

ANNUAL REPORT 2018



20 YEAR
ESTABLISHMENT & DEVELOPMENT

What is RECP?



Utilization of Resource Efficient and Cleaner Production (RECP) is the continuous application of integrated environmental prevention strategies to production processes, products and services to improve ecological efficiency and reduce risks for people and the environment.

- **For the production process:** RECP includes the conservation of raw materials and energy, eliminating hazardous materials, reducing the amount and toxicity of all waste at the source of waste.
- **For products:** RECP includes reducing negative effects throughout the life cycle of products, from design to disposal.
- **For services:** RECP brings environmental elements into the design and development of services.

(The United Nations Environment Program - UNEP)

FOREWORD



The year 2018 marked the 20th anniversary of establishment and development of VNCPC, which was established with the support of the Swiss State Secretariat for Economic Affairs through the United Nations Industrial Development Organization to promote cleaner production in Vietnam. VNCPC is a regular member of UNIDO - UNEP's global network RECPnet and operates as Vietnam Cleaner Production Centre Co. Ltd. - a consultancy business under BK Holdings /Hanoi University of Science and Technology.

Over the last 20 years, through technical assistance activities, VNCPC has helped more than 1,000 businesses in industrial and service sectors raise awareness and apply RECP in order to reduce consumption of materials, energy, water, improve chemical management and reduce waste generation. Especially, since recent years, within the framework of projects hosted by MPI, UNIDO, IFC, VNCPC has worked with industrial parks and their tenants to develop industrial symbiosis solutions for the gradual shift towards eco-industrial park model that fits to global trend and the Government's orientation stated in Decree 82/2018/ND-CP.

Extending the activities to the region, VNCPC has been cooperating with Cleaner Production Centres and Offices of Laos, Cambodia and Myanmar to strengthen local RECP capacity through training of experts and in-plant RECP assessments for local enterprises.

2018 is also the year with many significant environmental problems in both national and global scale such as marine plastic wastes, pollutions in craft villages, especially recycling ones; climate change clearly affecting natural disasters, high tide flooding and so on. Being a deeply experienced consultancy partner, VNCPC is committed to continuously accompany businesses of all sizes in the replication of RECP to improve production efficiency, reduce environmental pollution and increase competitiveness for a green and sustainable industry.

On this occasion, VNCPC would like to express our sincere thanks to international organizations, donors, ministries and agencies such as Ministry of Industry and Trade, Ministry of Planning and Investment, Ministry of Natural Resources and Environment, Ministry of Education and Training, Hanoi University of Science and Technology for cooperating and supporting us in the past years and the future to come.

A handwritten signature in blue ink, appearing to read 'Le Xuan Thinh', written in a cursive style.

*Director of VNCPC
Le Xuan Thinh*

ABBREVIATIONS

BAT: Best Available Techniques

BEP: Best Environmental Practices

BIDV: The Joint Stock Commercial Bank for Investment and Development of Vietnam

CB: Concrete Brick

ENTEC: Environmental Technology Centre

EIP: Eco-Industrial park

FCB: Fire Clay Brick

FES: Friedrich-Ebert-Stiftung

GEF: Global Environment Facility

IFC: International Finance Corporation

PCDD/F: Polychlorinated dibenzo dioxins/furan

IZ: Industrial zone

GHG: Greenhouse gas

GG: Green Growth

NFB: Non-fired Brick

MONRE: Ministry of Natural Resources and Environment

MOST: Ministry of Science and Technology

MPI: Ministry of Planning and Investment

POPs: Non-persistent organic pollutants

RECP: Resource Efficient and Cleaner Production

SCPRC: Sustainable Consumption and Production Research Centre

SECO: Swiss State Secretariat for Economic Affairs

UNEP: United Nations Environment Program

UNIDO: United Nations Industrial Development Organization

VnSAT: Vietnam Sustainable Agriculture Transformation

W2E: Waste-to-energy

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VNCPC is a regular member of the Global Network for Resource Efficient and Cleaner Production (RECPnet), which has been joint established by UNIDO and UNEP.



MISSION

In line with principle “Partnerships for Sustainable Development” as a nonprofit organization, VNCPC brings added values to clients through advanced scientific and technological services to contribute to the promotion of sustainable production and consumption.

VNCPC has created a friendly working environment with the best conditions for the team to develop their professional competencies and interpersonal skills.

VISION

With the desire to build a sustainable future, VNCPC strives to become the leading organization in Vietnam and the region to provide both scientific and technological services on Resource Efficient and Cleaner Production, as well as climate change adaptation.

CORE VALUES

Dedicated - Innovated - Responsible for Sustainable Production and Consumption
Respect - Share - Eager to learn - Partnerships for mutual development

SERVICES OF VNCPC

- Training and coaching for capacity building on RECP implementation;
- Consultancy and technical assistance on RECP implementation in industrial and service sectors;
- Consultancy and technical support for improved energy efficiency in industrial and service sectors;
- Integration of RECP assessment in industrial as well as some service sectors (hotels, restaurants, offices/buildings) with:
 - Environmental management system
 - Energy efficiency
 - Sound chemical management and industrial waste management
 - Improve productivity and corporate social responsibility...
- Consultancy on EIP initiatives to industrial zone's management board and tenants through RECP awareness raising and implementation, industrial symbiosis development and realization.

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The component supports enterprises to increase production efficiency, reduce resource consumption and GHGs emission and pollutions, as well as, improve water use efficiency and chemical safety management in Vietnam's industrial parks. The in-plant RECP assessment component serves as a company-level improvement step to contribute to the transition of traditional IZ into EIP.

OVERALL INFORMATION

- **Donors:** GEF, SECO, UNIDO
- **Host institutions:** MPI, Ninh Binh, Da Nang, Can Tho
- **Project's implementing partners:** VNCPC
- **Duration:** 2015 - 2019
- **Sectors:** Industry and services
- **Region:** Ninh Binh, Da Nang, Can Tho
- **Contact point:** Mr Dinh Manh Thang - Component Manager
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- **Tel:** (84-24) 3868 4849 - ext 25

EIP VIETNAM PROJECT Component “Capacity building and RECP assessment in participating companies”



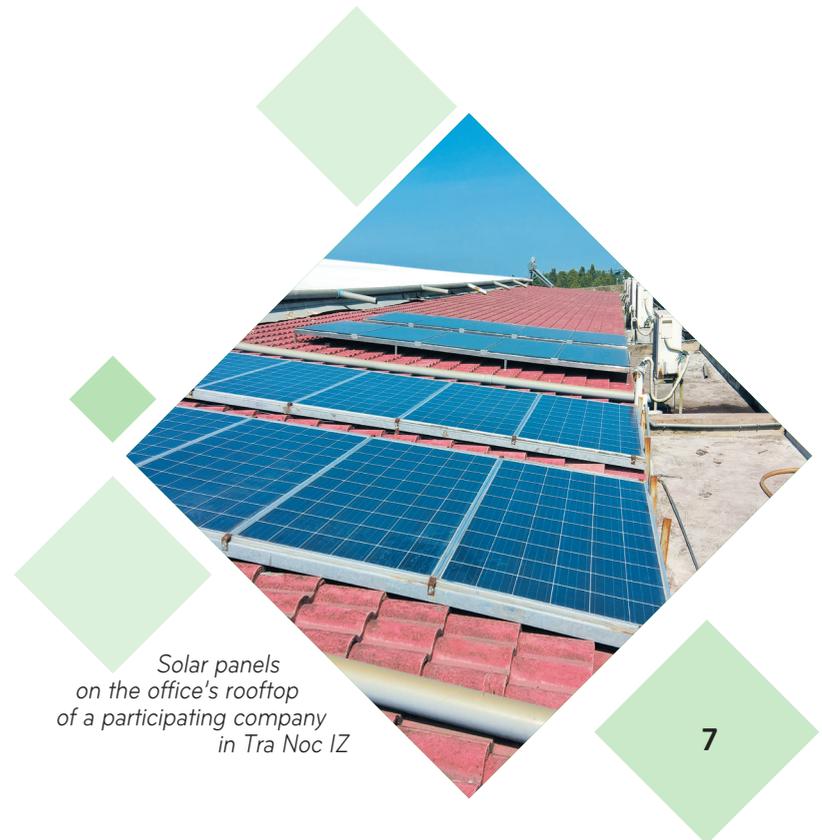
EIP Vietnam project (2015 - 2019) was jointly developed by MPI and UNIDO to help transform IZs into EIP model, which has more environmentally friendly and sustainable networks to further meet Vietnam's green growth ambitions. The project contributes to reduce GHG emission, water consumption, water pollution, POPs and other chemicals of global concern and to demonstrate innovative clean and low-carbon technologies and practices in industries.

This component lasts for 24 months divided into three 8-months batches, including RECP training, RECP in-plant assessment (consists of 4 modules) and monitoring activities, which are conducted in 3rd and 6th months after the completion of the in-plant RECP consultancy.

In 2018, the 3rd RECP assessment was completed with 21 enterprises fulfilled all four modules. There were 5 enterprises failed to do so because of several subjective and objective reasons.

Out of 303 identified solutions, there have been 197 RECP solutions implemented by those companies with a total investment of 5.34 billion VND and annual cost savings of 14.36 billion VND.

Localities	Number of enterprises	Invest (billion VND)	Saving (billion VND)
Can Tho	11	4.20	11.49
Da Nang	7	0.62	1.60
Ninh Binh	8	0.52	1.27
Total	26	5.34	14.36



Solar panels on the office's rooftop of a participating company in Tra Noc IZ

Annual consumption /waste streams reduction	Da Nang	Ninh Binh	Can Tho	Total
Steel material (kg)	63,032			63,032
Coal (kg)		20,640		20,640
Electricity (kWh)	625,593	734,395	3,876,862	5,236,850
Water (m ³)	1,900	2,485	132,940	137,325
Wastewater (m ³)	1,900	2,485	132,940	137,325
CO ₂ emission (ton)	510.1	636.8	2,649.7	3,796.6
COD (kg)	95	124.3	2,939.7	3,159
Teq PCDD/F (μg)	51.1	62.1	274.9	388.1



EIP VIETNAM Project

Assignment “Provision of services for the RECP training and monitoring”



The objective of this assignment includes (1) further strengthening the RECP capacity for local experts on RECP implementation through in-depth training and (2) monitoring the impacts of implemented RECP options in all project's participating companies in last three years.

OVERALL INFORMATION:

- **Donor:** UNIDO
- **Host institution:** MPI/EIP Vietnam project
- **Project's implementing partners:** VNCPC (leading), ENTEC
- **Duration:** 01/07/2018 - 31/01/2019
- **Sectors:** Industry and services
- **Region:** Vietnam
- **Contact point:** Mr Nguyen Thanh Trung
- Team leader
- **Email:** trung.nt@vncpc.org
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Under the framework of EIP Vietnam project, UNIDO granted the assignment "Provision of services for the RECP in-depth training and monitoring" to the consortium of VNCP and ENTEC as the implementing unit.

In 2018, most of the activities have been implemented and reported in accordance with the requirements of UNIDO and the EIP project's management unit.

RECP IN-DEPTH TRAINING

Two intensive RECP training courses were successfully organized in Hanoi and HCM city for 54 local experts. The participants mainly work for cleaner production or energy efficiency of in-charged departments of provinces and cities, lecturers of universities teaching on cleaner production, institutes and enterprises in Vietnam. During two-days training, participants were coached in-depth on RECP techniques, practical examples and assessment skills covering 5 thematic topics of energy, materials, water, effective chemical use and waste management. They will sever as resource experts for the local RECP implementation. The training course received great attention and appreciation from participants as well as the project management unit.



*Participants of the training course in Hanoi,
September 5 - 6, 2018*



*Participants of the training course in HCM city,
September 12 - 13, 2018*

RECP MONITORING IN ENTERPRISES

During 3 months from 1/10 to 31/12/2018, the RECP monitoring was conducted at 72 participating enterprises of EIP Vietnam project, which operate in 5 target IZs including Gian Khau IZ and Khanh Phu IZ (Ninh Binh), Hoa Khanh IZ (Da Nang) and Tra Noc IZ (Can Tho), in order to evaluate the impact of RECP implementation in previous stages of the project through data such as number of implemented solutions, investment and savings, reduced environmental impacts.



Group discussion



Awarded training certificates

RECP monitoring shows that enterprises have maintained most of the solutions implemented since the previous stages and identified new solutions for further efficiency improvement. Initial results show that the implemented RECP solutions helped businesses reduce:

- 39,000 MWh/y of electricity
- 6,849 t/y of coal;
- 606,882 m³/y of water; and
- 314,879 t/y of waste.

Total savings are about 2.8 million Euro, with total investment of 2.0 million Euro.



Working with technical staff at the company



Electricity measurement at enterprises



Conducting site assessment

IMPLEMENTATION OF ECO - INDUSTRIAL PARK MODEL



The project aims to assist the pilot implementation of technical guidelines on eco-industrial parks in Vietnam led by Ministry of Planning and Investment. The project results will contribute to the finalization of official guidance for the implementation of Decree 82/2018/ND-CP relating to eco-industrial park development.

OVERALL INFORMATION

- **Donor:** IFC
- **Implementing partners:** Sofies (leading) and VNCPC
- **Duration:** 06/2018 - 12/2018
- **Sector:** Industrial zones
- **Region:** Ho Chi Minh city, Dong Nai province
- **Contact point:** Ms. Nguyen Le Hang - Coordinator
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There were 2 selected IZs for pioneering the transition from traditional IZ to EIP model. Workstreams have been fulfilled as required by the donor. All report deliverables were submitted timely by the end of December 2018.

- ◆ **Kick-off workshops:** 2 kick-off workshops were organized in Ho Chi Minh city and Dong Nai on June 20th and 21st, 2018. The aims are to introduce to IZ park management/infrastructure developer and tenants the legal framework and orientation on promoting EIP model, corresponding privileges and project activities and objectives. Participants actively involved in the workshop's discussions to identify existing opportunities and challenges for IZs transitioning to EIP model.
- ◆ **Data collection:** In order to screen and rate gold/silver/bronze EIP levels to IZs, project team has instructed zones' core team and tenants on data collection for the corresponding EIP scoring and rating process.



Kick-off workshop in Ho Chi Minh city



Kick-off workshop in Dong Nai



Discussion on EIP opportunities identification and business case



Site assessment on RECP and EIP

- ◆ **Site survey and assessment:** VNCPC project team conducted 1-day site EIP survey and assessments in selected tenants. This served for helping companies identify concrete EIP opportunities and potential benefits for them in the EIP implementation process, and therefore achieving more proactive tenants' participations.
- ◆ **RECP, EIP and access-to-finance trainings:** Sofies and VNCPC project team delivered trainings covering topics on RECP, EIP implementation and how to access to finance in both parks. This aimed to equip IZ park management/infrastructure developer and tenants with knowledge on the concept, methodology and scoring system to support the EIP implementation and upgradation process.
- ◆ **EIP roadmap reports:** Through site survey, workshops and trainings, meetings and discussions with IZ park management/infrastructure developers and tenants, all information and data collected have been analyzed and assessed. The results were compiled in 2 EIP roadmaps for each IZs and a roll-out of a national EIP program. The project has identified EIP opportunities, which are potential for the situation of the two IZs. The discussion between IZ park management/infrastructure developers and the team came up with shortlist of opportunities for business case detailed analysis in term of technical and financial viabilities and other related aspects. Some typical EIP opportunities in the project include rooftop solar energy at zone level, recycling and circulating treated wastewater from the centralized wastewater treatment plant, etc.

The purpose of the assignment is to survey, conduct feasibility study, identify and implement BAT/BEP solutions in order to improve production processes, reduce wastes and emissions of unintentional POPs generated from open burning wastes of plastic recycling process.

OVERALL INFORMATION

- **Donor:** GEF/UNIDO
- **Coordination:** "Demonstration of BAT and BEP in open burning activities in response to the Stockholm Convention on POPs" project management board (MONRE)
- **Implementing partners:** VNCPC (leading partner), Vinacolour Co. Ltd. and Viet Trung Environmental Technology Co. Ltd.
- **Duration:** 2018 - 2020
- **Sector:** Plastic waste recycling
- **Region:** The North of Vietnam
- **Contact point:** Ms Duong Thi Lien - Coordinator
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- **Tel:** (84-24) 3868 4849 - ext 32

THE PROVISION OF SERVICES AND EQUIPMENT (TURNKEY) FOR TWO PILOT FACILITIES TO BE LOCATED AT PHAN BOI AND MINH KHAI CRAFT VILLAGES



This assignment belongs to the component 3 of the GEF-funded regional project: "Demonstration of BAT and BEP in open burning activities in response to the Stockholm Convention on POPs" is being implemented by UNIDO.

The purpose of the assignment is to survey, feasibility study, identify and apply BAT/BEP solutions in order to improve production processes, reduce wastes generated during production and reduce emissions of unintentional POPs generated from activities of burning plastic wastes.

Main activities of the assignment include:

- Survey, assess, and evaluation to determine the current status of plastic recycling technology in Phan Boi and Minh Khai craft villages;
- Proposing BAT/BEP solutions;
- Training and technology transfer for households;
- Installation and trial operation of two new production lines in two craft villages;
- Installation and trial operation of waste plastic recycling system to create useful products such as bricks, plastic tiles, plastic fences...

◆ Kick-off meeting of the assignment

VNCPC and partners presented the detailed report on implementation plan and in-depth discussed with project's experts and Management Unit in the kick-off meeting at the Vietnam Environment Administration to achieve the consensus on both technical and management aspects in the entire implementation process.



◆ **Consultation meeting with local authorities on implementing pilot activities in the two craft villages**

The consultation meeting, which was held on December 4, 2018 at the Department of Natural Resources and Environment in Hung Yen province, gained unanimous support and appreciation from representatives of Hung Yen Department of Natural Resources and Environment, authorities of Van Lam, My Hao, Nhu Quynh district, Di Su commune and environmental management agencies at all levels for activities under the assignment framework. The consensus opinion of stakeholders is that the assignment be implemented at the soonest in order to contribute to the reduction of environmental pollution in craft villages, improvement of households' economic efficiency and at the same time to have the pilot production lines built to serve as a model so that households can learn and make changes towards a sustainable production.



Waste open burning activities in craft village

VNCP's representative presented the implementation methodology and activity plan of the assignment

INDUSTRIAL WASTE MINIMIZATION FOR LOW CARBON PRODUCTION



The aim of the project is to achieve step-reductions in the generation of industrial waste and by-products, as well as to foster their valorization. This serves the triple purpose of improving the local environment, mitigating greenhouse gas emissions and improving economic benefits. In Vietnam, the project supports for coffee and rice sectors.

OVERALL INFORMATION

- **Donor:** SECO
- **Project's implementing partners:** VNCPC, Sofies, Viet Hien Mechanical Company
- **Duration:** 2013 - 2018
- **Sector:** Coffee and rice processing
- **Region:** Mekong Delta region and the Central Highland of Vietnam
- **Contact point:** Mr. Nguyen Thanh Trung - Project Manager
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- **Tel:** (84-24) 3868 4849 - ext 26

In 2018, 5th phase of the project aimed to mainstream RECP in conjunction with other programs and projects within rice and coffee sectors in Vietnam.

MAINSTREAMING RECP PROGRAM WITH RELEVANT STAKEHOLDERS AND PROJECTS IN THE RICE SECTOR

In connection with VnSAT project, VNCPC and Sofies provided RECP technical assistance for 2 companies, which are Hoang Khang Cai Be Private Enterprise and Dai Tai Food Processing One-member Ltd. The project team pointed out highly potential improvement opportunities with great savings in Vietnamese rice processing enterprises, such as proactive maintenance and good housekeeping, optimizing the production process, avoiding material losses through proper selection of rice inputs and, especially, having closed relationships with farmers.

VNCPC worked with relevant stakeholders (International Rice Research Institute - IRRI; Sub-Institute of Agricultural and Post-Harvest Technology, SIAEP; Olam - Vietnam Organization and Loc Troi Group) to determine the main causes of post-harvest losses and potential solutions, thereby, seeking for cooperation opportunities towards sustainable rice value chain in Mekong Delta region.



Working with representatives of Loc Troi group



Working with BIDV



Discussion with VnSAT project's representatives in charged for rice sector



Working with SIAEP



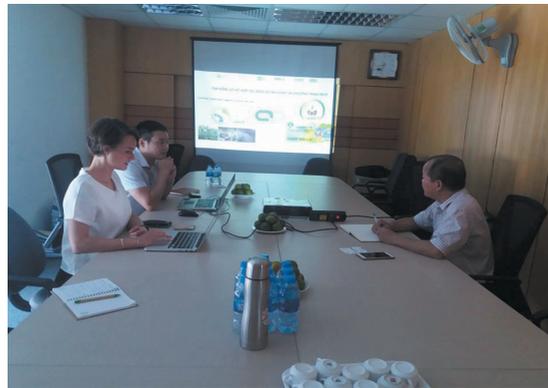
Discussion with Olam-Vietnam's representative

REPLICATION OF PYROLYSIS TECHNOLOGY IN THE COFFEE SECTOR

Pyrolysis technology potentials and benefits to the Vietnamese coffee industry, especially in the Central Highland region, have been demonstrated in 3rd phase and 4th phase of the project. In 2018, the project team continued to seek for further opportunities to replicate the application of this technology through investment projects in coffee sector under the execution of VnSAT project, the Organization on Sustainable Trade Initiatives, as well as to assist farmer groups and cooperatives to invest in pyrolysis technology.



Meeting with management unit of VnSAT project in charged for coffee sector



Furthermore, the project team highlighted the great potential of biochar on both Vietnam and the world market. This also serves as further opportunity to promote the development of pyrolysis technology, because in addition to the main goal of turning waste into energy, the byproduct of pyrolysis is biochar also used as an organic fertilizer for soil improvement.

Over last 5 years of implementation, the project has supported 16 rice millers and 10 coffee processing enterprises in conducting RECP assessment to

- *Save more than \$ 80,000 through the reduction of 1.08 million kWh/year, and*
- *Reduce 621 tons of CO₂ emitted to the environment annually.*

Project results, especially the successful transfer of pyrolysis technology from Switzerland to Vietnam, were highly appreciated by the Swiss Ambassador to Vietnam - Mrs. Beatrice Maser Mallor - during the working visit to Viet Hien Mechanical Company on 7th November 2018 in Buon Ma Thuot city (Dak Lak). The technology has been successfully manufactured on industrial scale and gained first export orders to some countries such as Brazil, Cambodia and Serbia.



Representative of Viet Hien Mechanical Company introduced technology transfer results to the Swiss Ambassador

Swiss Ambassador accompanied by project team worked with Viet Hien Mechanical Company

IMPLEMENTATION OF RECP FOR MYANMAR INDUSTRIAL PRODUCTION ENTERPRISES



The pilot national RECP program in Myanmar targets at small and medium sized enterprises to achieve the triple benefits of improved production efficiency; minimized environmental impacts, improved occupational and community health and safety which will ultimately contribute to inclusive and sustainable industrial development.

OVERALL INFORMATION

- **Donor:** UNIDO
- **Host institution:** Myanmar Ministry of Industry
- **Project's implementing partners:** VNCPC, Sofies
- **Duration:** 01/2018 - 06/2018
- **Sector:** Industrial production
- **Region:** Yangon, Mandalay
- **Contact point:** Mr Le Xuan Think - Project Manager
- **Email:** think.lx@vncpc.org
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This was the first time Myanmar enterprises practicing RECP assessment at the factory, therefore, the officials and employees were very excited to participate in and the results are very encouraging.

RECP assessment were conducted at 9 enterprises in 2 time periods including January 22 - 30, 2018 and March 13 - 20, 2018. VNCPC and Sofies instructed and advised participating companies in identifying resources saving and production cost reduction opportunities. Most businesses have set implementation plans to continuously improve the efficiency of the production process, with specific objectives in reduced energy, water and materials consumption as well as wastewaters, solid wastes generation.



Enterprises in Myanmar are interested in implementing RECP at their factories

Specific activities included the following:

- Training for capacity building;
- Site survey, data collection and full RECP assessment in on-site 2 missions;
- Results monitoring and reporting, information dissemination through 2 seminars held on June 25 - 26, 2018 in Yangon.

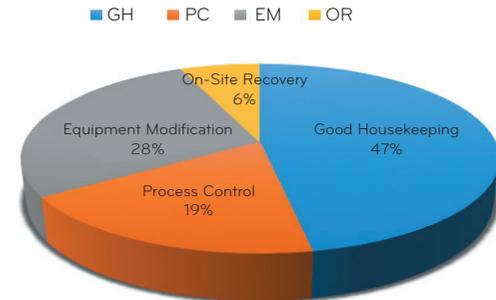
Approach:



Savings achieved in 8 companies

Number of RECP options recommended: 219
 Number of RECP options implemented: 100
 Economic annual savings: 64,459 USD

Reduced consumption/emissions	
Electricity	687,396 kWh
Water	218,064 m ³
CO ₂ emission	~ 3,551 ton
Teq. PCDD/F	~ 87.7μg



Categorization of implemented RECP solutions

COMPILATION OF TRAINING MATERIALS AND HANDBOOK ON GREEN GROWTH

The purpose of the assignment is to develop GG training manual for trainers, who are union officials, and a GG handbook to help raise workers and their families' awareness on GG.

OVERALL INFORMATION

- **Donor:** FES
- **Implementing partner:** SCPRC and VNCPC
- **Duration:** 10/2018 - 05/2019
- **Sectors:** Manufacturing and consumption
- **Region:** Vietnam
- **Contact point:** Ms Nguyen Le Hang - Coordinator
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- **Tel:** (84-24) 3868 4849 - ext 14



In the framework of project "Supporting Training and Consultancy on Green Development Plan for Enterprises" by Friedrich Ebert Stiftung in Vietnam in coordination with Vietnam General Confederation of Labor, VNCLC continues to be selected as contractor to develop the GG training materials and GG handbook.

◆ **Training manual on Green Growth** for union officials, who have been trained in project's previous stages. The manual serves as a reference for them in their future presentations at in-factory training courses on GG.

The manual provides basic knowledge of GG (including efficient use of energy and water, saving of materials, use of chemical safety, green living, etc. in the workplace and households. Some specific examples were also given for sectors such as garment, footwear, food processing, paper and daily life.

◆ **Green Growth Handbook** for groups of workers and their families and normal people. The handbook will help raise employees' awareness of green growth through specific guidelines that can be applied at the workplace, as well as at home to improve the environment, save costs and increase strengthening and protecting health for themselves and the community.

Training activity for introducing and guiding about these two documents will be held in April, 2019.



Bạn cần tạo thói quen "tắt đèn khi không cần chiếu sáng" cho bản thân và các thành viên trong gia đình.

Để đảm bảo an ninh, bạn chỉ cần để một bóng đèn ngoài hiên có công suất thấp vào ban đêm.

Ngoài ra, bóng đèn bị bầm quá nhiều bụi bẩn, dầu mỡ cũng có thể làm giảm 10% lượng ánh sáng.

1.5. Tắt hẳn thiết bị khi không sử dụng

Khi không sử dụng tivi, đầu đĩa, quạt máy, máy tính, ... không nên để chế độ chờ (stand by) mà hãy tắt hẳn.

Trước khi ra khỏi phòng, bạn cũng cần tắt các loại thiết bị điện không cần thiết.



3.2. Không vứt rác bừa bãi

Thải bị vứt bừa bãi sẽ sinh ra các chất độc ô nhiễm nguồn nước, đất và không khí xung quanh, đồng thời gây mất mỹ quan nơi cư sinh sống.

Đẩy bỏ rác thải vào đúng nơi quy định, tạo điều kiện thuận lợi cho việc thu gom, phân loại, tái chế và xử lý tiếp sau.



3.3. Không đốt rác tự phát

Đốt rác thải sinh hoạt tự phát tạo ra rất nhiều chất độc đi vào không khí như: CO, HCl, các loại bụi mịn và hợp chất khí thải gây ung thư. Những chất rắn còn lại sau khi đốt rác sẽ gây ô nhiễm đất và nước ngầm, có thể đi vào thực phẩm (cây trồng, gia súc, gia cầm), và các sinh vật sống.

Chính vì vậy, tuyệt đối không đốt các loại rác thải tự phát mà phải gom lại theo quy định.



GG is a new approach for economic growth, which ensure natural ecosystems restoration and conservation, nurture people's lives and minimize the impacts of climate change.

In Vietnam, the National Strategy on GG was approved by the Prime Minister in September 2012. The Decision No. 1393/QĐ-TTg states three strategic targets including:

- Reducing the intensity of GHG emissions glass and promote the use of clean energy; renewable energy;
- Greening production; and
- Greening lifestyle and promoting sustainable consumption.

ENERGY EFFICIENCY AND GHG EMISSION STANDARDS FOR NON-FIRED BRICK PRODUCTION

The objective of the NFB project is to reduce the annual growth rate of GHG emissions by displacing the use of fossil fuels and the usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks in Vietnam.

The assignment is part of project's component 1 "Policy support for NFB technology development".

OVERALL INFORMATION

- **Donor:** GEF/UNEP
- **Host institution:** MOST
- **Implementing partners:** Institute of Heat Engineering and Refrigeration under Hanoi University of Science and Technology (leading) and VNCPC
- **Duration:** 12/2017 - 09/2018
- **Sector:** Brick production
- **Region:** Vietnam
- **Contact point:** Ms Nguyen Le Hang - Coordinator
- **Email:** hang.nl@vncpc.org
- **Tel:** (84-24) 3868 4849 - ext 14



Implementing team fulfilled all outputs and requirements set by the project management unit and donor, which responded to two key objectives as follows:

- Comparison of energy consumption and GHG emission performance of Concrete Brick and of Fire Clay Brick production in Vietnam; and
- Develop product-based standard for energy efficiency and GHG emissions for Concrete Brick in Vietnam.

The deliverables including two final reports corresponding to the two objectives and company assessment reports were submitted and approved by project management unit and donor by September 2018.

Key activities:

- ◆ **Company site survey and data collection:** Questionnaires were developed for collecting data relating to brick production. There were 6 and 7 companies participating in the site survey activity under objectives 1 and 2, respectively, in the period of December 2017 - January 2018. This served to identify and collecting all data related to energy consumption and GHG emissions from different stages of a brick's life cycle.
- ◆ **Data analysis and reporting:** The implementing team conducted data analysis based on practical data from survey and recognized factors and calculated the energy consumption and corresponding GHG emission for each stage and accumulated "cradle to gate" for functional unit of FCB and CB. Report on objective 1 discusses and highlights the advantage of reduced energy and GHG emission from CB over FCB production in Vietnam, while the report of objective 2 delivers the product based standard for energy efficiency and GHG emissions for CB in Vietnam.



The materials of concrete brick production



Concrete brick production line

SURVEY ON THE POTENTIAL FOR BIOMASS AND WASTE-TO-ENERGY TECHNOLOGY APPLICATION IN VIETNAM

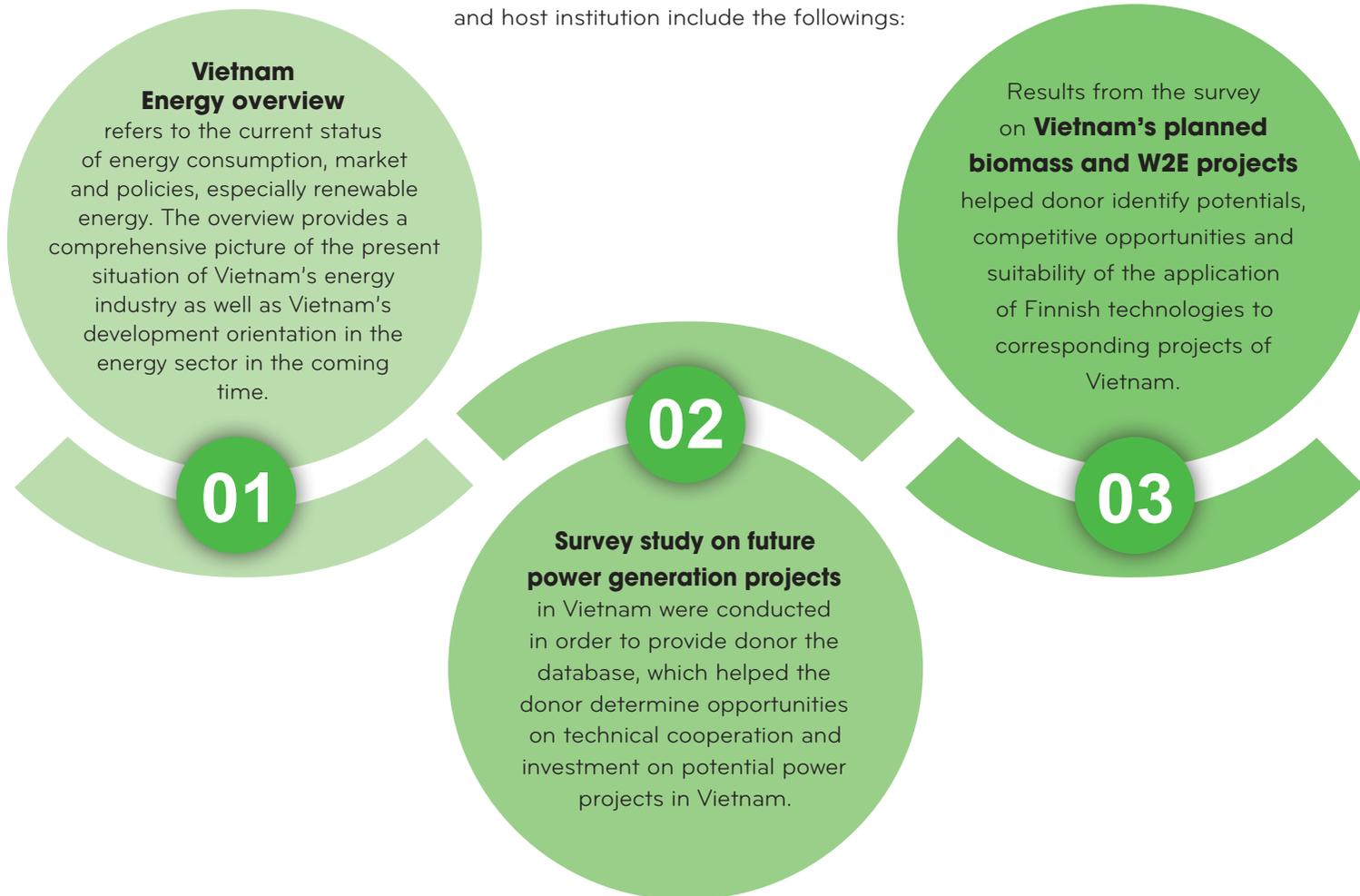


The overall objective of the consultancy service is to identify the potential for biomass- and waste-to-energy technology application in Vietnam. The survey seeks for information on the main potentials for applications and the most profitably commercial applications; identifying key opportunities and challenges in the application of technologies in Vietnam with reference to appropriate Finland's technology.

OVERALL INFORMATION

- **Donors:** EEP Mekong
- **Host institution:** NIRAS Finland Oy
- **Project's implementing partners:** VNCPC
- **Duration:** 08/2018 - 01/2019
- **Sector:** Energy
- **Region:** Vietnam
- **Contact point:** Mr. Nguyen Thanh Trung
- Manager
- **Email:** trung.nt@vncpc.org
- **Tel:** (84-24) 3868 4849 - ext 26

In general, the main tasks of short-term contract was carried out successfully. The final reports submitted to donors and host institution include the followings:



CONSULTANCY AND TECHNICAL SUPPORT FOR RECP

During the period from August to December in 2018, VNCPC team and enterprises' RECP team in the textile, footwear and chemical industries in Ninh Binh, Hai Duong, Bac Giang, Hai Phong and Ben Tre provinces conducted site assessment, data analysis and identified 97 RECP opportunities, which are mainly in good housekeeping, process control and equipment modification categories. The projected savings from the opportunities would help companies save up to 69,000 m³ of water, 3,300 MWh of electricity, 280 tons of LPG annually. This would contribute to the reduction of nearly 4,000 tons CO₂ emission. During September to December period, about 60 RECP solutions has been implemented by companies. Initial results show that annual resource consumption by companies has been reduced by 13,000 m³ of water, 1,770 MWh of electricity and 3 ton of LPG, which are equivalent to 1,600 ton of CO₂ emission.

Key activities:

- ◆ 3 on-site work meetings for assessment and consultation on RECP implementation, which covers thematic energy, water, chemicals and waste management topic.
- ◆ RECP team received instructions from VNCPC on data collection, record and monitoring, losses survey, root cause analysis and RECP opportunity generation for addressing losses, screening and selection of RECP solution for implementation.
- ◆ Reports on the entire consultancy period developed by VNCPC were sent to company to be served as a basis for companies to further consideration of maintaining and sustaining RECP implementation for continuous improvement.



Electricity measurement, steam system assessment and water loss survey

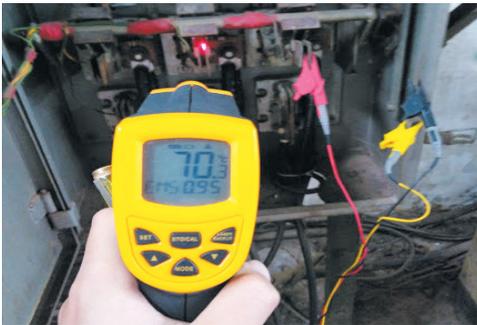
RECP ASSESSMENT FOR TEA ENTERPRISES IN SON LA



Insulation of Tea Withering machine does not function well.



Coal does not combust completely



Bad contact at electric cabinet

The service on RECP assessment for tea enterprises in Son La province was conducted from October to December 2018. VNCP implemented quick assessment and consultancy activities at 2 enterprises in Moc Chau town, which are Chieng Di Tea Joint Stock Company and Vinatea-Moc Chau Join Stock Company - a branch of Tea Corporation Vietnam, with support from Son La Industrial Promotion and Industrial Development Centre under Son La Department of Industry and Trade.

At Chieng Tea Joint Stock Company, 9 RECP opportunities were identified for electricity savings (2), reducing heat loss and coal saving (6) and material recovery (1).

There were 13 RECP opportunities identified at Vinatea-Moc Chau Join Stock Company. These included 7 opportunities for saving electricity and ensure electrical safety, 7 for reducing heat losses (coal saving) during withering, 3 for reducing material losses and improve control of production process.

Proposed solutions were discussed with companies' technical staff and will be implemented at each enterprise in coming year.



Assessment in coal storehouse

COMMUNITY ACTIVITIES

Guiding elementary school pupils to “Green Living” experience

In April, 2018, 32 grade-5 pupils experienced the “Green Living” concept at VNCPC office. The children learnt about the life cycle of popular products in daily life such as paper, plastic bottles, nylon bags... Through the jigsaw puzzle, they learnt the way that products are created and very important thing of products' life after being used by human. This inspires the children on the possibilities of product's smart consumption and recycling in order to protect the nature and healthy life for people.

The children were also instructed to measure their own “Ecological Footprints”, as well as to understand the adverse impacts of human’s production and consumption to the earth.

Through fun, interesting and meaningful clips showed on the day, children were also aware of the waste of resources by human behaviors. Since then, VNCPC introduced them to the green living handbook which helps protect the surrounding environment through simple and practical daily action like limiting the use of nylon bags, using recyclable products, turning off lights when not using, utilizing public transport, bicycling, etc.

The pupils were excited about the game to learn about the product life cycle



VNCPC staff participated in the program “Red Sunday” - humanitarian blood donation

Responding to the 10th Red Sunday's spirit, held on January 21 - 22, 2018 at the Hanoi University of Science and Technology, VNCPC staff enthusiastically participated in the spirit of mutual support.

This was a very significant event, calling for a large number of people, Union members, youth, students... donate blood to prepare a reserve of blood for emergency treatment and treatment of patients in Lunar New Year.



DONORS & NETWORKS - PARTNERS

NHÀ TÀI TRỢ - MẠNG LƯỚI - ĐỐI TÁC



Liên minh châu Âu hỗ trợ thúc đẩy Sản xuất Sạch hơn và Tiêu dùng bền vững tại 18 nước châu Á, trong đó có Việt Nam, thông qua chương trình SWITCH - Asia với đa dạng các lĩnh vực và khu vực/ địa phương.

The European Union support to promote cleaner production and sustainable consumption in 18 Asian countries, including Vietnam, through SWITCH-Asia program with a variety of fields at both regional and local levels.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



Swiss Confederation

Federal Department of Economic Affairs FDEA
State Secretariat for Economic Affairs SECO

SECO là cơ quan của Chính phủ Liên bang Thụy Sĩ, phụ trách tất cả các vấn đề chính liên quan tới chính sách kinh tế và thị trường lao động. Mục đích của SECO là đóng góp vào tăng trưởng kinh tế bền vững, tăng tỷ lệ lao động và điều kiện lao động tốt, bằng cách thúc đẩy các khung pháp lý, kinh tế và chính sách ngoại giao cần thiết.

SECO is the federal government's centre of excellence for all core issues relating to economic and labour market policy. The agency aims to contribute sustained economic growth, high employment and fair working conditions, by creating the necessary regulatory, economic and foreign policy framework.



IFC giúp các nước đang phát triển tăng trưởng bền vững thông qua đầu tư tài chính, huy động vốn từ các thị trường tài chính quốc tế, cung cấp các dịch vụ tư vấn cho các doanh nghiệp và chính phủ.

IFC applies its financial resources, technical expertise, global experience, and innovative thinking to help our partners overcome financial, operational, and political challenges.



Trung tâm Công nghệ Môi trường - ENTEC được thành lập ngày 1998. Hiện trung tâm có đội ngũ cán bộ là những chuyên gia hàng đầu trong lĩnh vực bảo vệ môi trường.

ENTEC was established on 1998. At present, the center has leading experts in the field of environmental protection.



SCPRC được thành lập vào năm 2013, với vai trò là một đối tác tích cực cùng các cơ quan Nhà nước, các tổ chức nghề nghiệp, tổ chức xã hội trong nước và các tổ chức quốc tế thúc đẩy việc xây dựng các mẫu hình sản xuất và tiêu thụ bền vững ở Việt Nam.

SCPRC was established in 2013, as an active partner of state agencies, domestic professional & social organizations and international organizations to promote sustainable production and consumption pattern in Vietnam.



VASEP có mục đích phối hợp, liên kết hoạt động của các doanh nghiệp, giúp nhau nâng cao giá trị, chất lượng, khả năng cạnh tranh của sản phẩm thủy sản Việt Nam; phát triển tạo nguồn nguyên liệu cho chế biến xuất khẩu thủy sản, đại diện và bảo vệ lợi ích hợp pháp, chính đáng của các hội viên.

VASEP aims to coordinate and link enterprises operations, to improve value, quality and competitive capacity of Vietnamese seafood, to enhance source of raw material for seafood export, to represent and to protect legal interests of the members.



Tính đến tháng 5/2018, UNIDO có 168 quốc gia thành viên. Nhiệm vụ của UNIDO là xúc tiến và thúc đẩy phát triển công nghiệp bền vững ở các nước thành viên.

As of May 2018, 168 states are member of UNIDO. The mission of UNIDO is to promote and accelerate inclusive and sustainable industrial development in member states.



Chương trình Môi trường Liên hiệp quốc (UNEP) là cơ quan điều phối các hoạt động môi trường của Liên hiệp quốc, hỗ trợ các nước đang phát triển trong việc thực hiện các chính sách và các cách làm hợp lý về môi trường.

The United Nations Environment Program (UNEP) is the United Nations' coordinating agency for environmental activities, supporting developing countries in implementing environmental policies and practices.



WWF-Việt Nam được công nhận là tổ chức hàng đầu trong lĩnh vực bảo tồn tại Việt Nam, tư vấn các giải pháp, hỗ trợ chính phủ và các bên liên quan trong việc giải quyết các thách thức trong quá trình phát triển quốc gia.

WF-Vietnam is recognized as a leading organization in conservation in Vietnam, advising solutions, supporting governments and stakeholders in addressing challenges in the national development process.



Quỹ Môi trường toàn cầu (GEF) được thành lập trước khi diễn ra Hội nghị Thượng đỉnh Trái đất Rio năm 1992, giúp giải quyết các vấn đề môi trường cấp bách. Hiện GEF đã trở thành đối tác của 183 quốc gia, các tổ chức quốc tế, tổ chức xã hội dân sự và khu vực tư nhân để giải quyết các vấn đề môi trường toàn cầu.

The Global Environment Facility (GEF) was established before the 1992 Rio Earth Summit, which helped solve urgent environmental problems. GEF has now become a partner of 183 countries, international organizations, civil society organizations and the private sector to resolve global environmental issues.



Sofies là đơn vị cung cấp tư vấn bền vững chiến lược, quản lý dự án và dịch vụ. Đơn vị này luôn sử dụng một phương pháp tiếp cận tích hợp dựa trên công nghệ sinh thái.

Sofies provides strategic sustainability consulting, project management and services. Sofies has a proven track record of applying its innovative tailor-made solutions for corporate, public and international organizations.



RECPnet là mạng lưới toàn cầu về Hiệu quả tài nguyên và Sản xuất sạch hơn nhằm thúc đẩy việc ứng dụng RECP và điều chỉnh thích nghi tại các nước đang phát triển và các nền kinh tế chuyển đổi. Các đơn vị bảo trợ là UNIDO và UNEP, hỗ trợ cho RECPnet thông qua chương trình hợp tác RECP. Hiện mạng lưới có mặt tại 5 khu vực, với hơn 70 tổ chức thành viên.

RECPnet is the global network for promoting the widespread adaptation and adoption of Resource Efficient and Cleaner Production in developing and transition economies. As patron agencies, UNIDO and UNEP, provide support for RECPnet through their joint RECP Program. The network is currently available in five regions, with more than 70 member organizations.



Mạng lưới và Trung tâm Công nghệ Khí hậu (CTCN) thúc đẩy chuyển đổi nhanh chóng các công nghệ môi trường an toàn hướng tới sự phát triển carbon thấp và ứng phó với biến đổi khí hậu tại các nước đang phát triển. CTCN cung cấp các giải pháp công nghệ, xây dựng năng lực và khuyến nghị về chính sách, khung chính sách và luật pháp phù hợp với nhu cầu của từng quốc gia.

The CTCN promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. The CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries.