

# UNIDO Green Industry Newsletter

Issue Two, December 2008



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UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



## Message from the Editors

It is my pleasure to present the second issue of the United Nations Industrial Development Organization (UNIDO) Green Industry Newsletter which is devoted to Cleaner Production (CP).

In 1995, the first National Cleaner Production Centre (NCPC) was established within the UNIDO-United Nations Environment Programme (UNEP) CP Programme. Fifteen years later, many centres are fully independent, and many others will soon achieve their own sustainability.

Every year, UNIDO and UNEP receive new requests from Governments to establish NCPCs and CP activities. Their requests reflect the importance of CP and green industry for their country, as well as the faith they have in UNIDO-UNEP expertise.

We hope that you will find this Newsletter useful and interesting. Feedback and suggestions are always welcome.

**Mr. Dmitri Piskounov**  
Managing Director, Programme Development and Technical Cooperation Division, UNIDO

CP is one of UNIDO's green industry flagship programmes. This issue of the UNIDO Green Industry Newsletter provides information on a selection of our CP activities.

Enterprises that adopt CP practices "do more with less": they increase the efficiency with which they use materials and energy. In so doing, they improve their productivity and thus their competitiveness.

At the same time, through greater efficiency, enterprises reduce the amount of pollution and waste they generate, thus lower industry's impacts on their country's environment, including its climate footprint.

We hope that this Newsletter will increase the momentum to scale-up CP in the developing and transition economies.

**Mr. Heinz Leuenberger**  
Director, Environmental Management Branch, UNIDO

## UNIDO Focus

# From CP to Cleaner and Resource-Efficient Production

### Preventive Environmental Strategies

Cleaner Production (CP) is commonly understood as the application of preventive environmental strategies in the processing of products and services. CP aims at reducing environmental and health risks, as well as improving efficient natural resource usage.

Important changes occurred during the last decade, which the 2002 World Summit on Sustainable Development in Johannesburg duly acknowledged. As a result, a shift towards sustainable consumption and production was noted, whereby greater emphasis is placed on resource efficiency. This is a direct response to the inefficient use of natural resources, which lies at the core of the most pressing environmental challenges of our time, including climate change.

Recognizing that resource efficiency requires CP and vice-versa, UNIDO and UNEP are moving towards Cleaner and Resource-Efficient Production (CREP).

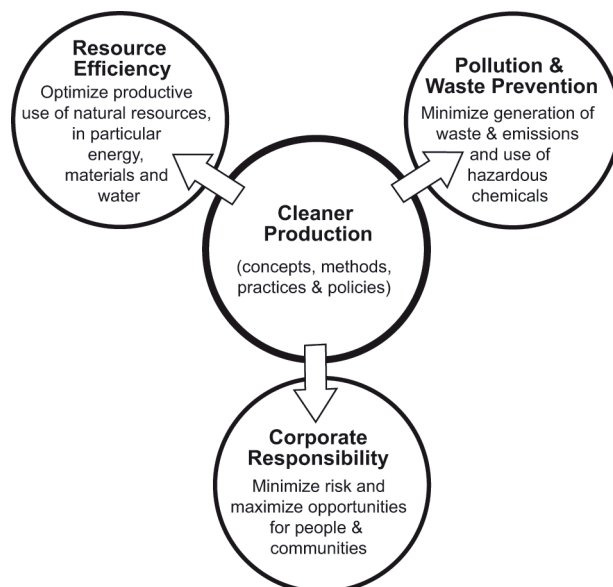
CREP catalyses production efficiency by optimizing the productive use of natural resources (materials, energy and water) by

enterprises and other organizations. It further promotes environmental conservation by preventing the generation of waste and emissions, as well as promoting the management of environmentally sound chemicals.

Finally, CREP is important in fostering human development through the minimization of health risks stemming from enterprises and other organizations.

*"UNEP and UNIDO have been long-term partners in promoting preventive environmental approaches: the international programme on National Cleaner Production Centres (NCPC), jointly launched by UNIDO and UNEP in 1993, has been a flagship activity for both organizations. UNEP looks forward to working with UNIDO and others in promoting cleaner and resource-efficient production."*

*Mr. Arab Hoballah*  
Chief, SCP Branch, UNEP



Demonstrating the scope of CREP



# UNIDO-UNEP NCPC Programme: Fifteen Years of Success

## Green Industry Through CP

UNIDO’s primary CP delivery mechanism is the National Cleaner Production Centres (NCPC) approach. Together with UNEP, UNIDO established 40 NCPCs, as well as a number of related regional and sectoral centres.

The NCPCs set out to train industry professionals, undertake plant-level CP assessments, raise awareness, disseminate information and provide advice on policy matters.

NCPCs are set up on a project basis, most commonly through funding, or partial funding, of a project unit in a local host institution.

Over time, each NCPC becomes financially independent and nationally owned. At the same time, conducive policy changes foster CP sustainability, as well as the development of technical resources and CP advocacy.

Overall, NCPCs offer the following five main categories of services:

**Information dissemination and awareness-raising.** The Sri Lanka NCPC, for example, produces plain-language “how-to” guides for small and medium-sized enterprises (SMEs). To recognize best practices, it also established a CP award scheme.

**Professional training.** The South Africa NCPC utilizes the UNIDO CP Toolkit to train experts who work for CP projects in the textile, agro-processing and chemical sectors.

**In-plant demonstrations.** The Viet Nam NCPC helped four companies in the metal finishing industry. With an investment of \$30,000, they achieved annual savings of \$265,000 and reduced greenhouse gas emissions in excess of 1,100 tons.

**Policy advice.** The China NCPC played a pivotal role in designing the CP promotion law, which gives local environmental agencies the authority to request CP assessments of heavy-polluting industries. By 2007, more than 6,000 companies were mandated to undertake CP assessments.

**Transfer of environmentally sound technologies.** The Morocco NCPC, for instance, pioneered the two-phase pressing of olives to achieve higher oil recovery and avoid generating wastewater.

In 2007, the Programme was extensively evaluated. The independent report confirmed the progress made in delivering professional training and implementing technology options and policy change.

The evaluation further identified ways to expand the Programme through programmatic and thematic activities including more networking, knowledge-sharing and peer learning. Accordingly, the NCPC strategy was refocused to achieve programmatic synergies between activities and capacities in different countries.

In parallel, CP will be expanded as part of CREP. Other future priorities are expanding and strengthening the network of CP service providers; mainstreaming CP in government policy, as well as enterprise financing; and disseminating environmentally sound technologies and sustainable product designs.

### DID YOU KNOW?



Studies in Germany and Australia have shown that material and energy costs represent 40% to 65% of the total production costs for many enterprises.



Material and energy efficiency are becoming key aspects of a competitive industry and primary indicators of industrial sustainability.



Enterprises applying CP manufacture more goods and provide more services with inputs that are environmentally sounder.



Labour productivity has increased by more than 270% over the past four decades. During the same period, the productivity of raw materials and energy has increased by much less: 100% and 20%, respectively.

## NATIONAL CLEANER PRODUCTION CENTRES AND PROGRAMMES WORLDWIDE



**Asia:** Cambodia, China, India, Lao People’s Democratic Republic, Lebanon, Sri Lanka, Republic of Korea, Viet Nam and Uzbekistan.

**African and Arab countries:** Egypt, Ethiopia, Kenya, Morocco, Mozambique, South Africa, Tunisia, Uganda, United Republic of Tanzania, and Zimbabwe.

**Central and Eastern Europe:** Armenia, Bulgaria, Croatia, Czech Republic, Hungary, Romania, Russian Federation, Serbia, Slovakia, The Former Yugoslav Republic of Macedonia and Ukraine.

**Latin America:** Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Peru

## SELECTED CP SUCCESS STORIES

### Havana Optimizes Waste Management

Cuba

UNIDO's longstanding assistance to the Cuba NCPD was further strengthened through the launch of a joint programme on municipal solid waste (MSW).



Mr. Yoshiteru Uramoto (Managing Director, UNIDO) and Mr. Bertand Louis (Ambassador of Switzerland to Cuba) cutting the inauguration ribbon of the biogas plant



Biogas plant inauguration speech by Mr. Orlando Requeijo (Vice-Minister of the Ministry of Foreign Investment and Economic Collaboration of Cuba)

The programme aims at reducing the generation of solid waste and facilitating access to environmentally sound technologies.

On 20 October 2008, the biogas facility - one of the main outputs of the programme - was inaugurated. The facility can provide electricity for 150 households.

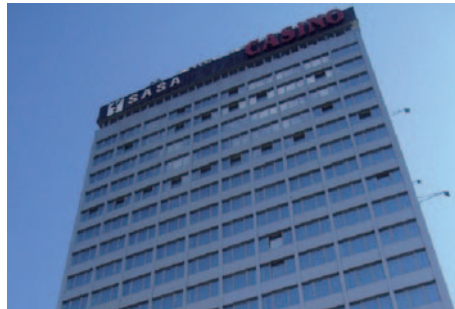
Since the start-up of the programme, the following additional achievements can be highlighted:

- Waste going to landfills reduced by 38%.
- Compost collected from organic waste. First national laboratory established to analyze and certify compost quality.
- Landfill techniques enhanced to ensure environmentally friendly landfill.
- Total of 1,120 national experts trained on cleaner management of MSW.

### Tourism Sector Implements CP and CSR Measures

Bulgaria and Romania

In Bulgaria and Romania, the tourism sector is growing fast. However, few enterprises are aware of environmentally friendly technologies and corporate social responsibility (CSR).



Hemus Hotel in Sofia participates in UNIDO's CP and CSR programmes

Therefore, UNIDO started two twin programmes for the sustainable development of

### Chemical Leasing Improves Metal Production

Egypt

Electrostatic powder coating is a technique commonly applied in Egypt to protect metal surfaces from deterioration.

By providing an optimized management of chemicals, the Egypt National Cleaner Production Centre (ENCPC) and UNIDO increased the efficiency of production lines and contributed to the improved competitiveness of local industry.

First, UNIDO and ENCPC analysed the technical and economic feasibility of the chemical leasing (ChL) projects. They then prepared a business plan and drafted an agreement between two companies. Once implemented, UNIDO and ENCPC continued to advise the companies and monitor the project. The ChL services include the transfer of know-how and product quality improvement.

Today, the companies are engaged in a profitable business relationship through which they save about \$68,000 per year.

enterprises. The projects cover technical CP matters, activities related to the social dimension of sustainable development and CSR.

During the first year of implementation, several awareness-building seminars, trainings and CP/CSR assessment projects were carried out. About 40 CP and CSR staff were trained, and eight hotels in each country were assessed.

Already, some hotels have implemented the options identified by the CP and CSR experts.

The three-star Hemus Hotel in Sofia, for example, lowered its energy consumption by replacing old laundry equipment and optimizing its hot water circulation system. In addition, the hotel management has committed itself to the implementation of CSR to improve the working conditions of its employees.

ChL is a true win-win model and its results speak for themselves:

- Powder loss reduced from 12% to 5%.
- Cost of coating process reduced from 3.8 to 3.2 Egyptian pounds per m<sup>2</sup>.
- Process optimized as 1 kg of powder now coats more than 6 m<sup>2</sup> (5 m<sup>2</sup> before).
- Lower maintenance costs as maintenance is required only once, instead of twice, per month.

*“Encouraging innovative concepts that respond to new challenges constitutes an integral element of UNIDO's CP strategy. Chemical Leasing is one such important and innovative concept, it represents an integrated preventive environmental strategy and a clear win-win situation for industry and the environment.”*

*Dr. Kandeh K. Yumkella  
Director-General, UNIDO*



## Implementing the Green Credit Line Methodology

### Viet Nam

Vietnamese SMEs continuously face many difficulties, including a lack of capital and information. In that challenging context, environmentally friendly technologies are rarely implemented.

As a response, the Viet Nam NCPC, in close cooperation with the State Secretariat for Economic Affairs (SECO) of Switzerland, established the Green Credit Trust Fund.

Similar to other green credit schemes implemented by UNIDO, the Fund reimburses up to 25% of investment costs if the SME achieves environmental improvements. The Fund provides additional support for SMEs with insufficient collateral by guaranteeing 50% of the credit through local joint stock banks.

The role of the Viet Nam NCPC is crucial: it helps SMEs prepare their business plans, undertakes the assessments and defines the environmental indicators and the objectives to be achieved.

In total, \$273,844 was granted to two projects selected, resulting in the reduction of CO<sub>2</sub> by 1,589 tons per year and PM<sub>10</sub> (particles in the atmosphere, measuring 10µm or less, likely to be inhaled by humans) by 1,576 kg per year.

The Vertical Shaft Brick Kiln Technology initiative is one of the two approved projects. The programme is aimed at replacing traditional brick kilns by building vertical shaft kilns. In the traditional kiln, coal dust is mixed with soil to form raw bricks. Use of a vertical shaft kiln reduces coal dust consumption by 50%. Thus, with an initial investment of \$181,760, the following results were achieved:

- Thirty jobs created, with improved working conditions.
- Greenhouse gas emissions reduced.
- No wood was used for burning resulting in reduced emissions.
- Greater productivity and cheaper brick prices enabled local people to build brick rather than wood houses.
- Cleaner technologies transferred to remote, mountainous areas.

## New CDM Methodologies to Manufacture Refrigerators

### India

For almost twenty years, UNIDO and India have jointly promoted CP. Since its inception, the India NCPC has carried out more than 350 energy efficiency assessments in key industrial sectors.

A good example of the Centre's activities relates to energy efficient refrigerators and refrigerators using low global warming potential (GWP) refrigerants, which can lead to a substantial reduction of greenhouse gas emissions.

UNIDO and SECO developed a programme to identify new Clean Development Mechanism (CDM) methodologies for the manufacture of energy efficient refrigerators using climate-friendly refrigerants. These methodologies developed by UNIDO belong to the public domain and can therefore be utilized by all refrigerator manufacturers that do not have reduction targets under the Kyoto Protocol.

Once fully operational, the two initial CDM projects will achieve the following:

- A combined reduction of CO<sub>2</sub> emissions by 600,000 tons over the first seven years.
- Over the technical lifetime of the appliances produced, an expected combined reduction of CO<sub>2</sub> emission by 2 to 4 million tons.

### DID YOU KNOW?



In order to promote technological changes, the CDM of the Kyoto Protocol allows UN-registered emission-reduction projects to earn certified emission reduction (CER) credits. These credits can subsequently be sold and traded to meet emission reduction targets.



Consumer goods such as refrigerators and freezers account for a significant share of the overall electricity consumption.



In developing economies the most widely used refrigerants for refrigerators are fluorinated gases (F-gases). These gases have a high global warming potential. Emissions of F-gases are rapidly growing and in many countries already account for a single-digit percentage share of overall greenhouse gas emissions.



Production line for charging of refrigerants

## South Africa NCPC at the Forefront

South Africa

Inaugurated in 2002 during the World Summit for Sustainable Development in Johannesburg, the South Africa NCPC was the first UNIDO-UNEP Centre to focus its CP activities on three national sectors in three different regions.

Today, the Centre is again at the forefront. Due to the outstanding results obtained and the importance of the CP concept for South Africa's SMEs, its national operation costs and project financing will be fully covered by the South African Department of Trade and Industry (DTI). This will ensure the Centre's sustainability during the next years.

Cooperation with UNIDO's CP team will change from providing institutional to programmatic support aiming at promoting energy efficiency and other projects related to UNIDO's green industry initiative throughout the country. In this way, the Centre, which was initially supported by the Austrian and Swiss Governments, will continue to focus on energy efficiency, an intrinsic part of CP.



*"UNIDO remains an important partner to DTI in ensuring a continuous flow of information. We saw UNIDO creatively introduce a proactive way of facilitating capacity building for CP professionals while producing good case studies. This is instrumental ... as the South Africa NCPC makes a critical contribution to the environmental issues of South Africa and to sustainable development through the different sector programmes."*

*Ms. Elsabé Steyn  
Chairperson,  
Executive Management Committee  
South Africa*

## RECENT CP EVENTS

### Regional CP Conference in Latin America

Mexico City, 4-5 November 2008

Five years after the start of the Latin American Cleaner Production Network's initial operations, its stakeholders met in Mexico City to share their experiences and to develop new partnerships.

The Conference, which was organized by UNIDO, the Regional Latin American Network, the Instituto Politécnico Nacional (IPN) and the Mexico NCPC, brought together a wide array of decision makers and operators.



Mr. Mauricio Limon Aguirre (Vice-Minister of the Ministry of Environment and Natural Resources of Mexico) addresses the Regional CP Conference

At the Conference, challenges and opportunities were discussed, existing collaborations strengthened and new partnerships developed.

In addition, new operative mechanisms were formulated to increase awareness and ensure a wider involvement of both public and private sectors.

*"The First CP Regional Conference is the strategic answer to the operation of the CP centres in the region aiming to enhance CP good practices and achieving positive social and environmental benefits."*

*Mr. José Enrique Villa Rivera  
Director-General, IPN  
Mexico*

The Network is the most visible output of the Regional Cleaner Production Programme for Latin America and the Caribbean. Today, twelve countries - Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Peru - are members of the Network. Interested countries are naturally welcome to participate.

### UNIDO-UNFCCC: Enhancing the Capacity of Project Developers

Vienna, 29 September-1 October 2008

Together with the United Nations Framework Convention on Climate Change (UNFCCC), UNIDO organized a workshop to enhance the capacity of project developers in developing economies to prepare project proposals.

Twenty-seven potential trainers were selected among experienced staff from the national cleaner production centres and programmes to participate in the workshop.

During the workshop, the potential trainers obtained expert advice from financial specialists on pre-identified investment projects.

With special attention given to financial structuring and risk management, the workshop was aimed at increasing the level of technology transfer-related investment in environmentally sound technologies.

The UNFCCC's "Guidebook on Preparing Technology Transfer Project for Financing" offers a general template for preparing project proposals and provides guidance to structure them.

To print your own copy, please go to:  
[http://unfccc.int/resource/docs/publications/pract\\_guide\\_o6\\_en.pdf](http://unfccc.int/resource/docs/publications/pract_guide_o6_en.pdf)



## Sri Lanka Recognizes Excellence in CP

Colombo, 17 October 2008

Six years ago, UNIDO and UNEP jointly established the Sri Lanka National Cleaner Production Centre. Since its inception, the Centre has assisted over 200 companies, helping them to generate more revenues while becoming more environmentally friendly.

On 17 October 2008, the Centre organized an award ceremony to recognize outstanding CP achievements by companies.

The Brandix Group obtained the Gold Award in the “Large Organization” category for its Green Plant in Seeduwa - the world’s first platinum-rated apparel factory (as defined by the United States Green Building Council).



Award winners receiving gold trophy from Hon. Kumar Welgama (Minister of Industrial Development of Sri Lanka)

*“The role played by the NCP is praiseworthy; it helps industries improve their resource utilization in order to save valuable resources which we have to procure at very high prices from other countries.”*

*Hon. Kumara Welgama  
Minister of Industrial Development  
Sri Lanka*

Today, after an investment of \$3 million, the 130,000 square-foot complex sets a global benchmark for low energy consumption (-46%), water conservation (-58%), solid waste management (0) and low carbon emissions (-80%).

With such shining examples, the 2008 Awards certainly provided more than enough incentives for more companies to move towards CP.

## UPCOMING CP EVENTS Second ICCM Session

Geneva, 11-15 May 2009

The Strategic Approach to International Chemicals Management (SAICM) is an international policy framework to foster the sound management of chemicals.

At the second session of the International Conference on Chemicals Management (ICCM2), UNIDO will share its experiences on some of its related activities:

**The Cleaner Production Programme.** The Programme is currently active in 37 countries where CP centres were established.

**The SAICM Quick Start Programme.** As an executing agency, UNIDO has expertise in formulating and implementing projects submitted to the Trust Fund Implementation Committee.

**The Global Mercury Partnership.** UNIDO has been a trailblazer in the introduction of cleaner extraction technologies and training campaigns.

**The Stockholm Convention on Persistent Organic Pollutants (POPs).** UNIDO has assisted over 40 countries to meet the requirements of the Convention.

## Cleaner Technologies for Development

Manama, 2-4 February 2009

UNIDO, the Government of Bahrain and the Crans Montana Forum will promote policy dialogues to help participating Governments obtain a better understanding of how to

facilitate investment in, and access to, cleaner technologies. Concrete measures will immediately follow: Governments will further commit to CP by adopting the Manama Declaration and by discussing its implementation during the Forum.

## Dialogue on Green Industry in Asia

Manila, 9-11 September 2009

The Government of the Philippines, together with UNIDO, UNEP, the Economic and Social Commission for Asia and the Pacific and the Asian Development Bank will organize the International Conference on Green Industry.

efficient industries, thus enhancing the region’s international competitiveness.

Participants will focus on adopting measures to effectively manage the transition to resource

The first two days will be devoted to technical sessions. The final day will focus on high-level dialogue culminating in the adoption of a ministerial declaration. The ministerial declaration is anticipated to outline the policies and institutional actions needed to reduce the resource intensity of Asian industries and move them to low-carbon pathways.

### DID YOU KNOW? SAME OUTCOME, DIFFERENT NAMES



Eco-efficiency - used by the World Business Council for Sustainable Development



Waste minimization - used by the Government of the United Kingdom



Green productivity - used by the Asia Productivity Council



Reduce, reuse and recycle (or 3R) - used by the Government of Japan



Pollution prevention - used by the Government of the United States

## CP TOOLS AND METHODOLOGIES

# UNIDO Implements Chemical Leasing at the Plant Level

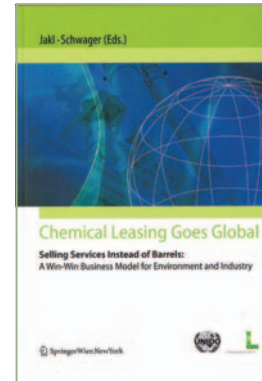
UNIDO and the Government of Austria launched a series of pilot projects to promote ChL. At their core, the projects build national capacity and develop ChL demonstration projects in selected industries.

Initially, projects were implemented in Egypt, Mexico and the Russian Federation. The pilot projects demonstrated the applicability of ChL business models and further developed and promoted the ChL concept. In 2008, four further countries (Colombia, Morocco, Serbia and Sri Lanka) joined the ChL Programme.

In addition, a Chemical Leasing Toolkit and a video were elaborated to promote a systematic approach to the implementation of the ChL business models at the plant level.

Recently, the book “Chemical Leasing Goes Global” was published by the Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria and UNIDO to present the results of the Programme.

For more information, please go to: [www.chemicalleasing.com](http://www.chemicalleasing.com)



Book: “Chemical Leasing Goes Global”

## Online CP Platform Connects Latin America

In Latin America, UNIDO operates an online platform to foster the exchange of information, experience and technical material related to CP.

Developed in the region’s two main languages, the platform offers registered users immediate access to all CP-related information, methodologies and manuals.

The platform enables interactions between CP experts and allows them to share information, discuss technical guidelines and review training materials.

A recent user survey confirms the platform’s importance as a practical communication and community tool.

In particular, the authoritative quality of its content was deemed very useful. Indeed, more

than 30 regional and international experts regularly update and validate the 600+ technical documents.

To access the online portal, please go to: [www.produccionmaslimpia-la.net](http://www.produccionmaslimpia-la.net)



Screenshot of the Latin American Network’s online platform

## Toolkit Empowers New CP Experts

UNIDO has developed a CP Toolkit, which is the first and foremost resource to train and empower CP experts. Through the training, experts are better equipped to assist companies in implementing CP solutions.

To qualify, applicants with adequate academic backgrounds have to undergo a comprehensive

training programme, demonstrate in-depth know-how and possess extensive field experience. Upon completion of the workshops, CP awards are given to consultants, trainers and companies.

For more information, please contact the UNIDO CP team at: [www.unido.org/cp](http://www.unido.org/cp)

Readers are invited to send their comments and opinions to:



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