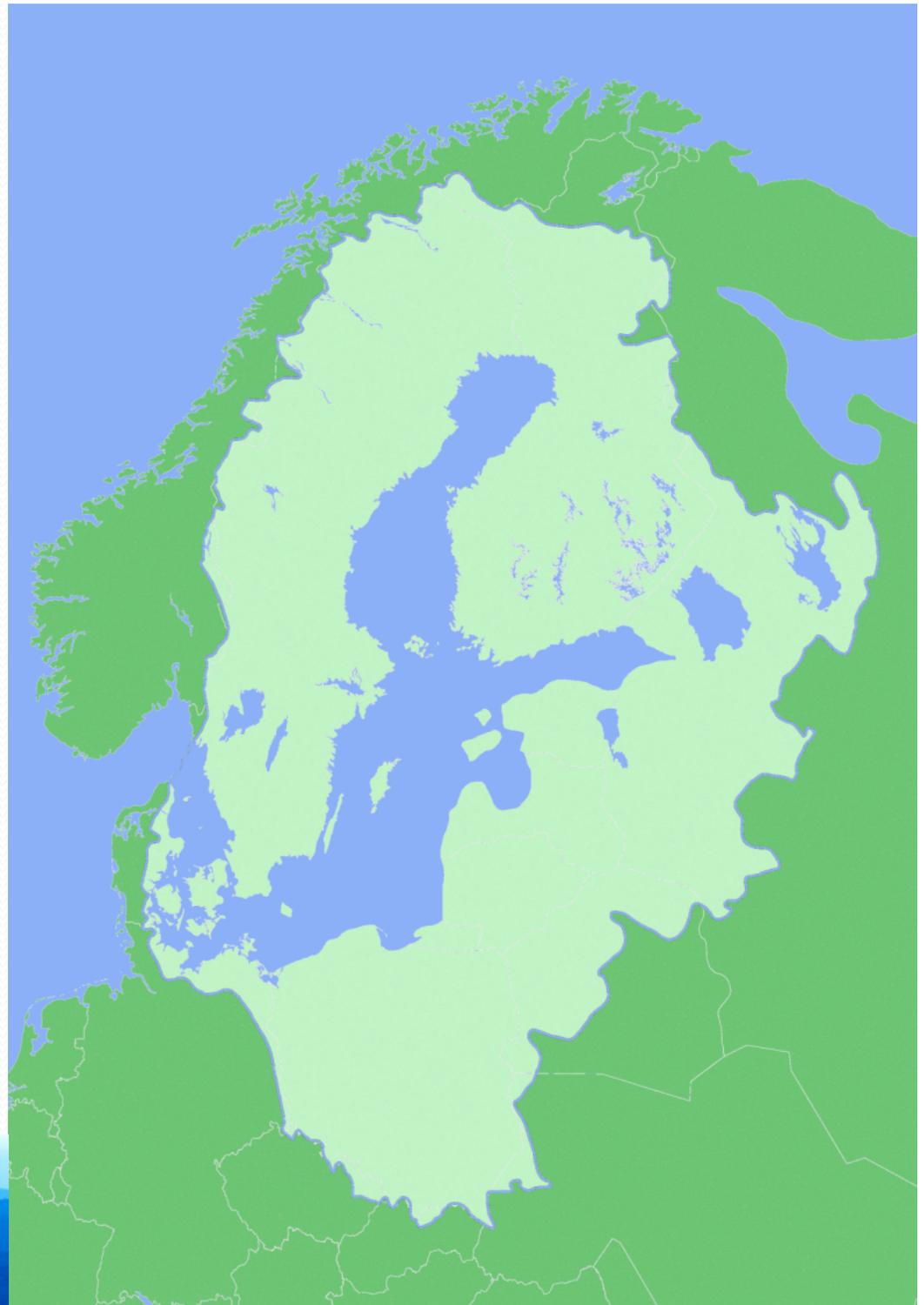




Cleantech production and consumption

Lars Rydén
Baltic University Programme
Uppsala Center for Sustainable Development
Uppsala University

BUP Teachers Conference
Rogow 17-21 May 2011



Production and consumption is part of the resource flow in our society.

Cleantech usually refers to improving the entire chain:

1. Resources are extracted
2. The production impacts the environment
3. The product is used
4. End-of-life (often just waste)



Let us start with resources!

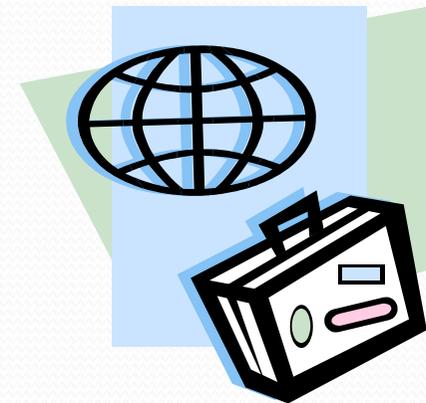
**Resource extraction:
Lignite mining in Germany**



Lignite mining
Germany

All the resources which go into a product constitutes the *ecological rucksack* of that product.

- The laptop may weigh 1 tonne
- A golden ring weighs 5 tonnes



**Internet Resources:
Wuppertal Institute – Material Intensity
factors are listed. They include the
materials and energy sources and let you
calculate the rucksack**

*[http://www.wupperinst.org/Projekte/
mipsonline/download/MIT_v2.pdf](http://www.wupperinst.org/Projekte/mipsonline/download/MIT_v2.pdf)*



How can we improve things?

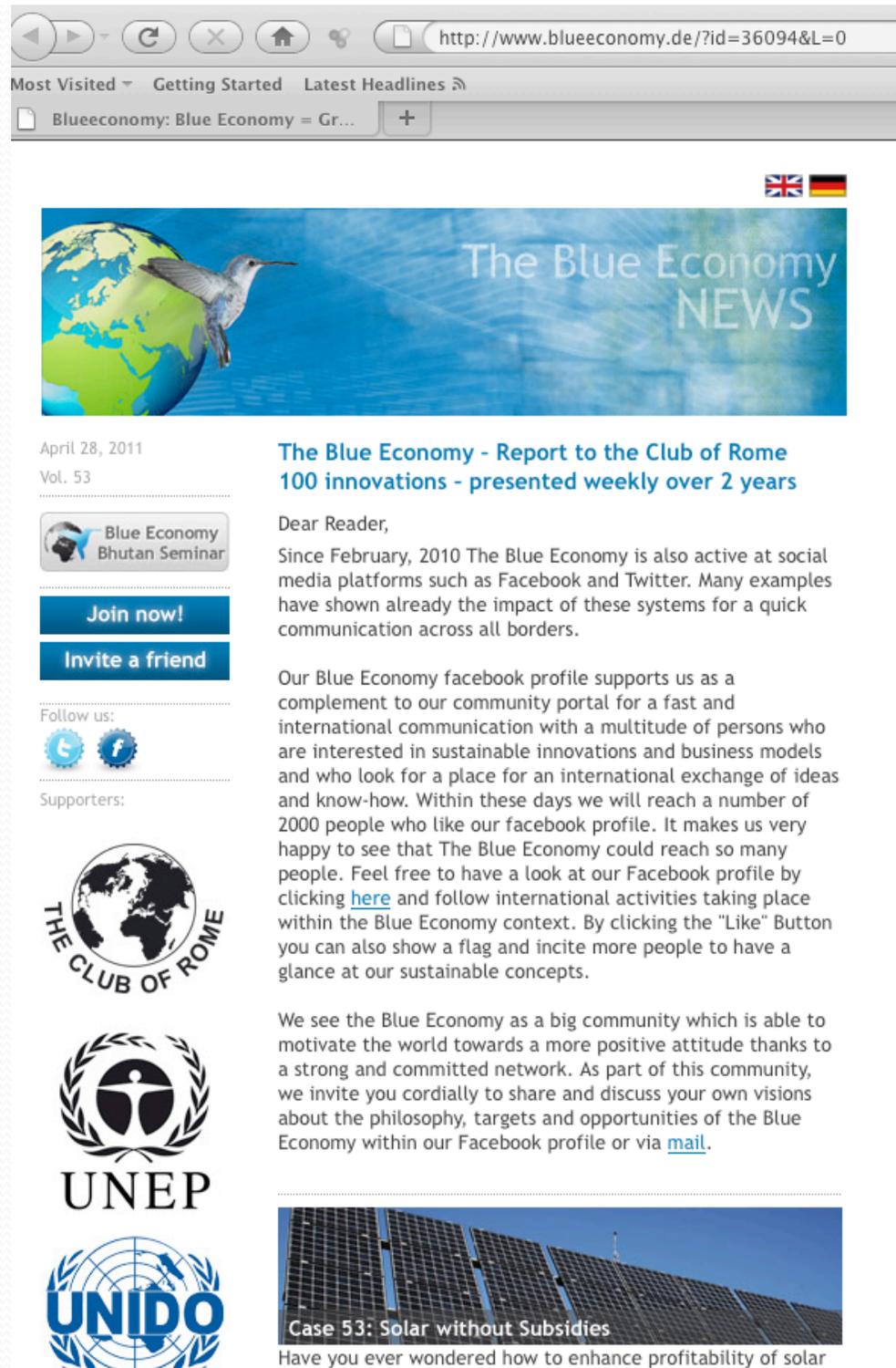
**There are many ways to
resource efficiencies**



The Blue Economy

is a Club of Rome project
led by Gunter Pauli;
It describes all kinds of
innovations to use
resources extremely
efficiently

<http://www.blueeconomy.de/>



The screenshot shows a web browser window with the URL <http://www.blueeconomy.de/?id=36094&L=0>. The page features a header with navigation links: "Most Visited", "Getting Started", and "Latest Headlines". Below the header is a banner image of a hummingbird flying over a globe, with the text "The Blue Economy NEWS" and flags of the United Kingdom and Germany.

The main content area includes a date "April 28, 2011" and "Vol. 53". A featured article is titled "The Blue Economy - Report to the Club of Rome 100 innovations - presented weekly over 2 years". The article text reads: "Dear Reader, Since February, 2010 The Blue Economy is also active at social media platforms such as Facebook and Twitter. Many examples have shown already the impact of these systems for a quick communication across all borders. Our Blue Economy facebook profile supports us as a complement to our community portal for a fast and international communication with a multitude of persons who are interested in sustainable innovations and business models and who look for a place for an international exchange of ideas and know-how. Within these days we will reach a number of 2000 people who like our facebook profile. It makes us very happy to see that The Blue Economy could reach so many people. Feel free to have a look at our Facebook profile by clicking [here](#) and follow international activities taking place within the Blue Economy context. By clicking the "Like" Button you can also show a flag and incite more people to have a glance at our sustainable concepts. We see the Blue Economy as a big community which is able to motivate the world towards a more positive attitude thanks to a strong and committed network. As part of this community, we invite you cordially to share and discuss your own visions about the philosophy, targets and opportunities of the Blue Economy within our Facebook profile or via [mail](#)."

Below the article are several logos and buttons: "Blue Economy Bhutan Seminar" with a "Join now!" and "Invite a friend" button; social media icons for Twitter and Facebook; and logos for "THE CLUB OF ROME", "UNEP", and "UNIDO". A small image of solar panels is shown at the bottom right with the caption "Case 53: Solar without Subsidies" and the text "Have you ever wondered how to enhance profitability of solar".

The Blue Economy

A Report to the Club of Rome 2009

10 years
100 innovations
100 million jobs
inspired by nature

Prof. Dr. Gunter Pauli

Founder Director of the ZERI Foundation

Member of the Club of Rome

Professor Systems Design at the Faculty of Architecture Politecnico di Torino

© 2009, Pauli

Singapore

13th of November 2009

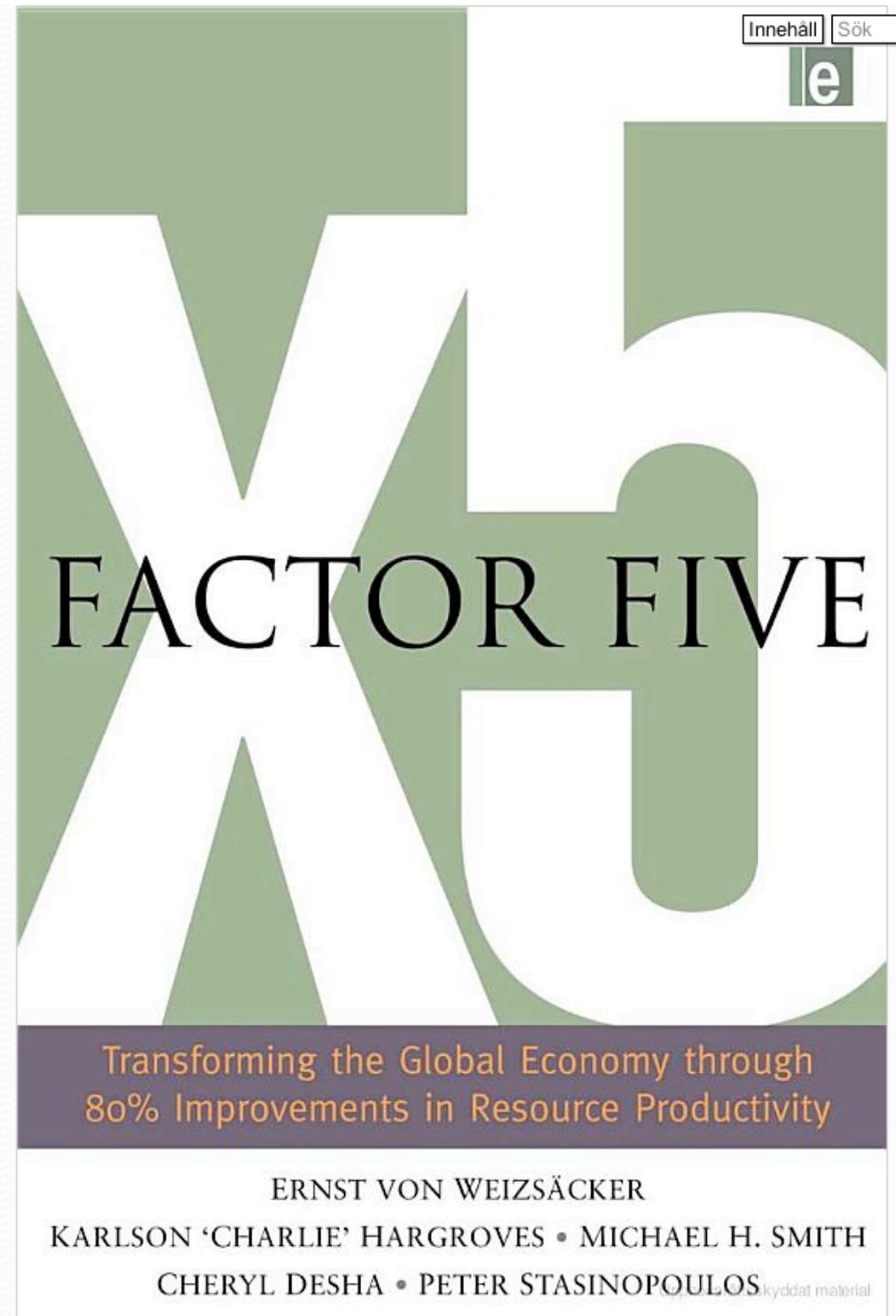
Factor 5 – X5

Is a Natural Edge project
which demonstrates how to
reduce resource use

five times

by developing technologies
in a number of areas –
building, transport,
industrial production, etc

Just being smarter!



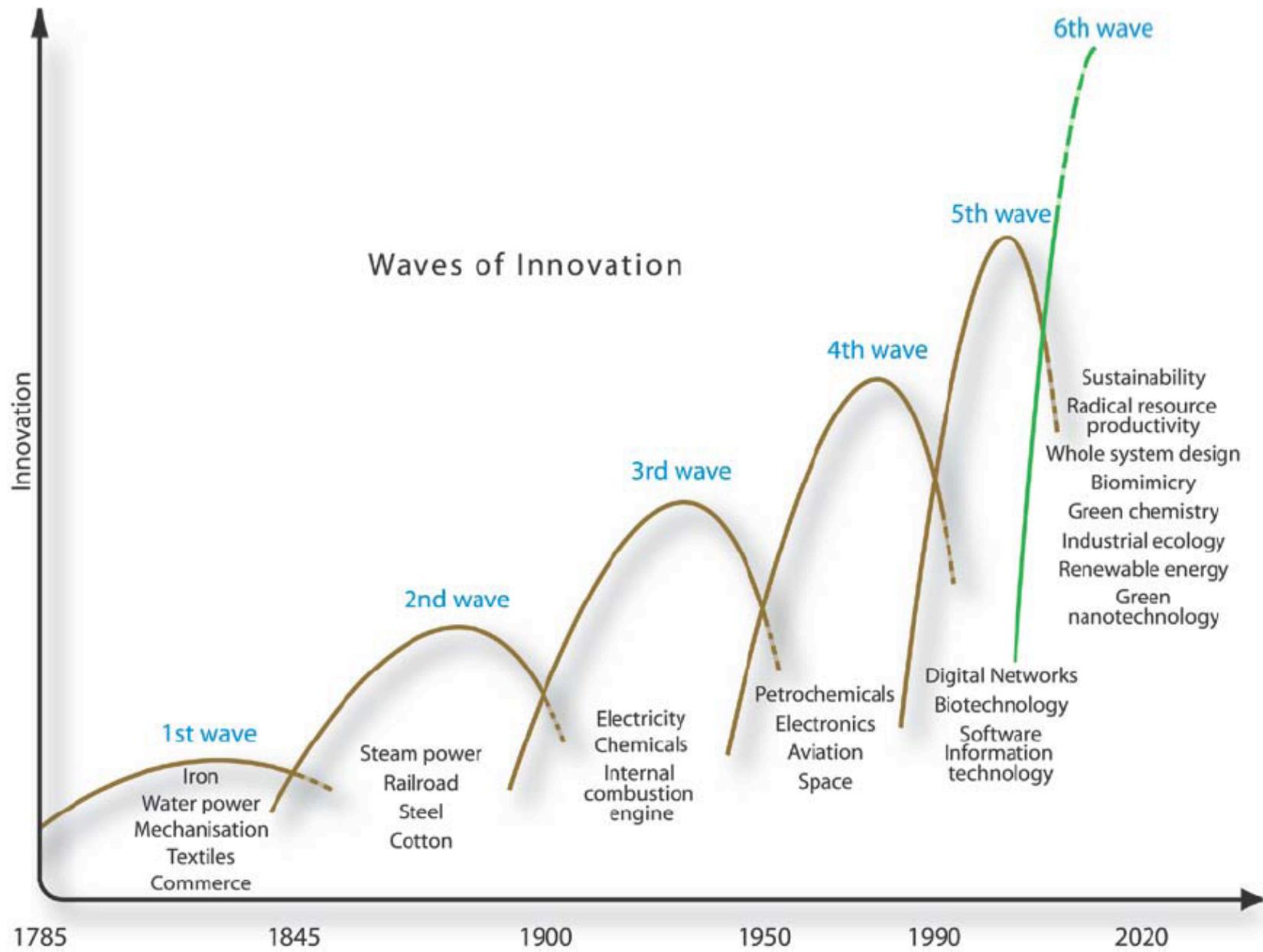


Figure 4 *Waves of Innovation*

Source: Courtesy of The Natural Edge Project¹⁹

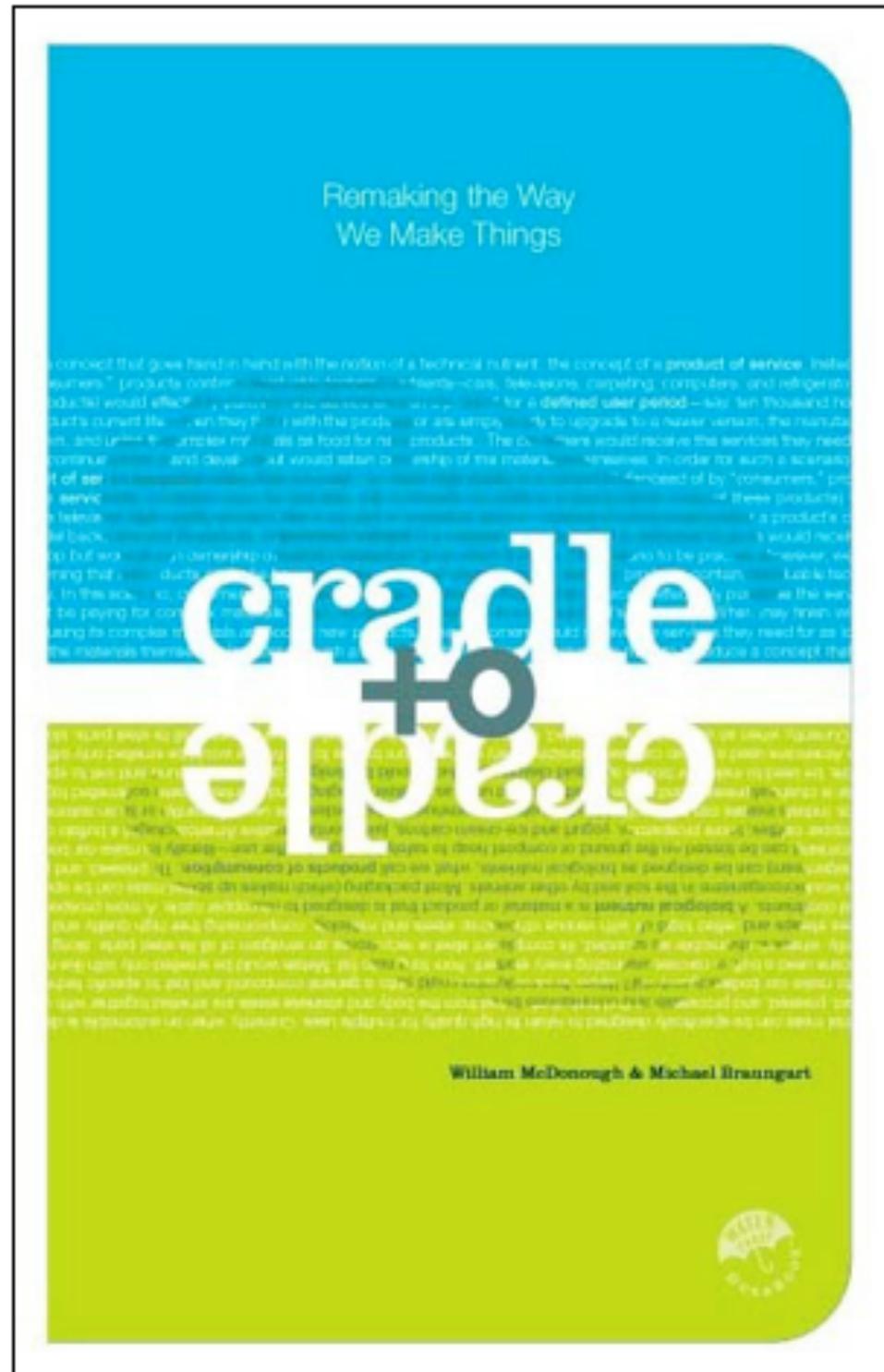
C2C

Cradle to Cradle

Is a new development in which all resources used in a product can be recycled to be used for new products.

Nothing is lost!

http://www.mcdonough.com/cradle_to_cradle.htm



Tate Gallery
London 2011



Peter Blake
Recycled lithograph printed tin plate
Edition of 5000 each

Commissioned by Creatively Recycled Empire, these tin plates feature the artist's iconic heart, target, star and rainbow motifs and form part of his 'affordable art for all' series.

£46 each



<http://www.mbdc.com/>



CRADLE TO CRADLE CERTIFICATION CONSULTING CLIENTS NEWS & MEDIA ABOUT MBDC

Power with Renewable Energy



LATEST NEWS

06/07/2011: MBDC clients Replenish and Nestle Waters are speakers at Sustainable Brands Conference
MBDC supporters can get a 20% discount on registration.

05/05/2011: Job opening at MBDC for Environmental Chemist III
Submission Deadline is June 15, 2011.

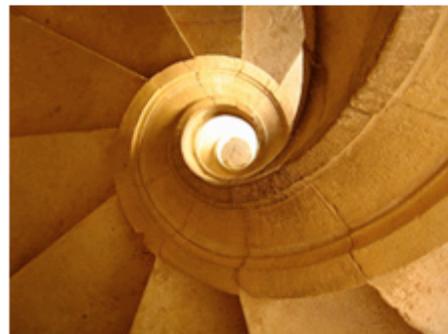
04/22/2011: At Replenish, Opting for New Designs Over Improving Old Ones
A blog on GreenBiz.com by MBDC

04/22/2011: Cradle to Cradle inspired products featured on CBS channel's The Early Show on Earth Day
Products shown include method laundry detergent and Replenish bottle system

04/01/2011: InStyle Magazine's April issue features a C2C Certified Shaw Industries area rug
The article features Actress Emmanuel Chiqui's eco-chic home

03/03/2011: Boral Bricks Announces Cradle to Cradle Certification For Bricks Produced in Salisbury, N.C. Plant

02/17/2011: Video of William McDonough at State of Green Business Forum



Certification Overview

Certification Overview

Certification Criteria

Certification Process

C2C Certified Products

Certification Resources

Value of Certification



Hundreds of companies have made the C2C concept real!

Overview

Cradle to Cradle® Certification is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles. The program provides guidelines to help businesses implement the Cradle to Cradle framework, which focuses on using safe materials that can be disassembled and recycled as technical nutrients or composted as biological nutrients. Unlike single-attribute eco-labels, MBDC's certification program takes a comprehensive approach to evaluating the design of a product and the practices employed in manufacturing the product. The materials and manufacturing practices of each product are assessed in five categories: Material Health, Material Reutilization, Renewable Energy Use, Water Stewardship, and Social Responsibility. Click here for complete description of [Certification Criteria](#).

Eligibility

Products or materials from any industry that are sold to consumers or other businesses are eligible for certification. Certification criteria are the same for all product

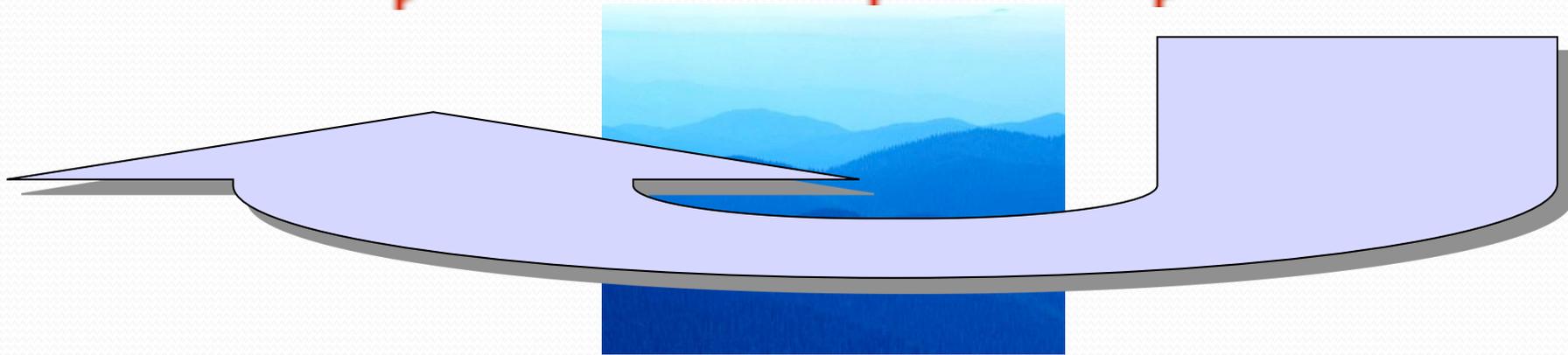
The four phases of the EcoCampus scheme

*In the Ecocampus project
also universities may be much
greener!*



Recycle! Cradle to Cradle C2C

Resource → Production → Use → End-of-life

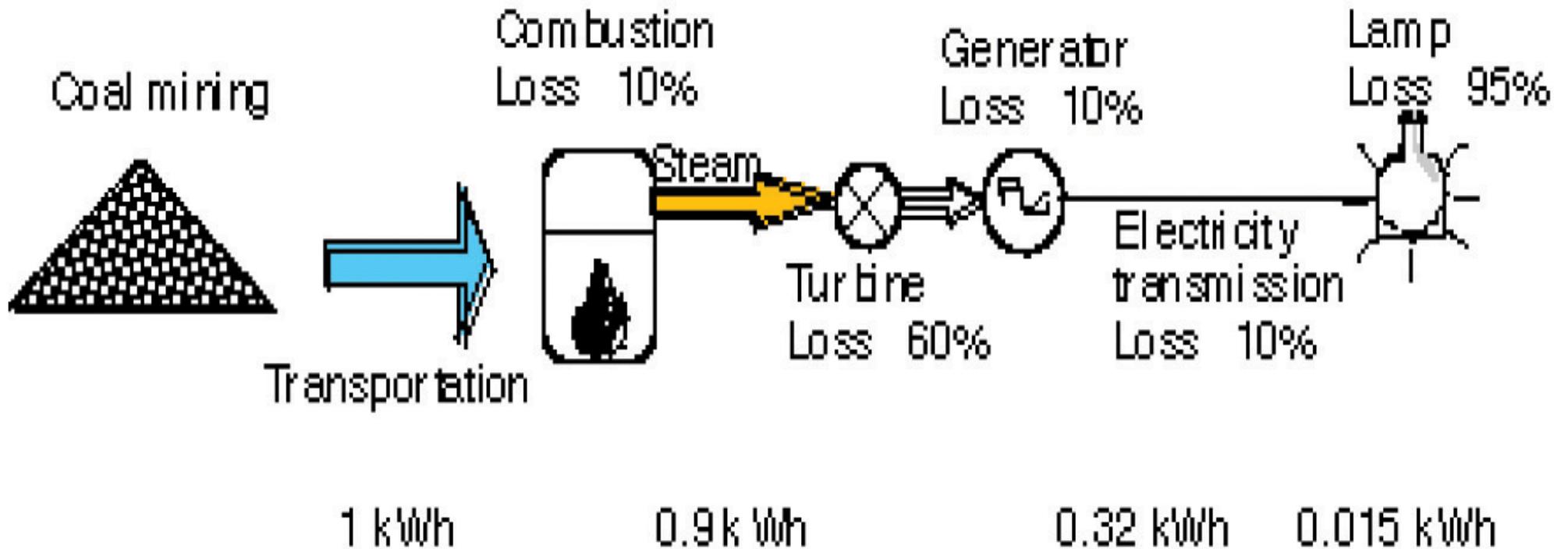


Different systems approaches to Cleantech

1. Looking at demand management rather than supply management.
2. Developing – exchanging – the products.
3. External recycling, e.g. paper recycling
4. Industrial symbiosis – use the waste streams, e.g. steam and hot water – for some purpose such as district heating.

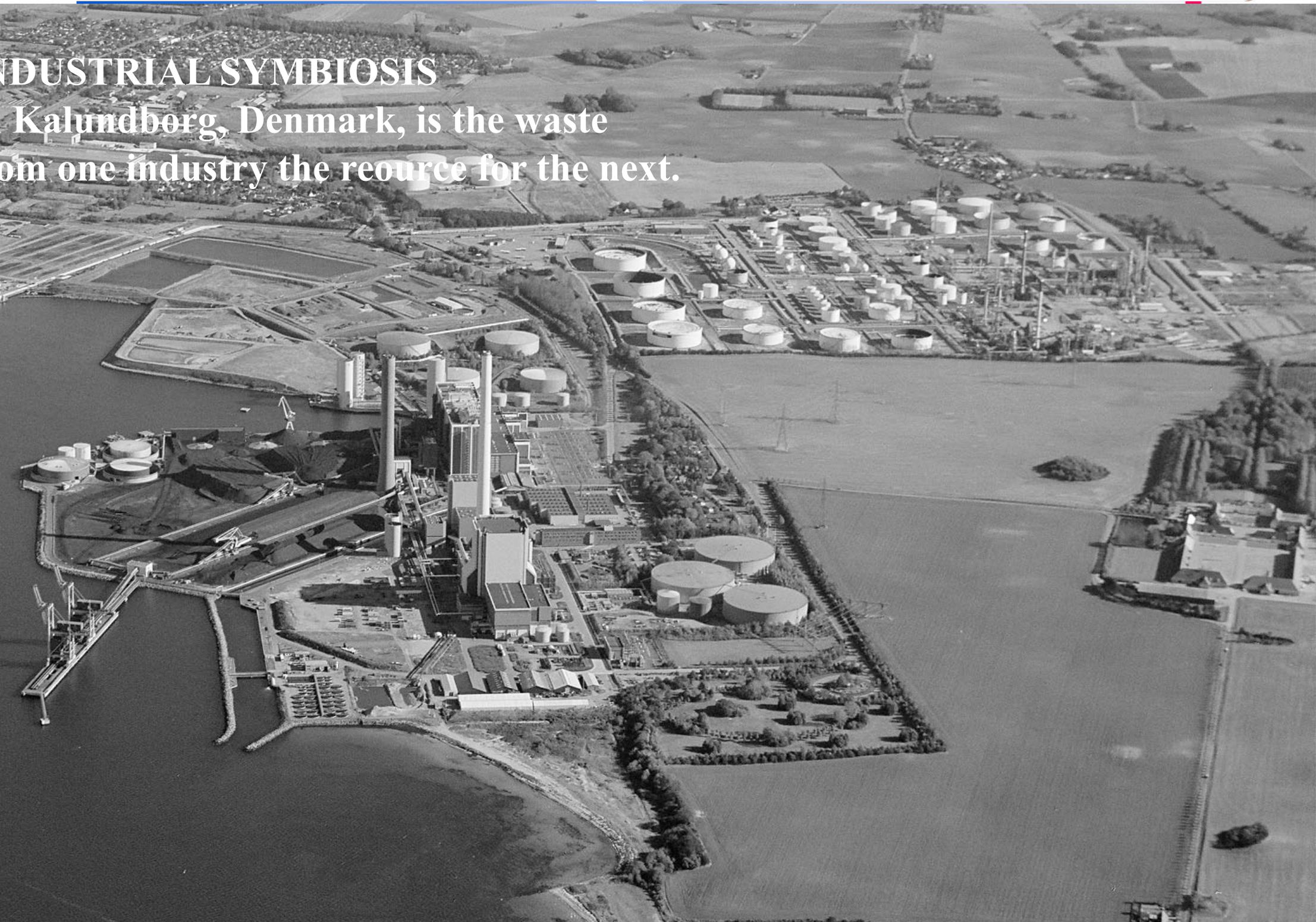


Demand management is better than increased production.
It is smarter to make the lamp twice as good than to make the pile of coal twice bigger!



INDUSTRIAL SYMBIOSIS

Kalundborg, Denmark, is the waste
from one industry the resource for the next.



**The production itself is a very
important part – it may be
improved tremendously by
Cleaner Production, CP!**

Cleaner Production



LEARN MORE ABOUT LESS.

Cleaner Production

- The goal is to improve the eco-efficiency in companies by implementation of technical or organisational actions
- By reducing the negative effects to the environment operating costs are reduced
- Cleaner Production works with process integrated – preventive - methods instead of End-of-Pipe solutions

**Cleaner Production is good
not only for the environment
but also for the economy!**

Of course!

**You make products efficiently,
not pollutants - inefficiently**

Thank you



Paris 2010