

# The widening concept of “cleaner production”

28/06/2017

Luc Hens

[luchens51@gmail.com](mailto:luchens51@gmail.com)

Soa Paolo, May 2017



# Origins

1. Increasing criticism and accidents on the polluting industry in the post-2nd World War period
2. Reply of the Brundtland report (WCED, 1987): save energy and materials, substitute damaging by less damaging products
3. Reply of Agenda 21 (UNCED, 1992): stewardship role of industry

# Cleaner production - Definition

- » Cleaner Production (CP) strategies are fundamentally concerned with operations, environmental sustainability and maximization of waste reduction, recycling, and reuse at the enterprise level, and are thus microeconomic in scope



*Khallil et al., 2015*



# Cleaner production – Widening/ sustainability concept

1. Scope

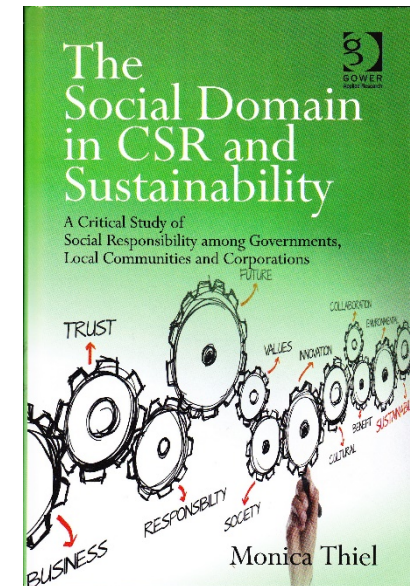
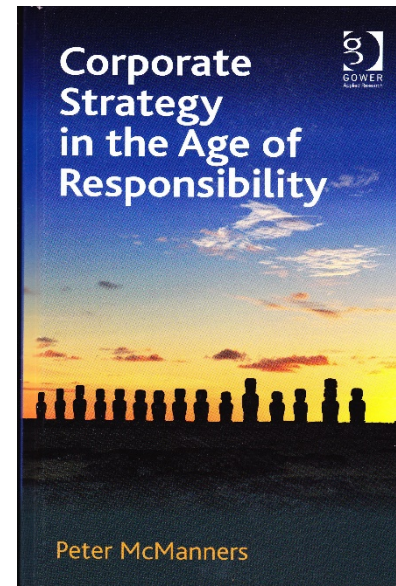
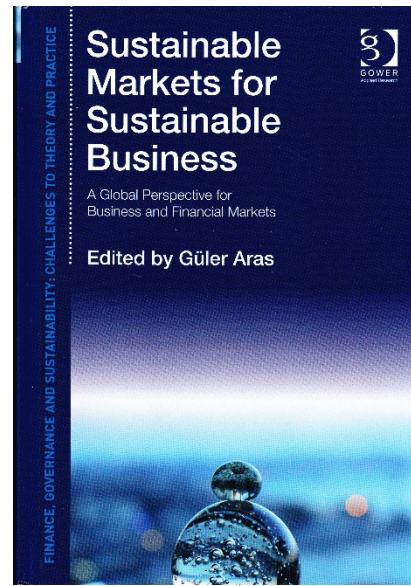
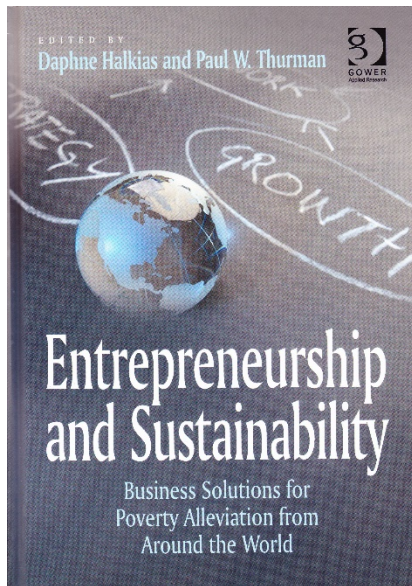
2. Methods

3. Targets

# Scope – Corporate Social Responsibility (CSR)

1. Environment
2. Human rights
3. Human resources
4. Ethics
5. Community involvement
6. Negative criteria

# CSR books (Gower)



# CSR content-environment

1. Environmental strategy, policy (EMS) certification
2. Legal compliance and beyond
3. “Green” products
4. Environmental risk management
5. Resource use: energy, water, materials, waste
6. Pollution: CO<sub>2</sub> (GHG), SO<sub>2</sub>, NO<sub>x</sub>, HC, CFC, particulates, specifics
7. Mobility



# Scope – beyond industry

1. Healthy, green, blue, smart cities
2. Sustainable agriculture, tourism
3. “Green” economy (Rio+20, 2011)
4. Health service sector



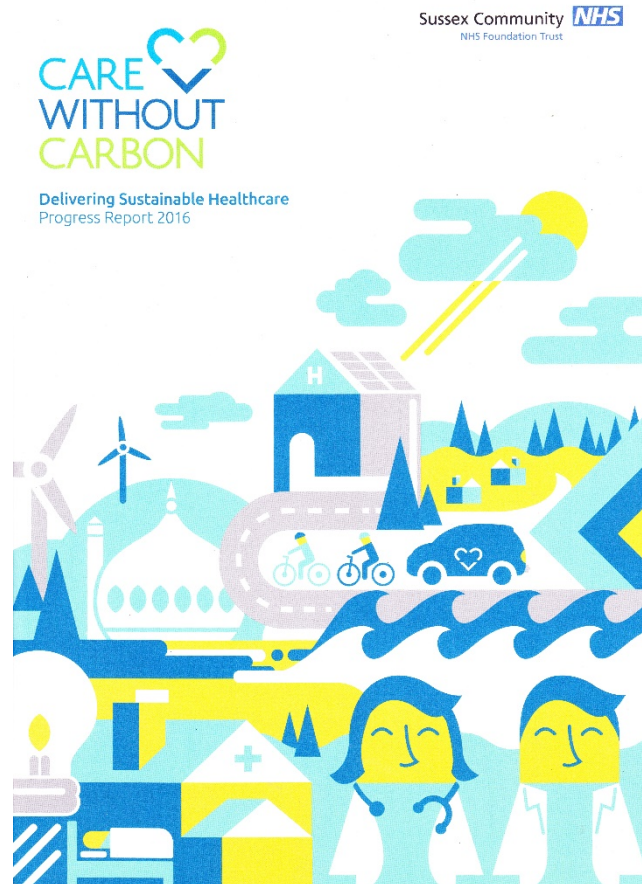


# Sustainable healthcare

Sustainable Solutions for  
Pharmaceuticals, Healthcare  
and Medical Devices  
An Introduction to ERM



The business of sustainability



# Methods

1. Assessment: EIA, Social IA, Strategic IA, Sustainability IA
2. Management: EMS, social certification, management for CSR
3. Monitoring and modelling: environmental, social, economic, ethical

# Targets

1. From responsive to pro-active
2. Covering all economic sectors and economy as a whole
3. From environment to quality of life

# Contribution of projects

1. Cuba as a country in transition: scientific/technical support to this transition
2. Internationalisation of research
3. Inter-university exchange on education



# Action items of projects

1. Contents
  - » Energy, water quality
  - » Effects: environmental, socio-economic (health)
2. Sectors
  - » Industry
  - » Tourism
  - » Policy
3. Methods e.g.
  - » Monitoring
  - » Laboratory (field)
  - » Modelling e.g. footprint

# Action items of projects

## 4. Instruments

- » Assessment
- » Management
- » Integration

## 5. Education

- » Maestria
- » PhD
- » Stakeholders

