



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

Việt Nam

Cleaner Production Centre (VNCPC)

Annual Report 2009



Preface



Established within the framework of the project VIE/96/063 signed between the Ministry of Education and Training and the United Nations Industrial Development Organization (UNIDO) on April 22, 1998, after more than 10 years of build-up and development, Viet Nam Cleaner Production Centre fulfilled the mission "to propagate the cleaner production (CP) approach and promote this approach to practices of industries" in our country. Year 2009 also witnessed the growth of our Centre in the initial period of providing emerging services such as integration of CP into sustainable product design, energy efficiency and savings, environmental management system setup, technology assessment and implementation of cleaner technology projects with the support of the Green Credit Trust Fund (GCTF) supported by SECO (Switzerland). 2009 is also an important transforming year for Viet Nam Cleaner Production Centre. Following Decree 115/2005/ND-CP of Vietnam Government, Hanoi University of Technology and Institute for Environmental Science and Technology has completed converting the Centre into a self-control organization, which is a member of the Bach Khoa Holdings, with the full name as the Viet Nam Cleaner Production Centre Co., Ltd and trade name as VNCP company. Regarding international cooperation, VNCP is a member of the UNIDO/UNEP international network of Resource Efficient and Cleaner Production (RECP).

Inheriting prestige, knowledge and experience built up and accumulated in more than 10 years of construction and development, VNCP has continued the pursuance of the preceding centre's quality and environmental policies, which is "... to provide cleaner production solutions, to increase economic and environmental benefits for industry, consulting firms, research and training institutions, government organizations ...".

In the next 5 years, VNCP focuses on providing the following services:

- Training and consulting on Cleaner Production, Resource and Energy Efficiency, Industrial Maintenance, Safety & Occupational Health, Corporate Social Responsibility (CSR), Sustainable Product Development and Environmental Management Systems;*
- Implementing Cleaner Production Assessment, Auditing Resource and Energy Efficiency, Evaluating Technology, Building Cleaner Production Projects and Accessing Preferential Financial Sources for Technology-Innovation Projects;*
- Organizing and implementing researching projects in Environmental Management and Industrial Sustainable Development.*

On this occasion, I would like to thank and express deep gratitude to:

- *The State Secretariat of Economic Affairs (SECO) for invaluable help to introduce, promote the application of cleaner production in Vietnam in general and the build-up and development of Vietnam Cleaner Production Center in particular through funding for two projects VIE/96/063 (1998-2003) and VIE/04/064 (2005-2007) and establishing the Green Credit Trust Fund; and*
- *UNIDO, UNEP and the ministries, departments, agencies and national as well as international partners, enterprises for the effective cooperation and support for Viet Nam Cleaner Production Centre, helping us excellently in the completion of our duties in both projects.*

We hope to receive continuously the cooperation and support of organizations and agencies for the development and prosperity of VNCPC in the coming years. From the bottom of our heart, we, the staff members of VNCPC, are committed ourselves to be always by your side in the cause of realizing the Cleaner Production Strategies in industry for the goal of sustainable development in our country.

Prof. Dr. Tran Van Nhan
Director of Viet Nam Cleaner Production Centre

Table of Contents

| | |
|--|-----------|
| PREFACE | 2 |
| TABLE OF CONTENTS | 4 |
| LIST OF ABBREVIATIONS | 5 |
| OUR POLICY | 6 |
| OUR VISION AND MISSION | 7 |
| OUR ORGANISATION | 8 |
| ORGANISATIONAL STRUCTURE | 8 |
| BOARD OF MANAGEMENT..... | 8 |
| STAFF..... | 9 |
| ADVISORY BOARD..... | 10 |
| SOUTH VIETNAM OFFICE | 10 |
| COUNTERPARTS AND NETWORKS | 10 |
| FACILITIES | 12 |
| OVERVIEW OF ACTIVITIES | 13 |
| TRAINING | 14 |
| TRAINING ON CP IN SPECIFIC SECTOR | 15 |
| INTEGRATED TRAINING ON CP AND RELATED TOPICS..... | 15 |
| TRAINING ON MANAGEMENT | 16 |
| IN-COMPANY SERVICES | 17 |
| CLEANER PRODUCTION ASSESSMENT | 17 |
| CLEANER PRODUCTION AND ENVIRONMENTAL MANAGEMENT SYSTEM..... | 17 |
| CLEANER PRODUCTION FOR BETTER PRODUCT..... | 18 |
| CLEANER PRODUCTION AND ESTABLISHING A SUSTAINABLE PRODUCTION SYSTEM FOR RATTAN PRODUCTS IN CAMBODIA, LAOS AND VIETNAM | 18 |
| CLEANER PRODUCTION AND PROMOTING RESOURCE EFFICIENCY | 19 |
| TECHNOLOGY GAP ASSESSMENT | 19 |
| CLEANER TECHNOLOGY ASSESSMENT AND IMPLEMENTATION | 20 |
| SUPPORTING EST INVESTMENTS WITH THE GREEN CREDIT TRUST FUND | 20 |
| INFORMATION DISSEMINATION AND AWARENESS RAISING | 22 |
| POLICY ADVICE | 23 |
| ON-GOING AND NEW DEVELOPMENTS | 24 |
| PROMOTING RESOURCE EFFICIENCY FOR SMALL AND MEDIUM ENTERPRISES IN DEVELOPING COUNTRIES | 24 |
| SUPPORTING EST INVESTMENTS WITH THE GREEN CREDIT TRUST FUND | 24 |
| SOCIAL RESPONSIBILITY | 24 |
| CLEAN DEVELOPMENT MECHANISM (CDM)..... | 24 |
| SUSTAINABLE PRODUCT INNOVATION..... | 25 |
| ESTABLISHING A SUSTAINABLE PRODUCTION SYSTEM FOR RATTAN SECTOR IN CAMBODIA, LAO PDR AND VIETNAM..... | 25 |
| OUTLOOK | 26 |

List of Abbreviations

| | |
|--------|--|
| 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 |
| CPI | Cleaner Production in Industry Component |
| CSR | Corporate Social Responsibility |
| CP4BP | Cleaner Production for Better Products |
| CT | Cleaner Technology |
| DO | Diesel Oil |
| Danida | Danish International Development Agency |
| 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 |
| FO | Fuel Oil |
| 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 |
| 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 |
| PRESME | Promoting Resource Efficiency in Small- and Medium-sized Enterprises |
| RE | Resource Efficiency |
| SCP | Sustainable Consumption and Production |
| SEMLA | Swedish Environmental Management and Land Administration |
| SECO | State Secretariat for Economic Affairs |
| SPIN | Sustainable Product Innovation |
| SR | Social Responsibility |
| UNEP | United Nations Environment Programme |
| UNIDO | United Nations Industrial Development Organization |
| VCCI | Vietnam Chamber of Commerce and Industry |
| VEA | Vietnam Environment Administration |
| VNCP | Viet Nam Cleaner Production Centre |

Our Policy

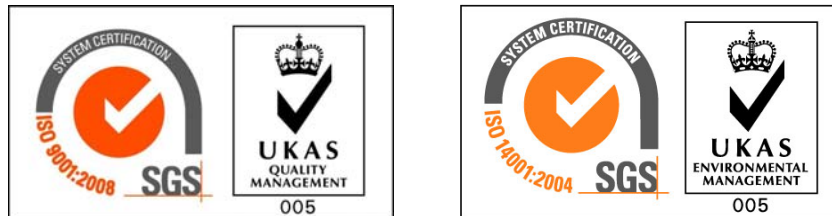
In connection with the implementation of its Integrated Management System following ISO 9001 and ISO 14001, the Viet Nam Cleaner Production Centre has established and maintained the following Policy for Quality and Environment:

Policy for Quality and Environment

The Viet Nam 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 Viet Nam 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.

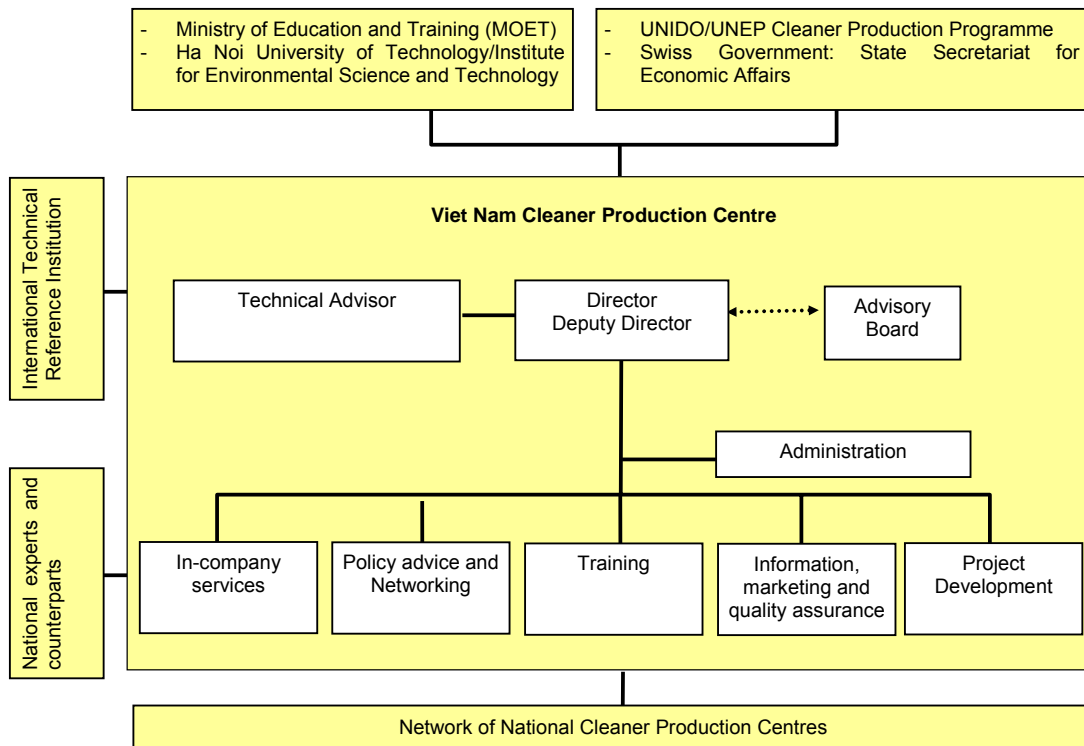
The mission of the Viet Nam Cleaner Production Centre is:

- 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 UNIDO-UNEP Network for promoting and implementing Resource Efficient and Cleaner Production.

Our Organisation

The Viet Nam 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 executed by UNIDO. 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 Structure of the Viet Nam Cleaner Production Centre

Board of Management

The Management of the Centre consists of expertise experts of the Institute for Environmental Science and Technology who have practical experiences in industries. The Director is in charge of the Centre's future development, CP networking, activities on policy advice and the development of new projects. The Deputy Director coordinates daily activities and provides directions in the fields of in-company and training services and information.

Staff

In 2009, the VNCPC team consisted of 16 full time employees. 2 staff members hold Doctoral degrees; 6 hold Masters Degree, and 8 Bachelors. Tasks are assigned to each staff according to the needs of projects, not to the functioning division.

Staff of the Centre by the end 2009

(Please check our website for update)



Management

Mr. Tran Van Nhan, Director

Ms. Ngo Thi Nga, Deputy Director

Administration

Ms. Nguyen Thanh Huyen/Ms. Bui Thi Hong Ha, Admin cum Accountant

Ms. Tran Thu Huong/Ms. Ly Thi Thuy Duong, Interpreter

Mr. Le Hong Hai, Driver

Mr. Vu Ha, IT Specialist

Technical Consultants

Mr. Dinh Manh Thang, Cleaner production – Energy Efficiency Consultant

Mr. Nguyen Hong Long, Cleaner production – Sustainable Product Innovation Consultant

Ms. Nguyen Le Hang, Cleaner Production – Social Responsibility Consultant

Mr. Le Xuan Thinh, Cleaner Production – Cleaner Technologies Consultant

Ms. Duong Thi Lien, Cleaner Production Consultant

Ms. Le Thu Ha, Cleaner Production – Environmental Accountant Management Consultant

Mr. Tran Duc Chung, Cleaner Production - CDM Consultant

Mr. Le Manh Hieu, Cleaner Production – Energy Efficiency Consultant

Mr. Nguyen Ngoc Khanh, Project staff

Ms. Ta Huong Thu, Project staff

Staff training

In order to maintain and build up its human resource capability, during 2009, VNCPC appointed its staff members to in the following external training courses:

- Promotion of Environmental Conservation with Cleaner Production, 22 March – 4 April 2009, in Kitakyushu, Japan;
- Sustainable Ventures towards a Green Economy, 22 - 23 October 2009, Vinh Phuc, Vietnam; and
- Study tour on Product Catalogues, 8 days in June 2009, Indonesia.

Along with external trainings, the Centre organized 3 trainings for staff's capacity enhancement. The topics covered were "Business Starting" (five days), "Lean Manufacturing" (four days) and "Technology Management" (three days).

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.

South Vietnam Office

The South Vietnam Office finished its missions and closed its activities as of January 2009. During the operating period June 2006 – Dec 2008, the South Vietnam Office was active in promoting CP and CP-related services and the CP networking in the South of Vietnam.

Counterparts and Networks

The Viet Nam Cleaner Production Centre has established and maintained long-term cooperation with C.S.D Group (Switzerland) as its reference technical centre.

Under the framework of the CP in Industry Component of the Denmark-Vietnam Cooperation for Environment (Danida-MOIT), the Centre continued to implement the CP-EMS programme in 5 provinces including Thai Nguyen, Phu Tho, Quang Nam, Nghe An and Ben Tre.

VNCPC promoted further networking by financially supporting the CP assessment done by its trained service providers through the voucher scheme system. This mechanism aims at assisting local experts in building capacity and practical experiences in the field of Cleaner Production and also strengthening the network of CP service providers in Vietnam. In 2009, 4 CPA reports were registered, submitted and approved for reimbursement.

The Centre has maintained its cooperation with Swedish Environmental Management and Land Administration (SEMLA) project and the DONRE Nghe An in the field of Cleaner Production promotion in seafood processing.



In 2009, VNCPC continued the cooperation with AIT Centre in Vietnam, UNEP DTIE (France), Delft University of Technology (Netherlands), Laos Cleaner Production Programme and Cambodia Cleaner Production Programme under the framework of the project "Cleaner Production for Better Product" (CP4BP) and the

preparation stage for the project "Sustainable Product Innovation" (SPIN). In order to promote the product design toward the sustainability, the Centre expanded its relationships with Vietnam's industry society and sectoral associations through the visits, marketing, consultations and cooperation.

The centre has maintained its close contacts with provincial authority such as Departments of Industry and Trade, Departments of Natural Resources and Environment in order to promote the concept of CP and the model of sustainable consumption and production.



The CP network activities in Vietnam in 2009 was characterized by the 4th National Roundtable Conference on Sustainable Consumption and Production, which is co-organized by the Vietnam Environmental Administration, the CP component in Industry (Danida/MOIT) and the

Viet Nam Cleaner Production Centre on 8-9 October in Hue. This forum attracted the attendance of about 150 participants from different organizations such as governmental institutions, industrial companies, academic institutions, international projects/programmes in Vietnam and consulting companies.

The VNCPC is working closely with the 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 and the UNEP-UNIDO for Promotion and Implementation of Resource Efficient and Cleaner Production.

Facilities



Thanks to its location in the Hanoi University of Technology, the Centre enjoys close cooperation in research and development with faculties, institutes, research centres and experts who are serving the industries.



The Viet Nam Cleaner Production Centre is equipped with portable measuring and analytical equipment for both rapid and in-depth assessment of material and energy consumption in various industrial sectors at the fields. The portable equipment includes instruments to measure and analyze boiler efficiency, temperature, lighting, motor efficiency, wastewater quality, etc. In addition, the direct host institute of VNCPC (INEST), which has its of laboratories equipped with modern environmental analytical equipment, so that it can actively support VNCPC in monitoring and assessing environmental performance of CP measures.



Facilities for training (room and equipment) were maintained to be available at good conditions. Many events and trainings hosted by the Centre and its host Institute took place in the well equipped training room.



Sector-specific databases are kept up-to-date together with the Centre's electronic library.

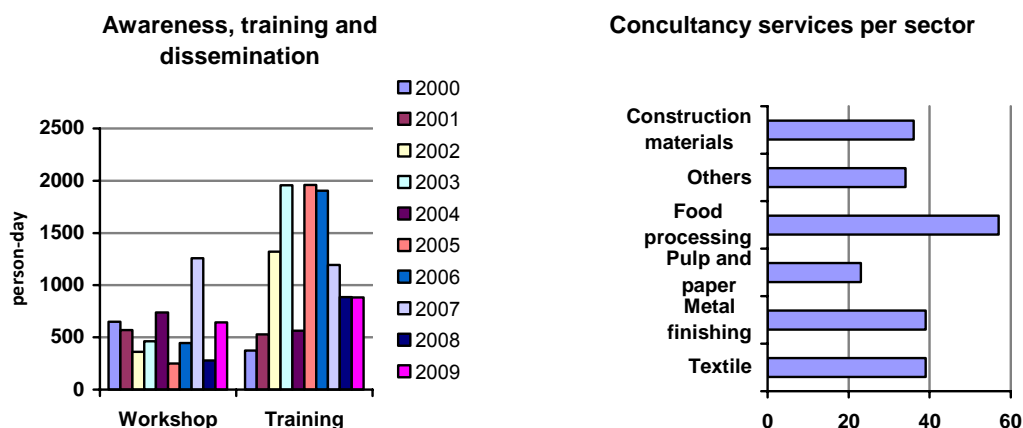
The Centre provides favorable working conditions to all staff members. Besides the office with good quality facilities and internet access, the staff members receive supports on mobile phone charge to ensure sufficient communication.

Overview of activities

Activities in the year 2009 was characterized by the promotion of some new services, such as product design innovation, resource efficiency and sustainable production system for rattan products. Awareness raising, consultancy providing, training and outcomes disseminating activities were eventually conducted throughout Vietnam, Lao and Cambodia. Along with these emerging topics of services, the traditional CP and CP plus services, which are technology gap assessment, cleaner technologies assessment and investment project proposal, were kept sustained.

The Centre has maintained its integrated management system following ISO 9001 and ISO 14001, which has been secondly recertified since 2008. The management of the Centre expressed its strong commitment to ensure the effectiveness and efficiency of the system in order to secure its capability in providing high quality services for a cleaner environment in the future.

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



Companies' annual savings achieved from our cleaner production consultancy

| Sector | Electricity, Mwh | Coal, ton | FO, ton | DO, ton | Gas, ton | Water, m ³ | Chemicals, ton | Annual savings, USD | Investment, USD |
|------------------------|------------------|---------------|--------------|--------------|------------|-----------------------|----------------|---------------------|------------------|
| Textile | 7,064 | 1,933 | 6,563 | 0 | 0 | 1,057,242 | 506 | 2,186,073 | 537,985 |
| Paper | 44,381 | 24,978 | 1,959 | 0 | 0 | 3,129,270 | 1,228 | 3,596,514 | 766,246 |
| Metal | 1,091 | 1,490 | 123 | 21 | 41 | 150,203 | 181 | 671,838 | 307,481 |
| Construction Materials | 7,408 | 8,968 | 0 | 285 | 208 | 2,112,314 | 2,677 | 1,516,730 | 1,263,328 |
| Food and beverage | 1,934 | 1,340 | 163 | 30.2 | 0 | 450,198 | 60 | 1,328,462 | 1,516,170 |
| Others | 1,836 | 4,745 | 29 | 0 | 0.2 | 1,126,402 | 34 | 443,805 | 372,892 |
| Total | 63,714 | 43,457 | 8,837 | 336.2 | 249 | 8,025,629 | 4,686 | 9,743,422 | 4,764,102 |

- Note:
1. Others stands for rubber, chemical, ship building, wood processing, printing, ore exploitation and processing, rattan, plastic, aquilaria attar, ...
 2. The total data are accumulated from 1999 to 2009.

Our activities and achievements during 2009 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 2009, the Centre further provided advanced knowledge and tools to its customers, beneficiary companies and service providers through its training activity. Besides, in the framework of different projects and programmes, the trainings organized by the VNCPD provided updated information and best practices for improving companies' performances in different areas. The following table presents an overview of the training courses held by the Centre in 2009.

Overview of training 2009

| Type of training | No of trainings | No. of participants | Participant days |
|--|------------------------|----------------------------|-------------------------|
| CP training for seafood processing | 1 | 45 | 135 |
| Training on "CP for Better Product (CP4BP)" for handicraft sector in Hanoi | 1 | 24 | 48 |
| Training on CP4BP for aquaculture sector in Can Tho and Cambodia | 2 | 55 | 110 |
| Training on CP4BP for furniture sector in HCMC | 1 | 35 | 70 |
| Training on CP4BP for handicraft and furniture sectors in Lao | 1 | 21 | 42 |
| Training on "Business Starting" | 1 | 16 | 48 |
| Training on "Lean Manufacturing" | 1 | 15 | 60 |
| Training on Technology Management | 1 | 18 | 54 |
| Training on CP-EE in Hai Phong | 1 | 25 | 50 |
| Training the trainer course on "Promoting Resource Efficiency" | 1 | 24 | 120 |
| Training on "CP in Rattan processing sector in Indochinese countries" | 1 | 25 | 75 |
| Industrial training course on "Promoting Resource Efficiency" | 1 | 24 | 72 |
| Total | | | 884 |

Training on CP in specific sector



A 2-modules training program for Nghe An II Import-Export Seafood Joint-Stock Company were conducted in February and March under the framework of SEMLA-Nghe An project. The training aimed to build CP capacity for the food processing sector in Nghe An in general and the company in specific. A CP manual for seafood

was prepared for the future use of functioning group of Nghe An DONRE and local seafood companies.



In order to build up the human capacity for the project "Establishing a Sustainable Production System for Rattan sector in Cambodia, Lao PDR and Vietnam", VNCPC organized a 3-day training course on "CP in rattan processing sector" in October 2009. 25 participants including rattan experts, companies' technicians and project staff and Cambodia, Lao PDR and

Vietnam were gathered in this interesting sectoral forum.

Integrated training on CP and related topics



The second year of the project of **Cleaner Production for Better Product (CP4BP)**, which is sponsored by the EU Asia Invest, continued with 5 two-day sector-specific training courses for handicraft, furniture, and aquaculture taking place during February-April. These courses took place in Vietnam (Hanoi, Hochiminh City and Can Tho), Lao and Cambodia. The course contents were delivered by the CP4BP-trained

experts from the Centre and related sectors. Target participants of those courses were design experts and mid-level managers of companies from the concerned industry sector and representatives from business associations. The sector-specific trainings aimed at building the capacity for companies of related sector in terms of product design toward sustainability and developing sector-specific training packages for future use.



In order to develop the national technical capacity that provide support to SMEs on developing and implementing resource efficiency programmes, the Centre organized 2 training courses on "Resource Efficiency in SME" within the framework of the UNEP's project "Promoting Resource Efficiency in SME (PRE-SME)". The first course, which took place in September,

aimed to train the national experts and develop a country programme for PRE-SME. Participants of the course consisted of consultants from different organizations,

which will act as PRE-SME national experts. The last course, which was held in November, focused on adapting the resource efficiency training toolkit for SMEs, which was prepared by the international technical institutions, to the local conditions. The course gathered managers and technicians from SMEs of different sectors, which are volunteer and committed to involve in the training and in-plant working for the development of successful best practices case-studies. The course consisted of in-class training and field visit.

Training on Management

Along with technology aspect, good company and production management greatly contributes to the success of an enterprise. Therefore the Centre decided to organized three training course on the management aspect in the year.



The first training, which took place in April, aimed to provide participants basic management knowledge for starting a business. Participants will get familiar with managerial factors when implementing the assigned projects and starting any business. This course is much appropriate with VNCP staff in the transform of VNCP into a self-control organization.



The training on Lean Manufacturing was designed for enhancing the production management knowledge of industrial companies. Participants of the training consisted of CP services providers, and management staff of some companies.

The training on Technology Management aimed at capacity building in technology assessment, providing some assessment tools and insight in managing technology risks. Target group of the training includes CP services providers, technological managers of companies interesting in cleaner technology investment.

In-company services

In conjunction with different supporting projects and programmes, in 2009, Viet Nam Cleaner Production Centre provided its services in a wide range of topics like traditional CP, CP-EMS, CP-PRE, CP4BP, Technology Gap Assessment, Cleaner Technology Assessment and Implementation, etc.

The following brief description highlights in-company activities of VNCPC in 2009:

Cleaner Production Assessment



In cooperation with the SEMLA-Nghe An project, the VNCPC provide consultancy on CP in seafood processing for Nghe An II Seafood Export-Import Joint-Stock Company. The expected achievement of CP implementation in the company is to reduce shrimp loss by 2%, water consumption by 20m³/ton of product and electricity consumption by 76.3kWh/ton of product.

Cleaner Production and Environmental Management System



Paper materials were stored outdoor before CP



Storehouse has been built up for better raw material storage after CP

Starting in 2008, VNCPC finished 20 CP-EMS assessments and consultancy in 20 selected companies in 4 provinces (Phu Tho, Nghe An, Thai Nguyen and Quang Nam) in 2009. 11 companies of that submitted to CPI their CP-EMS investment proposal with VNCPC's technical consultancy and received the financing approval. Implementing no-, low- and medium-cost CP options and investment projects financially supported by CPI, these companies have significantly reduced their input consumption, e.g. raw materials by 1 - 2.6%, water by 10 - 29%, electricity by 1.3 - 32.5%, coal by 13.4 - 54.2%, chemicals by 3 - 40%, etc. Notably, the Song Con Sugar company has totally cut down their cooling water demand when applied the on-site recycle and reuse CP option. Besides the self investment for low- and medium-cost CP options, the total grant, which 11 companies received from CPI, is valued at 67.0 billion VND and brings in the annual savings of 25.5 billion VND (i.e. average payback period is about 2 years and a half).

Continuing the programme, VNCPC started up 8 CPA-EMS in 8 newly selected companies in Thai Nguyen, Phu Tho, Quang Nam, Nghe An and Ben Tre provinces in 2009. Some no- and low-cost CP options have been implemented so far by their own financial sources with the total investment of about 1 billion VND. According incomplete production records of these companies, the annual savings achieve about 950 million VND through the reduction of their electricity consumption by about 8%, coal by 3.4 - 64.2%, water by 17 - 100%, raw material by 1.2 - 20%, toxic chemicals by 100%, firewood by 20%.

Cleaner Production for Better Product



Being launched in 2008 and led by VNCPC, the EU funded project of Cleaner Production for Better Products Project (CB4BP), which aims at building up the capacity of selected industries in Vietnam, Cambodia and Lao PDR to develop environmentally friendly and socially responsible products adapted to the requirements of the European market through the application of product-related CPA methodology, has

fulfilled its eventful second year with numerous in-plant activities along with trainings and dissemination.



7 selected demo-companies in 3 priority sectors (furniture, handicrafts and aquaculture) applied CP4BP in the redesign and new design of 87 products and package. Deriving from the project, 3 new design companies and centre were set up and there have been 150 sustainable products developed by them.

The project team together with other international partners has been studying to create opportunities for the sustainable products to access to European and global market. Some of demo-companies have exhibited their CP4BP redesigned and newly designed products in international trade fairs (see more at www.cp4bp.org).

Cleaner Production and Establishing a Sustainable Production System for Rattan Products in Cambodia, Laos and Vietnam



As a partner responsible for the key component of the EU-funded project "Establishing a Sustainable Production System for Rattan sector in Cambodia, Lao PDR and Vietnam", VNCPC conducted the survey on status of rattan sector in the region, especially in Vietnam. Based on the survey results, the CP techniques for the sectors have been studied and introduced to companies.

Cleaner Production and Promoting Resource Efficiency



Poor insulation of equipment in a plastic company before CP-RE



The equipment is now insulated properly

Being initiated in September 2009, the UNEP-funded project on "Promoting Resource Efficiency in SME (PRE-SME)" has selected 12 companies from different sectors including cement, food processing, pulp and paper, plastic, textile-dyeing and metal finishing for in-plant demonstration.

The first in-plant consultancy was conducted in December 2009 to all of 12 demo companies. Some good housekeeping CP-RE options have been implemented immediately. This showed that the demo companies are aware about and committed to Resource Efficiency.

Technology Gap Assessment



Together with international experts, the Centre continues provide consultancy on reengineering the Long An Textile Company. There were 2 missions led by international experts took place in 2009. In July, Mr. Jürgen Ströhle (textile expert, Benniger AG, Uznil/Switzerland) and Mr. Jürg Walder (CSD group) and VNCPC expert conducted a work meeting with the company to recommend the technology investment for cotton and polyester dyeing lines and the wastewater treatment plant for Dyeing company. In September, Mr. John-Peter Moll supported by VNCPC expert conducted his second missions to provide consultancy in the management and good housekeeping in Weaving company and issues of dyestuff selection, maintenance of equipment and the waste heat recovery system in the Dyeing company.

Cleaner Technology Assessment and Implementation



*Hot air supply system before CP:
2 low efficient heaters*



*Hot air supply system before CP:
1 high efficient heater*

The activity aims at promoting cleaner technologies in Vietnamese industries. This consists of 2 sub-activities, in which while, the CTA sub-activity looks for the possibilities and studies the feasibility of the application of CT in the companies' contexts, the CTI one reports the process and results from the realization of chosen CT and the lessons learnt.

In 2009, this service has been conducted at 9 companies in the pulp and paper, tea processing, cassava processing, slaughter house, plastic, textile and seafood processing sectors. There were 15 CTA reports were prepared and submitted to the companies' management. The investment capital were disbursed and the implementation of CT will help the companies to save up to 267,108 kWh electricity, 30,594 tons coal and 1,508 tons firewood, 24,000 kg ice water, 7 tons of tapioca starch for yarn sizing, 451 kg chemicals and 5,045 tons yarn loss annually. With the total investment of VND 75 billions, the grand annual saving at these companies will be VND 39.9 billions. CP investment projects will contribute to the annual emission reduction of CO₂ by 347 tons and R22 by 700kg.

Supporting EST investments with the Green Credit Trust Fund



Old ...



and new 150T pressing machine



Old ...



and new 300T pressing machine

Tan Phu Plastic Joint Stock Company was applied for GCTF support in order to replace two old hydraulic pressing machines by two new ones without hydraulic system. The project was disbursed in 2009. Due to the savings of 88.8% and 74.7% electricity consumption (equivalent to 575,271 kWh yearly) of the two new machines comparing with the old ones, the company received GCTF reimbursement of 33,841 USD. Besides, 400 liters/year of hydraulic oil (100%) is no longer used by the company leading to the total cut-down of the oil discharge to the environment.

There were 2 new applications for GTCF supports from one steel company and one brick company technically appraised in 2009. While the steel company expects an annual savings of 30,362 MWh of electricity and 32,900 m³ of water, which would lead to a reimbursement of 145,500USD, the brick company is looking for a saving of 53% coal consumption (equivalent to 540tons/year) with a reimbursement of 32,513USD (see more on <http://vncpc.org/gc/>)

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.vn). News and events about the Centre's activities and actions in the fields related to cleaner production in Vietnam are updated monthly. Information on CB4BP project and GTCF are published on this website also.



A seminar on "Awareness raising on CP in rattan processing sector" was organized successfully with the participation of stakeholders and representatives of 16 rattan companies countrywide.



The Centre had its own booth at the Envirotex that took place from 17 to 20 March 2009 and Eurocham Green Biz Conference and Exhibition that took place in 17-18 September in Hanoi.

Two guidelines namely CP guidelines in metal finishing sector and the Vietnamese version of the UNEP's Manual on CP-EE integration have been published in 2009. These guidelines are supposed to be good reference materials for technicians and management of relating industrial companies and CP/EE consultants.



Outcomes and lesson learnt from different projects implemented by VNCP have been disseminated through their staff presentations' in numerous meetings and seminars.

Policy Advice

The highlights of CP policy activities in 2009 include the Prime Minister's approval of CP strategy in Industry to 2020 for Vietnam and the successful National Roundtable for Sustainable Consumption and Production.

VNCPC actively supported the Ministry of Industry and Trade's drafting team in the formulation of the "CP strategy in Industry to 2020", which was approved by the Prime Minister in September 2009. The Strategy coming out into society is seen as a promising signal for the promotion of CP market and movement toward sustainable industrial development in Vietnam.



The 4th National Roundtable for Sustainable Consumption and Production was organized under the cooperation between the Vietnam Environment Administration, Cleaner Production in Industry Component (Danida-MOIT) and Vietnam Cleaner Production in October 2009 in Hue City. There were 150 participants came from different target groups such as government organizations, companies,

academic institutions, international projects/programmes in Vietnam and consulting companies. More than 30 presentations and articles with facts, lessons learnt and recommendations were discussed during the roundtable.

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

CP Strategy in Industry to 2020

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 2010, the Centre has started and continues with the following activities (please contact us for updates):

Promoting Resource Efficiency for Small and Medium Enterprises in developing countries

In 2010, the in-plant consultancy activities to all demo companies will be continues. By the end of the project, which is expected to be in middle of 2010, all good housekeeping and process control options will be implemented as daily activities and at least 1 investment project per companies will be realized.

Supporting EST investments with the Green Credit Trust Fund

VNCPC continues its role of the coordinating and technical appraising organization in the operation of GCTF. The Fund expects to support more companies in terms of cleaner technology investment until 2014.

Social Responsibility

As partnership of UNIDO within the Asia-UNIDO SWITCH programme, VNCPC will start its activities in the framework of the project on "Helping Vietnamese SMEs Adapt & Adopt CSR for Improved Linkages with Global Supply Chains in Sustainable Production", which was approved in October 2009, in 2010. The project is expected a 3-year implementation timeframe.

VNCPC continues to assign one staff member with the nomination from the Directorate for Standards and Quality to represent the Vietnamese Industry Stakeholder Group at the ISO 26000 Working Group Meetings. This is the process for developing the International Guidance Standard Document on Social Responsibility which can be applied for any kind of organisations. In 2009, the group made contributions and voted for the Draft International Standard and the whole process is now moving on the Final Draft International Standard. More information is available at www.iso.org/wgsr.

Clean Development Mechanism (CDM)

In 2010, along with building up and enhancing its own acquired expertise on CDM, VNCPC continues looking for feasible CDM projects. The Centre keeps contacts with potential buyers and partners in order to have 1 or 2 CDM project registered by the CDM Executive Board by the end of 2010.

Sustainable Product Innovation

Inheriting the success of CP4BP project, the Project on "Sustainable Product Innovation in Vietnam, Cambodia and Laos" (SPIN-VCL) has been agreed to be granted by Switch-Asia. The project is led by TU Delft in Netherland. VNCPC plays a role of key partner in Asia. Main objectives of the project include (1) at least 500 SMEs in food processing, furniture, footwear, textile and handicraft; and (2) at least 30 governmental institutions responsible for environmental and innovation policy. Key activities done by VNCPC covers organizing training, marketing, developing SPIN toolkit and product catalogues, setting up of SPIN network, in-plant SPIN implementation. The projects shall be commenced in 1 April 2010 and operated in 48 months.

Establishing a Sustainable Production System for Rattan sector in Cambodia, Lao PDR and Vietnam

In the framework of the EU-funded project "Establishing a Sustainable Production System for Rattan sector in Cambodia, Lao PDR and Vietnam", VNCPC will conduct in-plant consultancy to about 50 enterprises of the sector in 3 countries of Lao, Cambodia and Vietnam in 2010-2011 in order to achieved the objectives of "at least 40% rattan SMEs in the region actively involving in the production of environmentally friendly rattan products as well as at least 15% of them being the providers of sustainable rattan products to EU and other markets". At the end of the project, a tailor-made CP manual for rattan sector will be ready for future use.

Outlook

With the new position - a member company of Bach Khoa Holdings, belonging to Hanoi University of Technology, also a member of the international network of "Resource Efficiency and Cleaner Production" of the UNIDO - UNEP, VNCPC is able to help businesses get access to information sources, experienced Vietnamese and international experts and advance tools for better production and environment management.

In the process of promoting the application of cleaner production in Vietnam, eight small and medium enterprises (SME) were received financial support to implement innovative technologies and equipment, improve production efficiency while minimize environmental pollution, including the two companies received support from the Credit Green Trust Fund (GCTF) established in our country by SECO. GCTF continues its financial support to small and medium enterprises Vietnam in the field of technological innovation towards environmental-friendly technologies. VNCPC staffs, currently working for VNCPC Co., Ltd, is playing an important role in technical appraisal for that kind of projects and looking forward to cooperate with more companies, who consider the cleaner technology investment an important step to be sustainable in the globalizing market.

With practical experiences accumulated in last three years of implementing the CP+ strategy until 2015, VNCPC will continues to introduce the service packages that combine CP with Energy efficiency (EE), Corporate Social responsibility (CSR), Safety and Occupational Health (OHS), Environmental Management Systems, Sustainable Product Innovation, etc. for customers to select in the coming years.