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INTERNATIONAL CONFERENCE ON GREEN INDUSTRY IN ASIA:
Managing the Transition to Resource-Efficient and Low-carbon Industries

Preparatory Meeting: Cleaner Production

Heinz Leuenberger
4-5 March
Bangkok, Thailand

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Context

- The financial and economic crises will have a significant impact on Small and Medium Sized Enterprises (closure of companies, bankruptcy, job losses)
- Governments must now implement measures to support companies to strengthen their capacity to compete, to increase productivity, to reduce production costs and to take advantage of new opportunities
- Many industries use more materials and energy than their production processes require, due to continued use of obsolete and inefficient technologies and methodologies.
- In general, producers and consumers have defined their patterns of production and consumption without considering the limits of the planet's available resources and its assimilative capacity for emissions, a situation further complicated by continued population growth.

Source: State of the world, 2008
Innovation for a Sustainable Economy, Worldwatch Institute

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Context

- Production systems are therefore unsustainable: they do not allow today's needs to be met without jeopardizing the ability of future generations to meet their needs.
- At the enterprise level global competition and best practice is leading companies to establish good industrial relations, improving working and developing their human resources
- Pressure is also coming from major lending institutions as well as investors, who are adopting performance standards on environmental and on social issues
- Government procurement is another source which is increasingly asking companies to improve environmental, occupational health and safety standards

Source: State of the world, 2008
Innovation for a Sustainable Economy, Worldwatch Institute

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Challenge of the international context

Sustainable Industrial Development should:

- increase health, income, quality of life
- decrease resource use, pollution, waste, impact on nature, ...

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Decoupling economic growth and use of nature

Source: Wuppertal Institute Collaboration Centre on SCP, 2006

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Terminology

- Waste minimization
- Green productivity
- Cleaner Production
- Eco-efficiency
- Resource Efficient Production
- Sustainable Production

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Definition of Resource Efficient and Cleaner Production

“Continuous application of an integrated preventive environmental strategy to processes, products and service to increase efficiency and reduce risks to humans and environment”

It specifically works to advance:

- Production efficiency* through improved productive use of natural resources by enterprises
- Environmental conservation* through minimization of the impact on nature by enterprises
- Human development* through reduction of risks to people and communities from enterprises and supporting their development

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Cleaner Production: The Seven Elements

- Reducing the material requirements for goods and services
- Reducing the energy intensity of goods and services
- Reducing toxic dispersion
- Enhancing material recyclability
- Maximizing sustainable use of renewable resources
- Extending product durability
- Increasing the service intensity of goods and services

Source: NRTEE (2001): Eco-efficiency Indicators

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Industrial Pollution

Cleaner Production:

1. To increase efficiency
2. To recycle waste materials
3. To produce useful by-products out of waste materials
4. End-of-pipe treatment

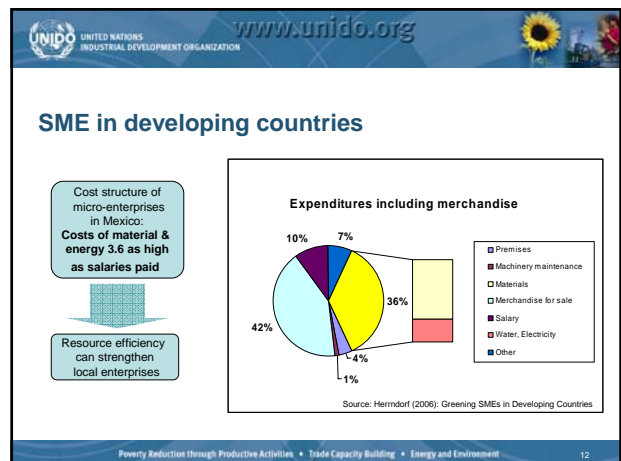
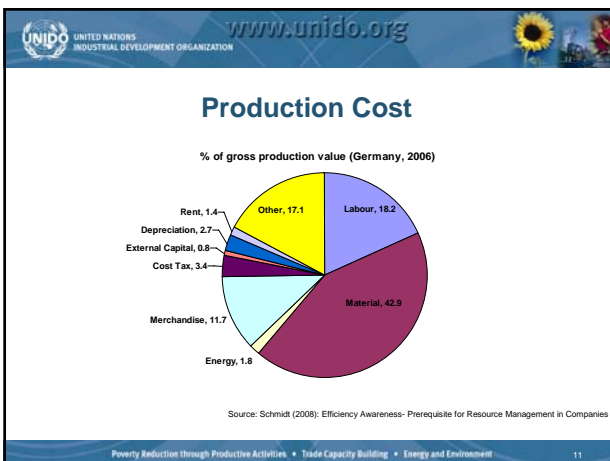
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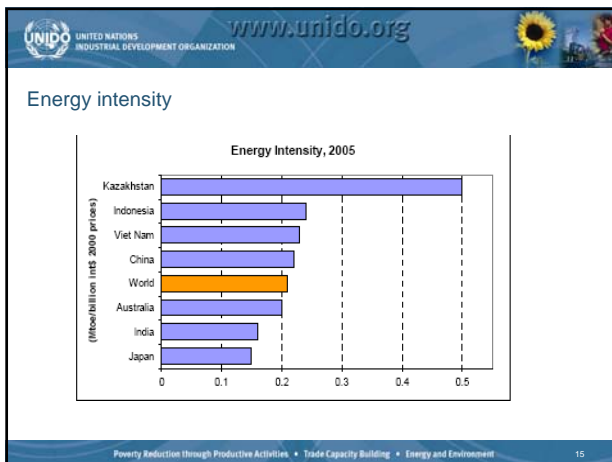
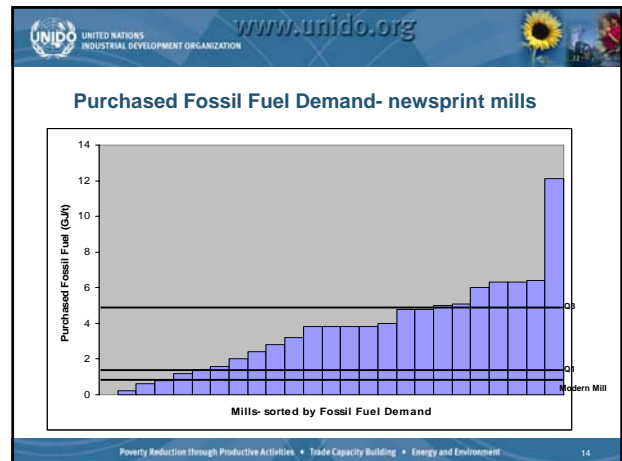
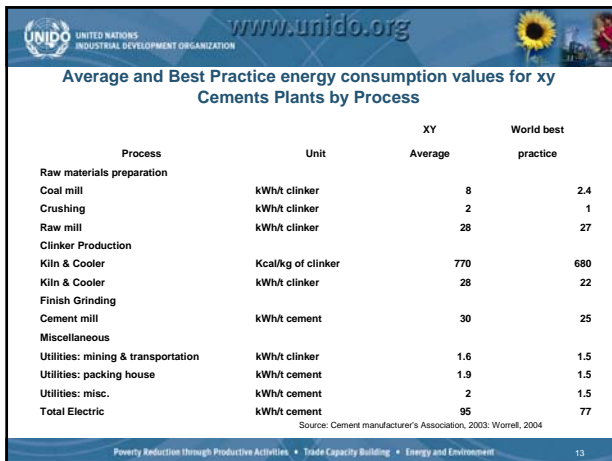
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% of unfixed dye for various dye types and applications

Fibre	Dye Type	Unfixed dye %
Wool and Nylon	Acid dyes/ reactive dyes for wool	7-20
	Pre-metallised dyes	2-7
	Azolic dyes	5-10
Cotton and viscose	Reactive dyes	20-50
	Direct dyes	5-20
	Pigment	1
	Vat dyes	5-20
Polyester	Sulphur dyes	30-40
	Disperse	8-20
Acrylic	Modified basic	2-3

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Unit consumption of water (2001)

Pulp and paper Industry
Unit: m³- water/ton-pulp or paper

Item	Paper	Low	High	Average
Pulp		48.1	75.8	65.9
Packaging paper	Liner board	6.9	21	10.9
	Fluting paper	6.8	49.6	9.9
	Coated white board	13.3	51.5	27.8
	Chip board	9.6	51.5	34.1
	Kraft paper	27.5	90	59.9
	Art Paper	3	15.7	12.1
	Printed writing paper	15.7	98.2	30.9
Household paper		16	83	32.5

Source: C.Y. Peng, 2006: Water Consumption, Quality Demanded, and Re-use of the Treated Wastewater for Paper Industry

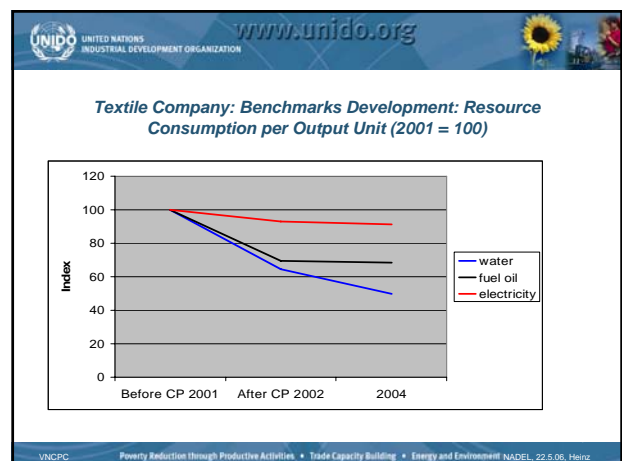
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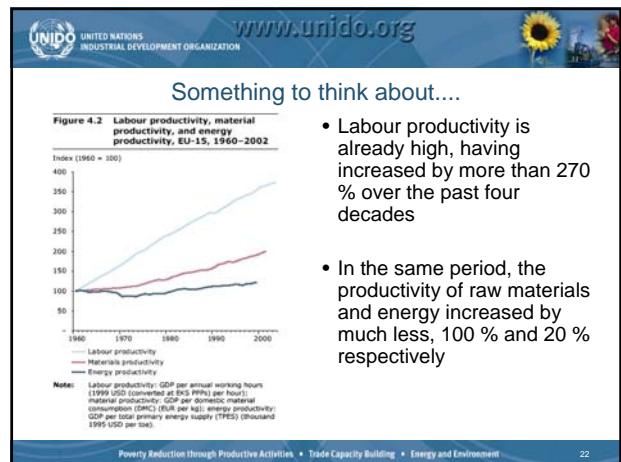
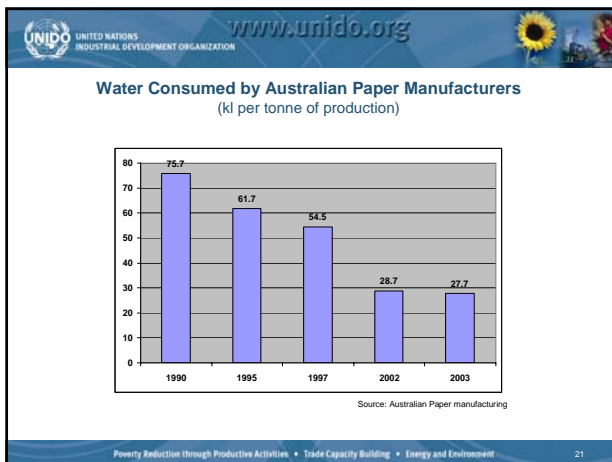
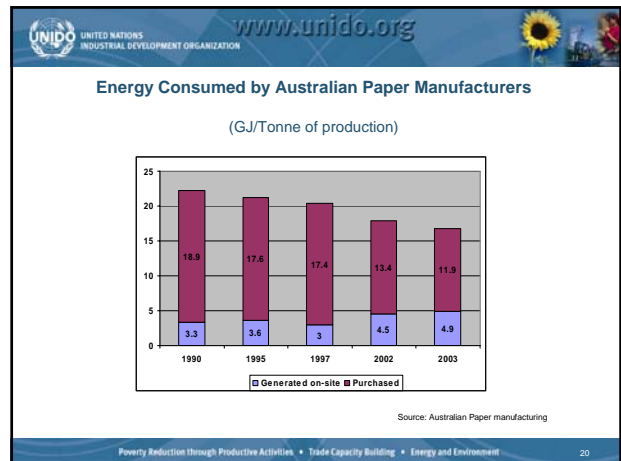
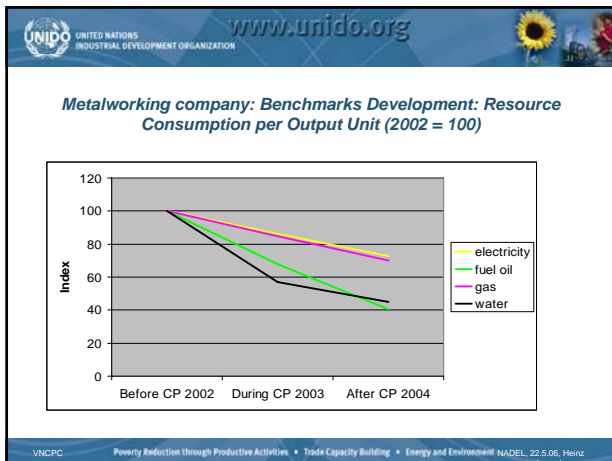
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Water Consumption Industry

Sector	Average water consumption in x industry	Globally best
Thermal power plant	On an average 80 m ³ / mwh ¹	Less than 10 m ³ /mwh ²
Textiles	200-250 m ³ /tonne cotton cloth ³	Less than 100 m ³ /tonne cotton cloth ²
Pulp & Paper	• Wood based mills: 150-200 m ³ /tonne ⁴ • Waste paper based mills: 75-100 m ³ /tonne ³	• Wood based mills: 50-75 m ³ /tonne(4) • Waste paper based mills: 10-25 m ³ /tonne(4)
Integrated Iron & steel plant	10-80 m ³ per tonne of finished product (average)	5-10m ³ /tonne of finished product. Best is around 25m ³ practice- less than 0.1m ³ wastewater per tonne finished product(5)
Distilleries	75-200m ³ /tonne alcohol produced	Data not available
Fertiliser industry	• Nitrogenous fertiliser plant - 5.0 - 20.0 m ³ /tonne(3) • Straight phosphatic - 1.4-2.0m ³ /tonne(3) • Complex fertiliser - 0.2-5.4m ³ /tonne(3)	An effluent discharge of less than 1.5m ³ /tonne product as PS05(2)

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Joint UNIDO-UNEP Programme on Resource Efficient and Cleaner Production

Environmental Management Branch (UNIDO)

and

Sustainable Consumption and Production Branch (UNEP)

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Background

- Cleaner Production (CP) was endorsed in 1991 as a key strategy to prevent the generation of pollution and thereby decouple economic growth from environmental pressure
- The Cleaner Production Unit of UNIDO and the Business and Industry Unit of UNEP are the principal focal points for CP in the UN System
- The joint UNIDO-UNEP Programme of National Cleaner Production Centres was launched in 1994 as a follow-up to the Rio Conference and Declaration

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Results of CP Programme/1

- Establishment and operation of 42 National Cleaner Production Centres and Programmes worldwide, which offer the following basic
 - CP awareness raising and information dissemination
 - Training for specific target groups
 - Technical assistance at plant level
 - CP policy advice
 - EST development and transfer
 - Promotion of CP investment and business cooperation
- Establishment of a Regional Cleaner Production Programme in Latin America, with 12 participating countries and development of an Internet-based Knowledge Management System
 - Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru



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Results of CP Programme/2

- Development of a UNIDO CP training toolkit and UNIDO endorsed CP award for consultants, trainers and companies
- Development of technical tools and delivery of training to NCPCs by UNEP on CP and Energy Efficiency, CP and MEA implementation and Design for Environment/ Sustainability (D4E/D4S)
- Inclusion of activities related to UNIDO's Sustainable Chemicals Management and Chemical Leasing in the portfolio of several Cleaner Production Centres
- Facilitation of regional and national roundtables on cleaner production/sustainable consumption and production

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Programmatic Evaluation 2007/8

- Key finding
 - Good progress made in putting CP on agenda, training of technical staff, implementing low and intermediate technology options and policy change in some countries
- Great potential
 - Improve strategy and inter-agency collaboration
 - Foster institutional development of NCPCs
 - Strengthen, intensify and open up networking
 - Scale-up CP methods and activities
 - Mainstream CP in policy and enterprise finance
 - Transfer, adapt and replicate ESTs and sustainable products

http://www.unido.org/fileadmin/user_media/About_UNIDO/Evaluation/CP_Program_Evaluation_Report_May_2008.pdf

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But....

- Up-scaling of CP implementation**
- There is no measurable impact for decoupling economic growth and the use of natural resources**

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Joint Strategic Programme

- Implementation of Joint Programme will be guided by the UN-wide principles of Delivering as One, so that CP interventions of the two UN focal agencies are coordinated
- It develops the modalities of cooperation between UNIDO and UNEP in the area of Cleaner Production, as stated in the Letter of Agreement signed on 21 May 2007
- The programme contributes to agency-wide strategic priorities
 - UNIDO: **Green Industry**
 - UNEP: **Green Economy**

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Programme Objective

- Improve *resource productivity* and *environmental performance* of businesses and other organisations
 - and thereby contribute to sustainable industrial development and sustainable consumption and production in Programme countries
- Aspects:
 - Environment*:
 - reduced environmental footprint of the business sector
 - Economy*:
 - increased resource productivity and reduced operational and/or compliance costs to the business sector
 - Policy and Institutional*:
 - conducive policies and regulations combined with existence of a strong custodian for RECP at the national level
 - Technology and Finance*:
 - enhanced assimilative capacity for ESTs and sustainable products with financing mechanisms

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Programme Components

- RECP Services delivery network
 - International and regional networking
 - Development of new RECP service delivery capacity
 - Up-scaling RECP through existing (N)CPCs
- Thematic RECP applications
 - Resource efficiency (energy, water, materials)
 - Waste/pollution prevention
 - Corporate responsibility
- RECP Incentives
 - Mainstreaming CP in policy and enterprise finance
- Innovation Capacity
 - Adaptation and replication of ESTs and sustainable product developments

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New Programme Countries

- Initiate RECP services delivery annually in three countries new to the RECP Programme and support each for three to five years
 - Selection of countries guided by following criteria:
 - Official request for RECP activities presented to UNIDO and /or UNEP by the national government
 - Geographic distribution / coverage of the CPCs worldwide
 - Potential impact of RECP activities, due to level of industrialization and/or exposure to export market
 - Limited risks for the RECP project implementation
 - Alignment with UNDAF processes where possible
 - Counterparts' inputs and ownership of the RECP initiatives

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International Networking

Programme provides platform to facilitate international and regional networks of CPCs and other RECP service providers. The network will:

- Have clear objectives and governing mechanisms that are endorsed by its members and are linked with the relevant regional and global processes
- Consist of members that have demonstrated commitment for RECP promotion in particular and sustainable consumption and production in general
- Serve as a useful vehicle for the effective implementation of the programme at the regional and international level
- Act as an effective global knowledge platform that facilitates both South-South and North-South cooperation

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Thematic Projects

- Multi-country initiatives that mainstream RECP for specific applications:
 - Resource Efficiency
 - Energy, water and materials
 - Waste/Emission Prevention
 - Including sound management of chemicals
 - Corporate Responsibility
- Each thematic project will include practical implementation in several countries and development of methods and tools for global use
- Implemented by qualifying members of the RECP services delivery network, on a competitive basis

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Creating RECP Incentives

- Mainstreaming RECP in government policy and enterprise finance
 - Flexible framework of possible policy and financial instruments for RECP based on review of best practices and gaps identified
 - Pilot flexible guidelines in selected countries
 - Develop and implement complementary projects to create and evaluate specific financial and policy instruments
 - Parallel and integrated initiatives for policy and/or enterprise finance

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Thank You



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