Cleaner Production and Industrial Resource Management

Cleaner Production

CP Methodology/Finances

Part I - Methodology

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Contents

- Trend-setting intro
- Theoretical concept of Eco-efficiency
- Cleaner Production and how is it achieved?
- Financial benefits of Cleaner Production
- Future developments

In this unit

What is Cleaner Production? (1)

"The practical application of knowledge, methods and means, so as to provide the most rational use of natural resources and energy, and to protect the environment "

(First UN seminar organized by the ECE, 1976)

TERMINOLOGY

economic capital

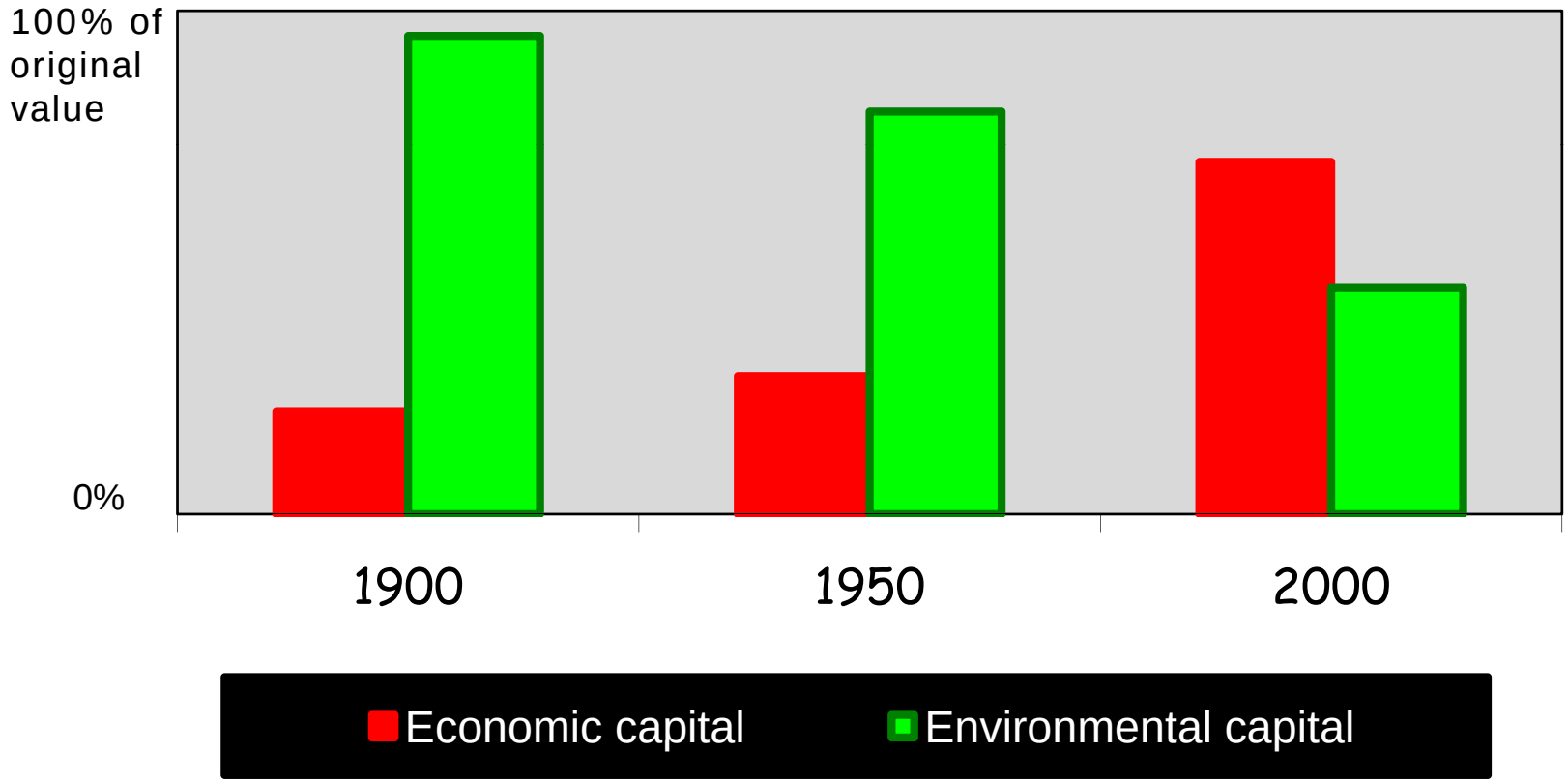
Economic capital - the sum of the values of production goods: production means, knowledge (human capital), market share, customer relations, resources, transport, location, etc.

environmental capital

Environmental capital - the sum of the objective and subjective values of nature and environment: clean air, clean water, space, silence, natural resources, etc.

How did economical and environmental capital alter in time and how are these alterations linked?

Economic *vs.* environmental capital



Thesis - 1

Without changes directed at the cleaning of the industrial sector, the destruction of environmental capital will continue until the self-destruction of the economic capital.

Thesis - 2

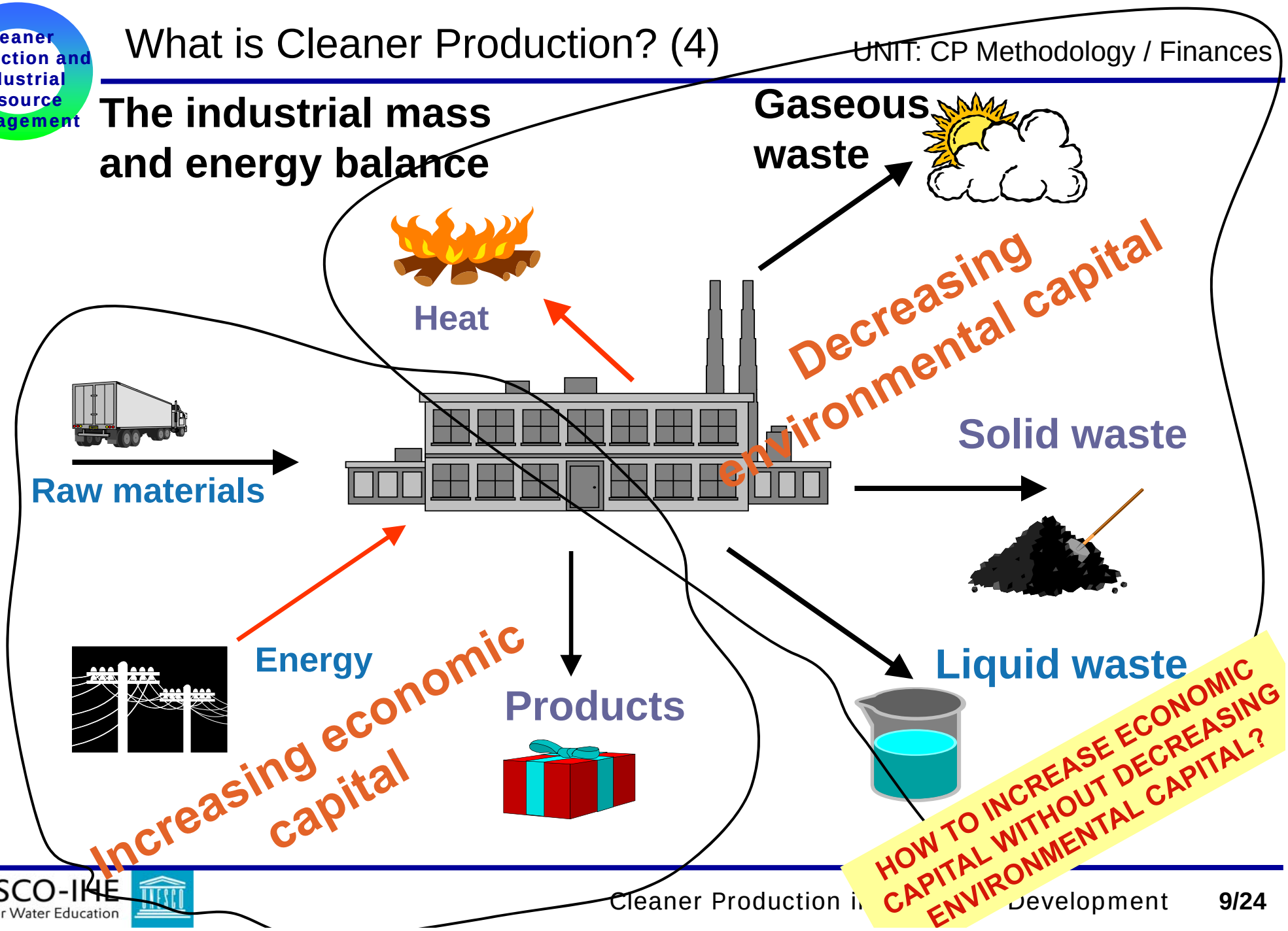
The cleaning up of the industry permits a high level industrial development and, at the same time, a minimal reduction of environmental capital.

Question

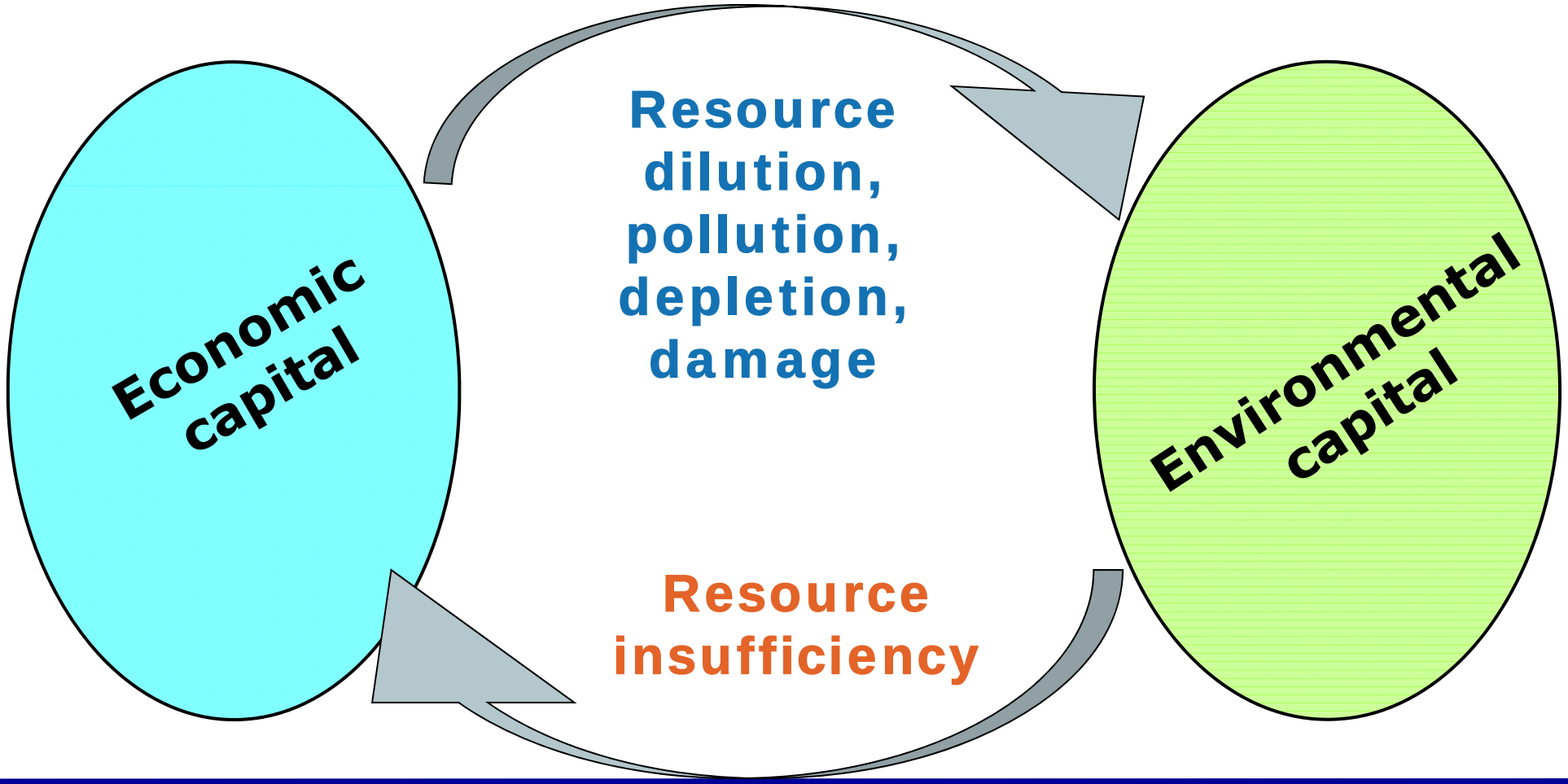
Economic capital at the expense of environmental capital?

What is Cleaner Production? (4)

The industrial mass and energy balance

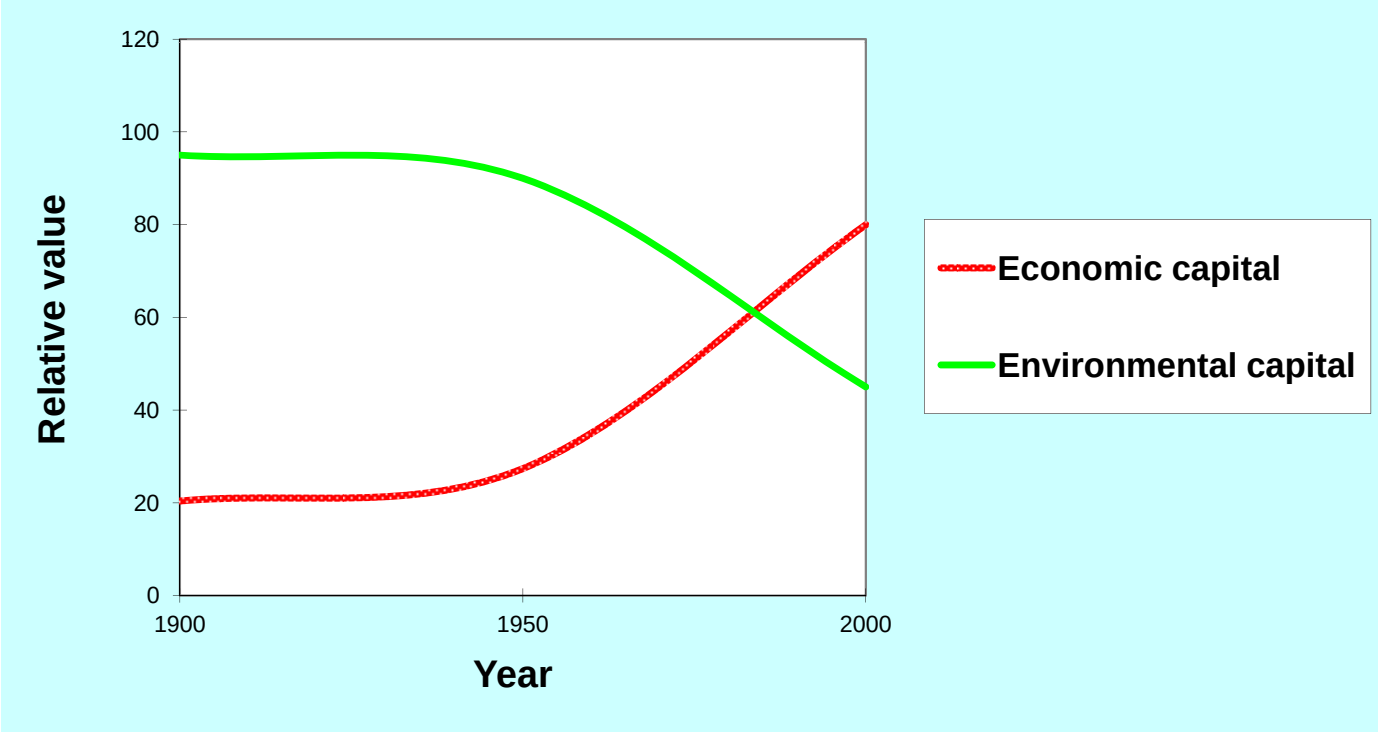


What is Cleaner Production? (5)



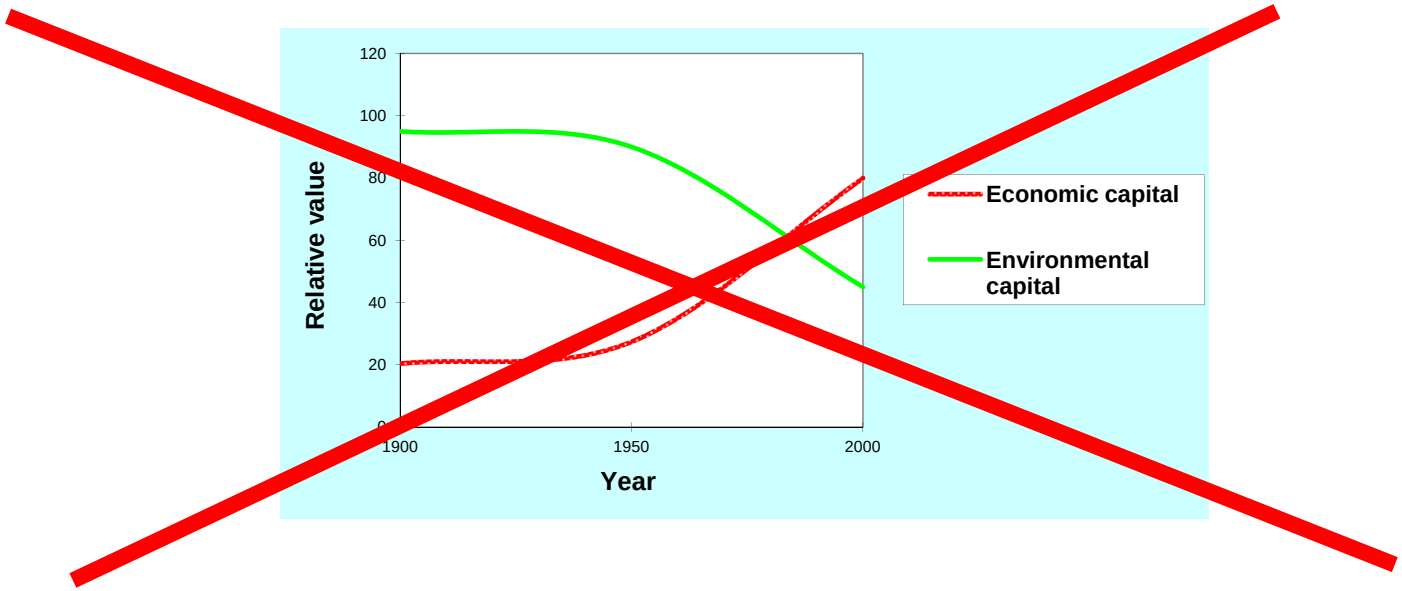
What is Cleaner Production? (6)

Are economic and environmental capital changes coupled?



What is Cleaner Production? (7)

- If so, can economic and environmental capital changes be decoupled?



What is Cleaner Production? (8)

Can economic and environmental capital changes be decoupled?

With other words, is economic activity possible without continued environmental destruction?

Potential options to ‘do’ better (1)

Yes, or at least, to a large extent

- through demand management,
- through materials choice,
- through least impact design,
- through least impact utilization,
- through reuse, recycling, recovery,
- over entire life cycle.

Potential options to ‘do’ better (2)

1. through demand management

- Taxing gas consumption/air transportation AND reducing cost of public transport
- Taxing road transport AND providing nearby employment, recreation, shopping
- Taxing disposable goods AND stimulating reusability/durability

OR

OR

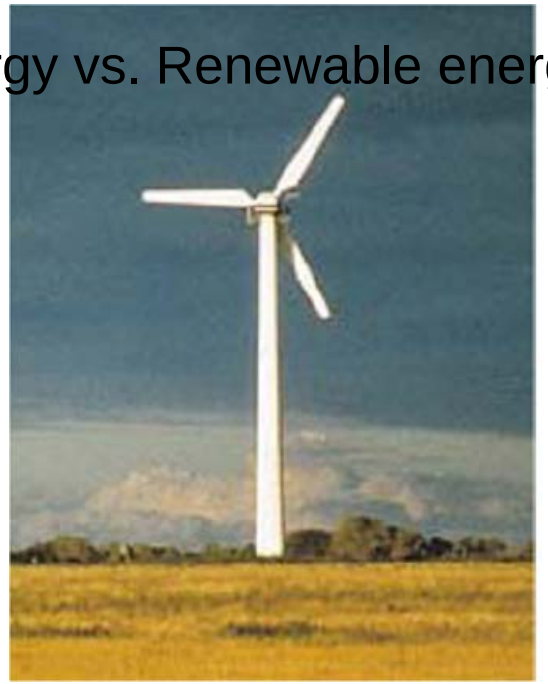
What two main issues causing environmental damage are you aware of in your country and how would demand management be able to reduce the damage, given your local/national conditions? Enter your response in the related forum of Unit 3 – CP Meth/€.

Submit Clear

Potential options to 'do' better (3)

2. through materials choice

- Oil-based lubricants vs. Water-based lubricants
- Chromium sulfate tanning vs. Vegetable tanning
- Carbon-based energy vs. Renewable energy



OR

Potential options to 'do' better (4)

3. through least impact design

- Coffee/tea makers with a thermos can rather than a can that needs heating
- Electrical appliances without stand-bye mode
- Cars that run over 30 km per liter of fuel

Which 2 items do you use in your home or at work which you would design with a much lower sum total environmental impact (sum of production, use disposal phase)? Enter your response in the forum of Unit 3 – CP Meth/€

Submit Clear

Potential options to ‘do’ better (5)

4. through least impact utilization

- Using public transport in stead of private car
- Switching off lights when not needed
- Shopping at a nearby location rather than far away

Potential options to 'do' better (6)

5. through reuse, recycling, recovery

- Reusing glass bottles, clothing, (waste-) water, …
- Recycling plastics, paper, metal scrap, engine oil, …
- Recovering metals from sludge, batteries, compost from organic waste …

What items from your household and/or work do you feel you would absolutely want to reuse, recycle, recover provided there was a system available for their processing? What items can you presently reuse, recycle, recover beneficially? Enter your response in the forum of Unit 3 – CP Meth/€.

Submit Clear

Recycling metal scrap in Guayaquil, Ecuador

Potential options to ‘do’ better (7)

6. over entire life cycle

- Includes environmental effects during production, during product use and after disposal
- Tires - particles on pavement and in disposal sites
- Shoes - chromium release after use
- Car wrecks - maximizing reusability