



Ministry of Education and Training
Hanoi University of Technology
Institute for Environmental Science and Technology

Việt Nam

Cleaner Production Centre

Annual Report 2007



Preface



One more year has been passed with a number of activities completed by VNCPC. The year 2007 witnessed a growth of Vietnam Cleaner Production Centre in services and therefore readiness for the future competition.

In term of services, the Centre has not only continued with cleaner production service, but has combined with other related topics as financing, social responsibility, product design, industrial maintenance... While the implementation of ILO's Factory Improvement Program proved a perfect fit of integrating cleaner production to any industry needs, the introduction of Green Credit Trust Fund and starting of EC's project on Better Products are kick-offs for expanding the role of VNCPC from implementation of projects and consulting to appraisal and leading/coordination.

Not only in services, had the Centre organized successful 7th regional roundtable on sustainable production and consumption. Through the event, our competency has been approved and networks have been extended.

Thanks to the initiative of UNIDO/UNEP in 1998, cleaner production now is placed as one of the targeted activities in national social economic plan. There are more and more actors in the field of cleaner production and we feel the mission of being catalyst in promoting this concept in Vietnam is completed. We are now ready for the coming year, 2008, with the ending of donor fund. A business plan has been prepared for continuous this success. The Centre will change its legal status toward commercial business.

On this occasion, I would like to express my sincere thanks to seco, UNIDO, UNEP and the Government of Vietnam, as well as our international and national partners for their continuous support to the success of the Centre today.

Let's wait and wish the Centre a sustainable move in the year 2008.

Mr. Tran Van Nhan, General Director

Table of Contents

Preface	2
Table of Contents	3
List of Abbreviations.....	4
Our Policy.....	5
Our Vision and Mission	6
Our Organisation	7
Organisational Structure.....	7
Board of Management.....	7
Staff	8
Advisory Board	9
South Vietnam Office	9
Counterparts and Networks.....	9
Facilities.....	11
Overview of activities.....	12
Training	13
Integrated training in CP and related topics	13
Training in Technology.....	14
Training on CP in specific sector.....	14
In-company services.....	15
Cleaner Production and Environmental Management System.....	15
Factory Improvement Programme in the North of Vietnam	15
Technology Gap Assessment	16
Resource Augmentation by tapping renewable resources and utilizing wastes	17
CP Support to Laos and Cambodia.....	17
Energy Efficiency in Hanoi industries.....	17
Information Dissemination and Awareness Raising	18
Policy Advice.....	19
On-going and new developments.....	21
Cleaner Technology Assessment and Implementation	21
Supporting EST investments with the Green Credit Trust Fund	21
Cleaner Production and Environmental Management System.....	22
Social Responsibility.....	22
Clean Development Mechanism (CDM).....	22
Industrial Maintenance.....	22
Design for Sustainability.....	23
Integrated Water Management in Textile Industry	23
Outlook	24

List of Abbreviations

3R	Reduce, Reuse and Recycle
APRSCP	Asia Pacific Roundtable for Sustainable Consumption and Production
ASEP	Asian Society for Environmental Protection
CCPP	Cambodia Cleaner Production Programme
CDM	Clean Development Mechanism
CP	Cleaner Production
CSR	Corporate Social Responsibility
CP4BP	Cleaner Production for Better Products
CT	Cleaner Technology
DO	Diesel Oil
DONRE	Department of Natural Resources and Environment
DOST	Department of Science and Technology
DTIE	Division of Technology, Industry and Economics
EMA	Environmental Management Accounting
EMS	Environmental Management System
EST	Environmentally Sound Technology
FHNW	Fachhochschule Nordwestschweiz (University of Applied Sciences in North-western Switzerland)
FIP	Factory Improvement Programme
FO	Fuel Oil
GERIAP	Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific
GHG	Greenhouse Gas
GCTF	Green Credit Trust Fund
HCMC	Ho Chi Minh City
HUT	Ha Noi University of Technology
ILO	International Labour Organisation
INEST	Institute for Environmental Science and Technology
ISO	International Organization for Standardization
LCPP	Lao Cleaner Production Programme
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trading
MONRE	Ministry of Natural Resource and Environment
MOST	Ministry of Science and Technology
MPI	Ministry of Planning and Investment
PDD	Project Design Document
PIN	Project Idea Note
POP	Persistent Organic Pollutant
SCP	Sustainable Consumption and Production
SDC	Swiss Agency for Development and Cooperation
seco	State Secretariat for Economic Affairs
SR	Social Responsibility
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
VCCI	Vietnam Chamber of Commerce and Industry
VEPA	Vietnam Environment Protection Agency
VNCPC	Vietnam Cleaner Production Centre
WTO	World Trade Organization

Our Policy

In connection with the implementation of its Integrated Management System following ISO 9001 and ISO 14001, the Vietnam Cleaner Production Centre has established and maintained the following Policy for Quality and Environment:



TW 02/00976 QA



TW 02/00053 EM

Policy for Quality and Environment

The Vietnam Cleaner Production Centre is a knowledge-based organisation delivering a wide range of high quality cleaner production solutions that give added value to industry, consulting companies, research institutions, academia, and governmental organisations.

As a national focal point on Cleaner Production, we are committed to continual improvement and prevention of pollution. We will comply with legislation and are committed to the International Declaration on Cleaner Production.

We will continuously strive to improve the quality of our solutions and services and to improve the effectiveness of our Integrated Management System.

Based on our Policy we have formulated the following principles:

- All staff have an impact on the quality of our services and on our environmental performance, and are therefore responsible for the work they deliver to internal and external customers;
- All staff shall inform the management how they can fulfil customer requirements; and
- All staff shall seek and share experience to continuously improve our services.

Our Vision and Mission

The vision of the Vietnam Cleaner Production Centre is to play a catalytic and coordinating role in promoting sustainable industrial development in Vietnam through the application of Cleaner Production and related techniques.

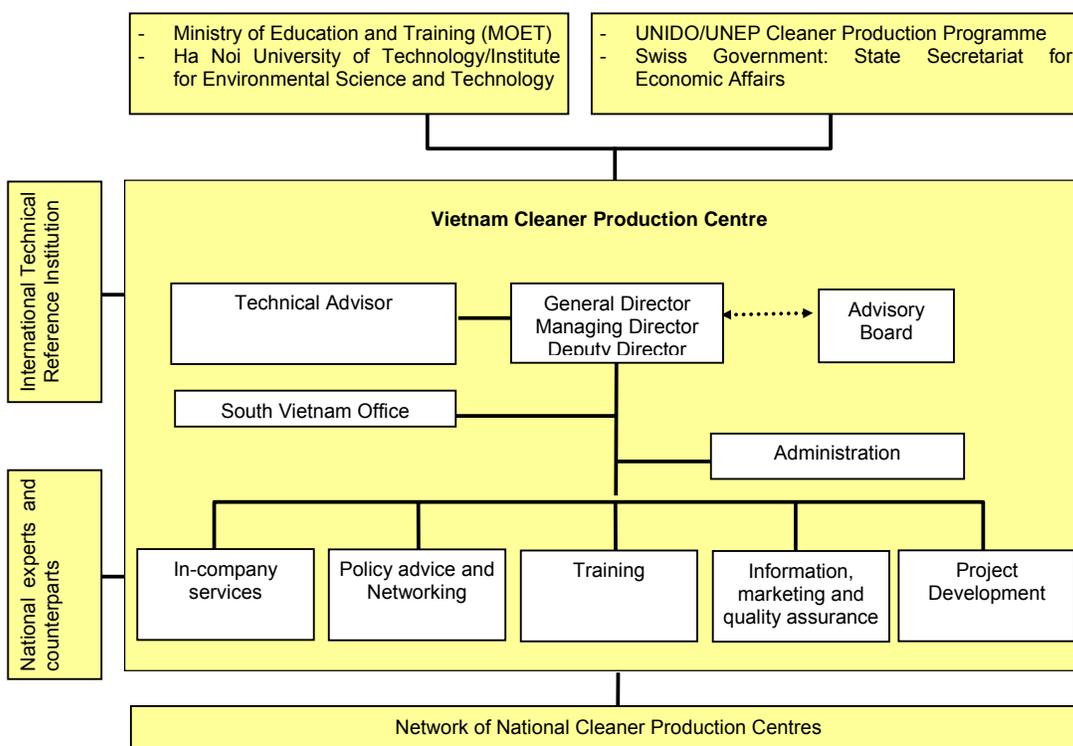
The mission of the Vietnam Cleaner Production Centre is:

- To train the human resource base in enterprises, industry associations, consulting companies, research institutes, academic institutions, and governmental industrial and environmental management agencies in sustainable development approaches;
- To promote the implementation of Cleaner Production in industries and to assist the integration of Cleaner Production into universities' curricula;
- To promote the application of advanced preventive methodology, including cleaner technology transfer and social responsibility;
- To adapt the emerging internationally developed approaches to Vietnamese conditions;
- To assist policy-makers and make recommendations on how to promote the concept of Cleaner Production and environmentally sound technologies in industries and through legislation;
- To promote the concept of various sustainable industrial development tools and raise awareness among industries and governmental agencies;
- To co-operate with domestic and international organizations with the aim of supporting the implementation of preventive environmental protection; and
- To serve as a focal point of the UNEP/UNIDO Network of National Cleaner Production Centres.

Our Organisation

The Vietnam Cleaner Production Centre was established in 1998 within the framework of the UNIDO/UNEP programme of National Cleaner Production Centres. It is sponsored by the Swiss Government through the State Secretariat for Economic Affairs and UNIDO as executing agency. The Centre is hosted by the Ministry of Education and Training and located at the Institute for Environmental Science and Technology of the Ha Noi University of Technology. The activities of the Centre are evaluated jointly every two years by representatives of seco, UNIDO and the Government of Vietnam.

Organisational Structure



Organizational set-up of the Vietnam Cleaner Production Centre

Board of Management

The Management of the Centre are experienced and professional staff of the host institute (INEST). The General Director, also the Director of INEST, is in charge of the Centre's future development and activities on policy advice and networking. The Managing Director coordinates daily activities and provides directions in the fields of training and information. The Deputy Director is in charge of managing and implementing in-company services and the development of new projects. Our Chief Representative in the South Vietnam Office is in charge of activities and projects based in southern part of Vietnam and of reporting of these to the Management of the Hanoi Office.

Staff

In 2007, the VNCP team included 21 full time and three part-time employees. Three staff members hold Doctoral degrees; eight hold Masters degrees, and 12 Bachelors. Tasks are assigned to each staff according to the needs of projects, not to the function division.

Staff of the Centre by the end 2007

(Please check our website for update)



Management

Mr. Tran Van Nhan, General Director
Ms. Ngo Thi Nga, Managing Director
Ms. Vu Tuong Anh, Deputy Director
Mr. Nguyen Dang Anh Thi, Chief Representative

Administration

Ms. Vu Thanh Huyen, Secretary
Ms. Hoang Tuan Anh, Interpreter
Mr. Le Hong Hai, Driver
Mr. Vu Ha, IT Specialist
Ms. Tran Thi Hang, Accountant

International

Mr. Bertrand Collignon, UNV Specialist

Technical Consultants

Mr. Dinh Manh Thang, Cleaner production – Energy Efficiency Consultant
Mr. Nguyen Hong Long, Cleaner production – Cleaner Technology Consultant
Mr. Tran Tien Dung, National Project Coordinator of Factory Improvement Program
Ms. Tang Thi Hong Loan, Head of Information and Quality Assurance
Mr. Le Thanh Tung, Cleaner Production – Clean Development Mechanism Consultant
Ms. Nguyen Le Hang, Head of Training, Cleaner Production – Social Responsibility Consultant
Mr. Le Xuan Thinh, Cleaner Production – Waste Management Consultant
Mr. La Tran Bac, Cleaner Production – Financial Engineering Consultant
Mr. Pham Sinh Thanh, project staff
Ms. Vu Minh Trang, Project staff
Ms. Le Thu Ha, Secretariat of 7th APRSCP
Mr. Tran Duc Chung, Project Staff
Ms. Dang Nguyen Nhung, Secretariat of 7th APRSCP
Mr. Doan Tuan, Project Officer of South Vietnam Office

Staff training

In conjunction to the Centre's expansion of service range, during 2007, VNCPC delegated its staff members to in the following training courses:

- One-week training course on "Personal Effectiveness Master" (June, Vietnam, one person);
- Two-week training course on "Industrial Water Management" (September, Switzerland, one person);
- Two-week study tour on Industrial Maintenance Application in companies (October, Belgium (TechnoFutur Industries), two persons);
- One week training on Responsible Entrepreneurs Achievement Programme (REAP) (December, Austria, two persons);

Along with external training, the Centre organized three trainings for staff's capacity enhancement. The topics covered were technology gap analysis and preparation for investment project, change management and project management.

Advisory Board

The Advisory Board of the Centre consists of 12 members at department managing levels of relevant ministries and organizations: MOET, MOI, MONRE, MOF, MPI, HUT, INEST, HCM DONRE, UNIDO and seco/SDC. The Rector of the Ha Noi University of Technology, Prof. Hoang Ba Chu, is the Chairman of the Board. The board members meet once a year.

South Vietnam Office

Since its setting up in June 2006, the South Vietnam Office has been active in promoting CP and CP-related services in the South of Vietnam. The activities, which are oriented by the board of management, cover in-plant services, training, networking in the industrially developing provinces of the region.

Counterparts and Networks

The Vietnam Cleaner Production Centre has established long-term cooperation with the University of Applied Life Sciences, Nordwestschweiz in Switzerland (FHNW). The Centre has contacts with numerous national and international experts in the fields of environment and cleaner production.

During 2007, the Centre cooperated with the CP in Industry Component of MOIT to implement its CP-EMS programme in 4 provinces: Thai Nguyen, Phu Tho, Quang Nam and Nghe An.

VNCPC promotes further networking by supporting the CP assessment done by its trained service providers through the voucher scheme system. This mechanism aims at strengthening the network of CP service providers in Vietnam.



Within the UNIDO/UNEP network, the VNCPC is working closely with the 43 other National Cleaner Production Centres and Programmes worldwide as well as with the participants at the Asia Pacific Roundtable for Sustainable Consumption and Production. The Centre is a member of the Asian Society for Environmental Protection. VNCPC is maintaining a network of CP experts and institutions throughout Vietnam.

Facilities



Thanks to its location in the Hanoi University of Technology, the Centre enjoys close relations with professional departments and experts who are serving the industries.



The Vietnam Cleaner Production Centre and its host institution, the Institute for Environmental Science and Technology (INEST), are equipped with portable analytical equipment for both rapid and in-depth assessment of material and energy consumption in various industrial sectors. The portable equipment includes instruments to measure and analyze boiler efficiency, temperature, lighting, motor efficiency, wastewater quality...



Facilities for training (room and equipment) are available at good conditions. The standard training room for 30 participants has been equipped and maintained by the in-kind contribution. Sector-specific databases are kept up-to-date together with the Centre's electronic library.



The Centre provides favourable working conditions to all staff members. Besides the office with good quality facilities and internet access, the staff members receive supports on mobile phone charge to ensure sufficient communication.



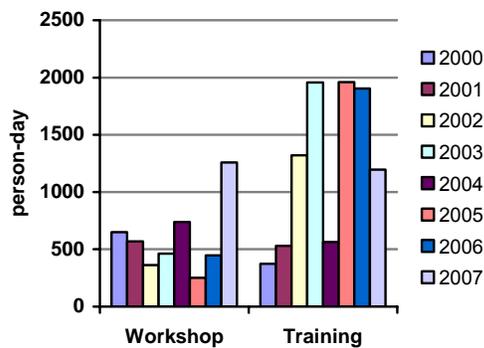
Overview of activities

The year 2007 witnessed numerous activities in the form of new services of the Centre. Along with traditional cleaner production services, training materials, consultancy skills in cleaner production related fields have been developed. The Centre is now ready to start with high quality services in technology assessment, technology transfer, waste management, financial engineering, social responsibility, the clean development mechanism (CDM), ...

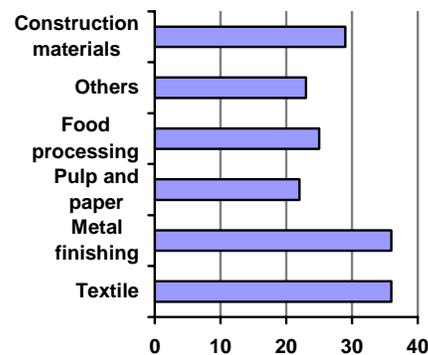
Since 2002, the Centre has received and maintained its ISO 9001 and ISO 14001 certificates. The management of the Centre is demonstrating strong commitment to ensure the effectiveness of the integrated management system in order to secure high quality services for a cleaner environment.

Since its establishment, the Centre has achieved the key results as follows:

Awareness, training and dissemination



Consultancy services per sector



Annual savings achieved from our cleaner production consultancy

Sector	Electricity, Mwh	Coal, ton	FO, ton	DO, ton	Gas, ton	Water, m3	Chemicals, ton	Annual savings, USD	Investment, USD
Textile	6.991	1.747	6.510	0	0	1.014.223	496	2011205	506.149
Paper	44.338	24.541	1.901	0	0	2.906.570	1.228	3297851	766.246
Metal	911	490	111	21	41	150.203	77	503414	307.481
Construction Materials	6.746	5.330	0	285	208	2.064.314	2.677	1081404	593.669
Food and beverage	727	383	163	30.2	0	80.143	60	797434	173.840
Others	1.690	4.732	29	0	0.2	1.115.477	22	367642	372.892
Total	61.403	37.223	8.714	336.2	249	7.330.930	4.560	8.058.950	2.720.277

Note: Others stands for rubber, chemical, ship building, wood processing, printing, ...

Our activities and achievements during 2007 will be presented in five main key areas: training, in-company services, information dissemination, policy advice and new and on-going project developments.

Training

In the year 2007, the Centre further provided advanced knowledge and tools to its service providers through its training activity. Besides, in the framework of different projects and programmes, the trainings organized by the VNCPC provided updated knowledge and practices for improving companies' performances in different areas. The following table presents an overview of the training courses held by the Centre in 2007:

Overview of training 2007

Type of training	No of trainings	No. of participants	Participant days
Technology gap analysis and Investment Project Preparation	1	15	60
CP methodology	4	50	180
Quality	1	30	60
Productivity	1	30	60
OHS	1	30	60
Workplace Cooperation	1	30	60
Human Resource	1	30	60
Workplace Relations	1	30	60
EMA	3	105	315
CP techniques in Metal Finishing Industry	1	20	40
Industrial Maintenance	2	30	180
Total			1195

Integrated training in CP and related topics



Initiated in 2006, the training on EMA has continuously taken place in 2007 in new provinces. Three trainings were organized in Hanoi, Nha Trang and Quang Tri this year. Resource people were Vietnamese experts who have been equipped with proper knowledge and skills through the ASEP's professional EMA training-of-trainers courses in previous years. Participants in these trainings are staff from companies,

consultancy, local authorities and universities.

This year witnessed the implementation of a CSR programme called "Factory Improvement Programme" (FIP), which has been designed by ILO. In the



framework of the programme, the VNCPC has been chosen as the service providers to run the FIP in the North of Vietnam. The training component of FIP is divided into 7 modules covering most of current issues of concern for Vietnamese SMEs: Workplace Cooperation, Quality, Productivity, Cleaner Production, Human Resources, Health and Safety, Workplace Relations. The seminars gathered three staff members from each of ten participating companies in order to ensure a balance between worker, trade union and management representatives. Parallel to the implementation of FIP in the North of Vietnam, the Centre assigned one of its experts to lead the CP module of FIP in the South of Vietnam.



Launched in April 2007, with the support of the Wallonie-Bruxelles region of Belgium, the project on "Industrial Maintenance" delivered 2 training modules in June and September 2007. The project aims to demonstrate that proper maintenance of the productive equipment can help improve the use of energy, water and other resources in the Vietnamese industry, while at the same time

reducing production downtimes, thereby increasing productivity. The training component of the project aims to provide knowledge and tools on industrial maintenance to the target group of industrial companies.

Training in Technology



The so-called CP service providers, who have been trained intensively on CP by VNCPC for several years, have received further support from the Centre through different advance training. In July 2007, the Centre organized a "Technology Gap Analysis and Technology Transfer Investment Project Preparation" training course to equip the service providers with more techniques and tools for their future consultancy.

Training on CP in specific sector

In 2007, the Centre organized a training course on CP in metal finishing to further support the companies of the sector. Beside participants from electroplating companies, there were some students from the department of electro-chemistry technology of Hanoi University of Technology attended the training. The expert, Prof. Darrell Reeve from Victoria University (Australia) introduced to the participants updated techniques and technology to help improve the effectiveness of metal finishing production.

In-company services

Cleaner production application has been promoted and expanded by the raised awareness of industrial society and the help of different supporting projects and programmes. In the year 2007, the CP services were mostly provided by the Centre in the combination with other related aspects such as EE, EMS, CSR, renewal resources exploitation...

In 2007, the Centre has carried out the consultancy and follow-up in the following projects:

Cleaner Production and Environmental Management System



“Cleaner Production in Industry” is one of five components in the Vietnam – Denmark “Development Cooperation in Environment” Programme (DCE) for the period 2006-2010. Under this component, the Vietnam Cleaner Production Centre has provided consultancy in cleaner production application and setting up a simple environmental management system for 11 participating companies from construction materials, food processing, pulp and paper and the metallurgy sectors in three targeted provinces – Phu Tho, Thai Nguyen, and Quang Nam in 2007.

8 CPAs combined with simple EMS setup have been completed in Phu Tho and Thai Nguyen provinces in 2007. The CP implementation in these companies has brought about significant savings to the beneficiaries through the reduction of approximately 5% water consumption, 6% electricity consumption, 8% raw materials and 8% coal consumption. This contributed to the environmental performance improvement by reducing CO₂ emissions by 2,500 tons and the waste streams discharged by 20 to 40%. The total investment for different CP options was 12.6 billion VND, while the annual savings reached 18.8 billion VND.

Factory Improvement Programme in the North of Vietnam

After the completion of its pilot Factory Improvement Programme (FIP) in July 2005 and in light of the significant contribution provided by the VNCP and its professional capacity, the International Labour Organization (ILO) has selected the Centre to lead the programme in the North of Vietnam in the period of December 2006 to October 2007. The programme includes training and in-factory consulting

on labour and technical aspects as workplace cooperation, quality, productivity, cleaner production, human resources, occupational health and safety, and workplace relations.



10 companies from the printing, garment and metal pre-fabricated sectors has completed all seven modules of FIP, during which the FIP experts introduced them to specific tools in all above-mentioned fields. Along with the improvements in worker-manager relations and cooperation, human resources and health and safety, which are difficult to illustrate by numbers, the participating companies have

achieved significant savings due to the improvement in quality, productivity and cleaner production such as the reduction of in-line and end-line defect rates by 6 - 57% and 15.3 - 80% respectively in comparison to 2006, the increase of actual output compared to target 9 - 36%, the reduction of electricity consumption of 9 - 45% and the increase of raw material efficiency of 15 - 60%.

Technology Gap Assessment

After the successful Technology Gap Assessment (TGA) in Xuan Hoa company in 2006, which brought significant saving to the company, VNCPC promoted this services in several other companies in 2007. The assessment technically compares the existing technology and practices with the best available technology and best practices. In the year 2007, 6 TGA were implemented in cement and metal finishing sectors.



These assessments help enterprises in selecting the right technology for their operations. Among those participating companies, 5 decided to change their technologies. The participating cement companies has succeeded in reducing 4-11% of its electricity consumption equivalent to 3,032,000 kWh/year, 18.5% coal consumption equivalent to 3,348 ton/year and 15% limestone

consumption. The fuel consumption reduction contributed to the reduction of greenhouse gases by app. 8,300 tons CO₂ per year. The potential savings in participating metal finishing companies were estimated at roughly 136,500 USD/year by reducing the consumption of zinc, acid, flux solution, coal, FO, electricity.

Resource Augmentation by tapping renewable resources and utilizing wastes

The overall objective of this project, which is sponsored by the UNEP/International Environmental Technology Centre, is to promote the eco-town, where economic activities and living standards can be improved without putting more pressure on the natural resources by closing the loop as locally as possible. Target sector of this project is sugar. There are three major components in the project including (1) awareness raising; (2) design of environmentally sound technologies (EST) for the demonstration projects; and (3) implementation in a demonstration sugar company with rainwater harvesting, wastewater treatment and reuse, and production of compost and biomass from municipal organic waste.

At the beginning of the project, the Binh Dinh Sugar Company was selected as demonstrating point. However, after the designing phase, the company underwent a big change in ownership and could not continue the project. The Song Con Sugar Company (Nghe An province) was chosen afterward for the redesigning implementing phase. At the end of the project, a pilot system of rainwater harvesting including filtration unit and a pilot system of cooling tower for reusing wastewater were constructed. Besides, the composting system was designed for higher productivity of composting production in the company and feasibility study report on the composting system was submitted to local authority for the next investment.



CP Support to Laos and Cambodia

VNCPC staff has been involved in various activities of LCPP and CCPP since 2006 and continuously supported these programmes in 2007 to promote effectively the CP development in Lao PDR and Cambodia.

Cleaner Production Assessments were carried out at six textile and food processing companies in the two countries in 2007.

Energy Efficiency in Hanoi industries

VNCPC has cooperation with its host institution to implement the project on "Assessment of energy savings and greenhouse gases reduction potential in five big energy-consuming sectors in Hanoi". The project was sponsored by the Hanoi DOST. Started in May 2006, the project finished in December 2007 with 10 participating companies from the food processing, textile, construction materials, printing and plastic sectors. The project outputs were expected to determine the potential of energy savings and generate energy efficiency solutions; to build the capacity in auditing and improving energy efficiency for participating companies.

The project resulted in the consumption reduction of approximately 676,000kWh/year, 145 tons of FO/year, 203.4 tons of gas/year and 60 tons of coal/year, equivalent to the reduction of 1,632 tons CO₂ yearly.

Information Dissemination and Awareness Raising



The purpose of these activities is to share the achievements and experiences of our activities with industries, consultancy, government agencies and universities so that we can join hands toward sustainable industrial development.

Our website is the major medium for this purpose (www.vncpc.org). News and events about the Centre's activities and actions in the fields related to cleaner production in Vietnam are updated monthly. The case studies developed for three companies from the textile, metal finishing and paper sectors from the UNEP's project on CP-EE are published on this website.



In the framework of GERIAP, the Centre has worked together with UNEP in developing a website on energy efficiency, which includes information on methodology and sector case studies (www.energyefficiencyasia.org). Information is also available in Vietnamese.



The Centre had its own booth at the Exhibition Fair titled "For a beautiful, clean and civilized life - Greener for our earth" that took place from 26 October to 1 Nov 2007 in Hanoi. Along with the information dissemination, a number of service orders were received at the fair.



Under the framework of FIP, the VNCP has organized successfully the final reporting conference with expo session to disseminate the results and lessons learnt during the implementation of FIP in the North of Vietnam. The session was held on 15 November 2007 with 88 participants from SECO, ILO, VCCI, VNCP, all 10 participating companies, and interested parties.

Policy Advice



After more than one year of preparation, the 7th APRSCP was held successfully by the cooperation between MONRE and the Centre on 25 – 27 April 2007 in Hanoi. With the theme on “Sustaining Asia Pacific Development”, the event highlighted opportunities to find new ways for sustainable development in the context of big challenges resulting from current growth patterns. More than 300 delegates from 23 countries in Asia region, Australia, Europe and North America gathered to exchange their views on key issues and discuss on solutions to move towards sustainable development. The 4 key sub-themes of the roundtable were (1) Life Cycle Management Strategies, (2) Sustainable Rural Development, (3) Sustainable Resource Management and (4) Industrial and Urban Development.

Beside the plenary and theme section, 5 parallel workshops were organized on different topics including (i) E-waste, (ii) POPs, (iii) SCP in Asia and the Pacific – The Marrakech Process and APRSCP, (iv) New developments in Eco-Industrial Development, and (v) 3R organized on 27 April has drawn the attention of numbers of participants.

An effective policy framework for cleaner production is essential to promote this concept in industry. The framework must involve not only administrative measures such as licensing and the enforcing of the laws and guidelines, but also economic instruments such as a duty and tax system for waste disposal and a realistic pricing system for raw materials and energy.

Under request of the Vietnam Environment Protection Agency (VEPA) and MOIT, the Centre continues to provide inputs for the development of the cleaner production action plan 2006-2010 and the cleaner production strategy.

Key Vietnamese legal documents supporting CP application

National Strategy on Environmental Protection to 2010 and orientation to 2020, 2003

Socio-economic Development Plan for the period of 2001-2010, 2004

Resolution No 41-NQ/TW “On environmental protection in the period of industrialization and modernization enhancement”, 2004

Revised Law on Environmental Protection, 2005

Law on Technology Transfer, 2006

Industrial Development Policy and Strategy to 2010

Key actions by the Government of Vietnam for the promotion of CP

Montreal protocols on substances that deplete the ozone layer, ratified in January 1994

Vienna Convention for the protection of ozone layer, ratified in April 1994

International Cleaner Production Declaration signed in September 1999

Basel Convention on the control of transboundary movement of hazardous waste and their disposal, ratified in March 1995

Stockholm convention on human health and environmental protection from persistent organic pollutants (POPs), ratified in July 2002

On-going and new developments

In 2007, the Centre has started and continues with the following activities (please contact us for updates):

Cleaner Technology Assessment and Implementation

The activity aims at implementing clean technologies in Vietnamese industries. It consists of 2 sub-activities as CT assessment (CTA) and CT implementation (CTI). The former sub-activity looks at the possibilities and feasibility of the application of CT in the companies' contexts, while the latter reports the process and results from the realization of chosen CT and the lessons learnt.

In 2007 CT activities took place at 8 companies of the metallurgy, materials construction, tea processing, cassava processing and plastics sectors. Out of 8 companies, 2 CTI reports were drafted and submitted to the management. The reported annual saving amounts were up to 3.1 billion VND and the companies can reduce the consumption of mineral ores by approximately 370 ton, the emissions by 170 tons of CO₂ and 5.87 tons of dust.

All CTA are expected to be completed on April 2008.

Technology-related activities can be linked with the Green Credit Trust Fund.

Supporting EST investments with the Green Credit Trust Fund



The launch of GCTF represents a promising financial support to companies, who aims to replace their existing old and wasteful technologies by the environmentally sound ones. The Fund is sponsored by the Swiss Secretariat for Economic Affairs and financially executed by three Vietnamese financial institutions: Asia Commercial Bank (ACB),

Techcombank and Vietnam International Bank (VIB). The VNCPC is assigned to act as technical evaluator of the companies' project proposals.

Following the launching ceremony, which was held in Hanoi University of Technology on 17 October 2007, there were two introduction workshops were organized in Hanoi (90 participants) and Hochiminh City (100 participants) to inform provide companies countrywide of the conditions and procedures for applying for a support. All updated information on GCTF has been published in the public media.

VNCPC has received 12 applications for GCTF support, out of which 2 are qualified for initial appraisal, 3 needs to be corrected on data. The requested credits range from 110,000 to 700,000 USD.

Cleaner Production and Environmental Management System

The implementation of this programme in 2007 in Quang Nam and Nghe An provinces started in late 2007 and will be completed in 2008 with 4 companies of the food processing, plastic and handicraft sectors.

The Vietnam Cleaner Production Centre will continue to cooperate with the CPI/MOIT to promote Cleaner and Environmental Management System in the next years. The new batch is under selection process. It is planned to have 12 companies of 4 sectors: Food processing, Metal Finishing, Textile and Paper located in 4 targeted provinces participating the 2008 programme.

Social Responsibility

Since 2004 the VNCPC has assigned one staff member with the nomination from the Directorate for Standards and Quality to represent the Vietnamese Industry Stakeholder Group at the ISO Working Group Meetings on Social Responsibility. The process in 2007 has reached the Working Draft 3 of the International Guidance Standard Document on SR. which aims to be applicable to all types of organizations. The publication of the new ISO 26000 standard has been delayed to September 2010. More information is available at www.iso.org/wgsr.

Clean Development Mechanism (CDM)

From the experience gained in CDM thanks to the UNIDO project in 2006, the Centre has built its own resource to develop ready to sell potential Project Idea Notes (PIN) and Project Design Documents (PDD) for CDM. The Centre has continued searching and identified potential CDM projects. Two PINs have been prepared for a brewery and a starch production company in 2007.

Industrial Maintenance

With the support of the Wallonie-Bruxelles region of Belgium, VNCPC is implementing a 1½-year project to integrate industrial maintenance in its offer of services as one significant factor in the inefficient use of energy, water and other resources in the Vietnamese industry is the improper maintenance of the productive equipment. The project commenced in March 2007 and has been through 2 training modules delivered by a Belgian expert, Mr. Rudy Bunda, who also provided consultancy in each of the 3 participating companies.

At the end of 2007, the pilot project in three Vietnamese companies to demonstrate the benefits of the implementation of industrial maintenance has achieved some preliminary results. The attitude toward maintenance of companies' management has changed. A management member of an electroplating company estimates the savings to 3 billion VND for the company at the end of the pilot project.

Under the framework of the project, two VNCPC staff members attended a study tours in Belgium for building up the capacity of the Centre in the new field of service. The last study tour for the same VNCPC staff is planned in February-March 2008 to further equip them with appropriate knowledge for acting themselves in the field in the future.

Design for Sustainability

VNCPC proposed in September 2006 a project for funding under the EU Asia Invest programme. The project, called "Cleaner Production for Better Products" (CP4BP), aims at increasing the capacity of selected industries in Vietnam, Cambodia and Lao PDR to develop innovative products adapted to the requirements of the European market, in particular in the environmental and social fields, through the application of product-related Cleaner Production (CP) approaches. It has been designed in partnership with AIT Centre in Vietnam, UNEP DTIE (France) and the Delft University of Technology (Netherlands) and will include capacity building as well as the implementation of sustainable product design in Vietnamese companies of three industrial sectors.

The 20-month project started in December 2007 and is expected to be completed by end of July 2009.

Integrated Water Management in Textile Industry

Following the implementation of the Industrial Maintenance project, the Wallonia-Brussels region of Belgium intends to support a project on "Integrated Water Management in Textile Industry". The project is planned to take place from mid 2008 until the end of 2009 with the same model as the Industrial Maintenance project.

Outlook

In the context of Vietnam's integration into WTO, the Vietnamese industries face were a lot of challenges to strengthen their competitiveness in an open global market. Big buyers in the word are increasingly concerned about the behaviours of the producers towards environmental and social aspects. The nature of cleaner production since its initiation bears the principles of sustainable development and therefore CP is seen as a helpful approach for the Vietnamese industry in the new stage of development.

Learning from other developing countries, the Government of Vietnam has paid increasing attention to protect the environment. The existing Laws on Environmental Protection as well as the review of existing legislative documentations related to development planning, wastewater fee or electricity price will require companies to be more environmentally friendly. Cleaner production is an essential tool as it can help industry to comply with legislation not only at the lowest cost, but in most cases with economic savings on the short and on the long term. Once the know-how is transferred, the participated industry can continue the application by themselves.

The promotion of Cleaner Production for a decade has witnessed the first basic steps in making changes in the production of implementing companies. Most of the so-called low-hanging fruits have been harvested and brought impressive saving. However, low-hanging fruits do not reflect the full potential of CP in improving the companies' production efficiency. The Vietnamese industries are looking up to the higher ones, which can benefit them in the long run. The introduction of the Green Credit Trust Fund is a promising support to companies to pursue more environmentally friendly solutions considering the fact that the development of many Vietnamese companies is hindered by financial constraints.

So far, cleaner production has been introduced to industry from a production process perspective, ranging from material substitution to equipment modification, technology change, reuse and recycle. The application of cleaner production to products and services starts and should also be promoted as it presents even higher economic and environmental potentials. The above-mentioned CP4BP project is a first step in this direction.

In the spirit of the Government Decree No 80/ND-CP dated 19 May 2008, the host institution of the VNCPC has decided to shift the Centre from a research unit to a joint-stock science and technology enterprise under Bach Khoa holding company within the year 2008 for promoting sustainable production.

Together, let's make sustainable industrial development possible.