

⇒ [The Global Outlook on SCP Policies: Taking Action Together](#)

□ Themes of the SCP Branch

Business & CSR	Life Cycle & Resource Management
Cleaner Production	Safer Production
Communications	Sustainable Consumption
Sustainable Product Design	Eco-labelling
Education & Capacity Building	Sustainable Procurement

## ● CORPORATE SUSTAINABILITY

- Corporate sustainability definition (<http://www.csrquest.net/default.aspx?articleID=13113&heading>):

Corporate Sustainability can be regarded as the corporate response to sustainable development represented by strategies and practices that address the key issues for the world's sustainable development.

Sustainable development is about creating the conditions for better quality of life for everyone, now and in the future, based on eco-efficiency and innovative solutions for engaging everyone and particularly the developing countries in the global economy.

“Corporate sustainability means that your service or product does not compete in the marketplace only in terms of its superior image, power, speed, packaging, etc. Additionally, your business must deliver products or services to the customer in a way that reduces consumption, energy use, distribution costs, economic concentration, soil erosion, atmospheric pollution, and other forms of environmental damage.” The Ecology of Commerce (1993).

PricewaterhouseCoopers define corporate sustainability as aligning an organisation's products and services with stakeholder expectations, thereby adding economic, environmental and social value.

According to Dow Jones Sustainability Index., “Corporate Sustainability is a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments”.

- CS, CSD, CSR: Corporate Sustainability, Corporate Sustainable Development, Corporate Social Responsibility, Corporate Sustainability Report
- SA 8000:2014 (Social Accountability), ISO 26000:2010 (Social Responsibility)
- Global Reporting Initiative (GRI) G4: Environmental, Social, and (Economic) Governance Report
  - ⇒ GRI G4 Standards (<https://www.globalreporting.org/standards/Pages/default.aspx>)
  - ⇒ GRI G4 正體中文版 (<http://www.bcsd.org.tw/info/event/data/1179>)

## ● GREEN ECONOMY AND CLEAN ECONOMY

- Green Economy (<http://www.unep.org/greeneconomy/>)
  - ⇒ In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive.
  - ⇒ Practically speaking, a green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. These investments need to be catalyzed and supported by targeted public expenditure, policy reforms and regulation changes. This development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and source of public benefits, especially for poor people whose livelihoods and security depend strongly on nature.
- Clean Economy (<http://cleanenergycanada.org/paris-agreement-signals-global-shift-to-clean-economy/>)
  - ⇒ As the Paris Agreement underscores the need to act urgently and boldly to put these tools to use, it will help send a signal to world markets that the age of fossil fuels is ending and giving way to a more sustainable, resilient and clean economy.

## ● HOMEWORK ASSIGNMENT #1 (Due 2016/03/22):

1. 請簡要定義「能源密集度 Energy Intensity」與「能源生產力 Energy Productivity」，並延伸該「生產力 Productivity」概念，論述並列舉基於企業永續觀點之「生產力指標 Indicators for Productivity」。
2. 請中譯 OECD [Handbook on Constructing Composite Indicators: Methodology and User Guide](#) 之指標建構步驟 (Steps for constructing a composite indicator)。