VNCPC
Vietnam Cleaner Production Centre

ANNUAL REPORT 2016

RECP & Green Production

Vietnam Cleaner Production Centre Ltd.
www.vncpc.org

Foreword

2016 ended with many remaining environmental concerns, setting alarm bells ringing for the Vietnamese Government, enterprises, organizations and individuals. We have been working on a number of cooperative mechanisms and agreements; however, that is not enough. Each every one of us, from individuals, organizations to the government must make a stronger commitment to environmental protection and climate change action that play a key role to sustainable growth and prosperity.

In that context, what has inspired VNCPC to commit to sustainable development is the openness of Vietnamese enterprises towards green economic, eco innovation and the long-term cooperation between international and local organisations.

During almost 20 years of operation, VNCPC has strived to become a leading RECP training and consultancy provider in Vietnam. VNCPC has been entrusted to be leading partner and implementing partner of development projects funded by the European Union, Swiss State Secretariat Economic Affairs, United Nations Industrial Development Organisation, International Finance Corporation in order to mainstreaming green industry for a green economy in Vietnam.

We know that Business-as-usual won't be in sync with current pattern of development, in general. It will be gradually replaced with new models of decoupling resource consumption from economic growth. In 2016, VNCPC has actively participated in dissemination and development of green production models in Vietnam, such as Pangasius model farm, Eco-industrial parks initiative, resource efficiency in industry, eco-innovation business model.

These models have help involved enterprises enhance economic performance and reduce environmental impacts by cutting specific consumption of material, energy, water and waste.

Another difficulty for the Vietnamese enterprises to apply the green production models is access to finance support. Through our networks, VNCPC has become a bridge for cooperation, techniques – technology and finance support to enable the enterprises approach eco-innovation. In 2016 particularly, there were five enterprises receiving partial financial supports for investment projects in cleaner technology with total amount of 40 billion VND in the framework of Green Credit Trust Fund.

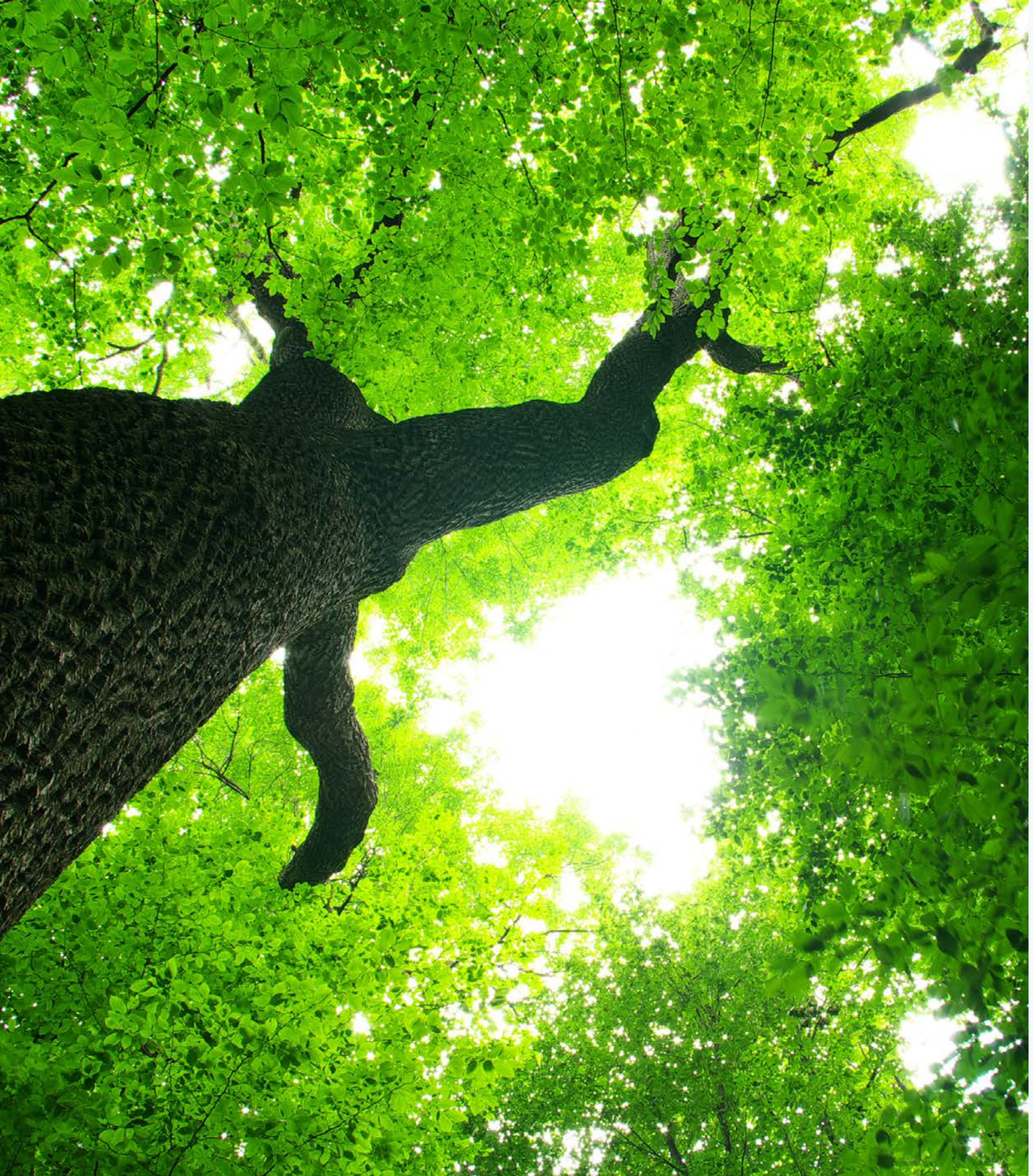
To gain the mentioned results, VNCPC team recognises that it's essential to continuously cultivate knowledge, experience on RECP and broaden up the network. VNCPC is a regular member of Global network for RECP by UNIDO-UNEP (RECP*net*) and Climate Technology Centre and Network (CTCN) in order to exchange RECP and eco-innovation knowledge and experience across the region and globe; as well as seeking cooperation opportunities in the field.

These achievements and cooperation have driven VNCPC's commitment to promote sustainable consumption and production, contributing to green growth strategy of the Vietnam Government. On this occasion, I express my gratitude to the European Union, Swiss State Secretariat Economic Affairs, United Nations Industrial Development Organisation, International Finance Corporation – World Bank Group, Vietnam Association of Seafood Exporters and Producers, Worldwide Fund for Nature in Vietnam and Austria, SOFIES, Vietnam Southern Food Corporation, Hanoi University of Science and Technology and municipal authorities, organisations, enterprises, international and national experts for your company throughout the year.

We express our high appreciation and call for cooperation amongst donors, organisations and individuals to contribute to green economy towards a sustainable development and a society of prosperity in Vietnam.

Assoc. Prof. Trần Văn Nhân, Director of Vietnam Cleaner Production Centre Ltd.

Content



INTRODUCTION

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.

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.

CORE VALUES

– Dedicated – Innovated – Responsible for Sustainable Production and Consumption;

– Respect – Share – Eager to learn – Partnerships for mutual development.

OUR CAPACITY

Capacity building on Resources Efficient and Cleaner Production

With the use of RECP approach in collaboration with Energy Efficiency (EE), Environmental Management System (EMS/ISO 14000), Corporate Social Responsibility (CSR) and Sustainable Product Innovation (SPIN), VNCPC helps clients build capacity on RECP, improve competitiveness capacity by reducing input consumption of the production and contribute to the development of green industry.

Consultancy and technical supports for RECP and RECP+ assessment

With the use of knowledge on RECP and Production System Analysis, VNCPC helps enterprises indentify the problems in Resources Efficiency, proposes the root solutions for reducing the production cost in order to improve the long-term business efficiency. This will contributes to climate change adaptation and environmental protection, towards sustainable development.

RECP Quick assessment

RECP approach will be applied to propose the measures on Resource Efficiency that saves raw materials, water and energy in the production and estimates saving potential.

Awareness training on Sustainable Consumption and Production (SCP) and RECP

SCP and RECP approaches will be used in training on awareness raising on resource efficient and cleaner production as well as sustainable consumption and production.

Establishing a Sustainable Pangasius Supply Chain in Vietnam

The project combines two components: “Push” and “Pull”. The “Push” helps enhance capacity and provide technical supports to involved stakeholders of the supply chain in Vietnam towards the implementation of Resource efficient and cleaner production, as well as strengthen networking and sharing. The “Pull” enforces promotion and marketing activities to establish market links, organize buying missions and promote European buyers to participate in Vietfish fairs and, in order to improve the image of Vietnamese Pangasisus in European markets.

Website: www.supa.vasep.com.vn

Donor: The European Union

Implementing Partners: Vietnam Cleaner Production Centre, Vietnam Association of Seafood Exporters and Producers, Worldwide Fund for Nature in Vienam and Austria

Duration: 2013 - 2017

Sector: Aquaculture

Region: The Mekong Delta, Vietnam

Contact point:
Mr. Lê Xuân Thịnh
Project Manager, VNCPC
thinh.lx@vncpc.org | (84-4) 3868 4849 - ext 28

1_RECP ASSESSMENT FOR PANGASIUS PROCESSING SMEs

IN 2016, The SUPA project implemented quick RECP assessment for 25 processing SMEs and full RECP assessment for 36 processing SMEs.

Thank to quick RECP assessment, the enterprises have been aware of oportunities and solutions to improve resource efficiency. Three hundred staffs of the enterprises who received full RECP assessments have been trained on RECP. After the participation in the project, the engaged enterprises are able to implement and maintain RECP programmes by themselves to improve their production efficiency.

According to VNCPC experts, there are several existing issues of the pangasisus processing enterprises regarding RECP, including inefficient operation of the refrigerant systems, lack of proper maintenance for machines and equipment, high production cost (electricity, water, reproducing due to low product quality, waste energy and labour).

With the application of RECP solutions, the 54 enterprises have gained economic benefit by saving 66.829 million VND per year.

INDICATOR	CHANGE
Resource use	Save
Electricity	33,676,245kWh/year
Water	937,420m^3/year
Emission	Reduce
CO_2	21,168 tons/year

2_SUSTAINABLE PRODUCT INNOVATION IN 7 SMEs

SPI experts, consumers and enterprises have co-created 20 innovative pangasius products toward sustainability, including 10 newly designed products and 10 re-designed ones. Most of the parts of the pangasius have been utilized, which has brought economic value as well as developed domestic market because of the variety of product types.

Normally, by-products of pangasius fillet account for 50%. Of which, head, bones, organs, and fat have been used for fish powder and fish oil production. Others have not been utilized and have been sold at a very cheap price for cattle feed. In the case of bad management, some of by-products have gone into wastewater, leading to the increase in wastewater treatment cost or water pollution for the ambient environment.

Benefits of SPI:

• Optimizing the value of by-products to improve profit for pangasius producers;

• Reducing environmental impacts: the separation of blood at killing fish stage helps reduce the cost of wastewater treatment. In addition, the products from fish blood contribute to increase profit for the producers and enhance nutrition for people and/or cattle.

• Reducing the cost of cold storage

• Sustaining the pangasius processing sector by increasing the value of pangasisus which can contribute to sustainable development of the entire supply chain.

3_CO-CREATION GUIDELINES FOR PANGASIUS PRODUCTS AND CO-CREATION WORKSHOPS

The project organised 20 co-creation workshops with consumer groups in Ho Chi Minh City, Can Tho an Da Nang; and 2 workshops with European consumers. This resulted in inputs for the products innovation and development in the SMEs, especially domestic products. Further more, the consumers co-worked on packaging and image improvement of the pangasius in the eye of the consumers.

4_PANGASIUS MODEL FARM COMPLETION AND OPERATION

The model farm is to serve research, placement, experiment, and professional training, as well as demonstrate new technologies before applying in pangasius farms and households. These techniques are transferred to enterprises in need. After the SUPA project closes, the model farm will be handed over to "Centre for Research and Development of Advanced techical application for Fisheries" under the College of Aquaculture and Fisheries (Can Tho University) to continuously maintain study activities.

There were 20 study tours to the model farm with the participation of 500 technical staffs of SMEs and and local fisheries departments representatives.

Photo: Research on pangasius farming at the model farm. Source: VNCPC.

5_ADVANCED TECHNIQUES FOR PANGASIUS HATCHERY PROCESS

There were two researches finished by technical experts of the project:

1. "**Investigation on maturation and reproduction of striped catfish (P. hypophthalmus Sauvage, 1878) in different sources in the Mekong delta**". The study indicated that pangasius broodstock employed from the wild have higher reproductive capacity in comparison with farmed pangasisus broodstock. To illustrate, real reproduction (egg/kg) increased by 58-68%.

2. "**The effect of Phytase supplementary in diets on feed utilization and water quality in Tra catfish (pangasianodon hypophthamus) intensive pond culture**". The study has helped increase growth rate of pangasius by 47.8% at the same time of pollution reduction of farming ponds by cutting 19% the content of total phosphor.

The outputs of these researches have been used as training materials for awareness raising for hatchery households.

6_AWARENESS RAISING SEMINARS FOR HOUSEHOLDS AND LOCAL GOVERNMENT

The project organised 9 half-day training seminars with about 500 participants (farmers, technical staff and managerial staff from fisheries department of local authority).

After participating in the training seminars, the farmers/participants gained knowledge, techniques, and solutions to enhance their operation efficiency; and accessed to new techniques in fingerling production and disease prevention and treatment.

Awareness of the local authority has been raised and they have been keep updated with lastest information of the pangasius sector, which helps enhance management performance in the sector.

CASE STUDY

RECP APPLICATION IN PANGASIUS PROCESSING

The Europe Joint Stock Company – Hung Vuong is one of the largest processing factories of fillet pangasius for export in Vietnam, which runs a closed system of producing breed, aquaculture, processing, and exporting.

The company has 1200 skilled employees, with a production capacity of 500 tons of material per day. The company's products strictly commit to quality standards such as: HACCP, HALAL, ISO 17025, ISO 22000, BRC, IFS, GLOBAL G.A.P; and are mainly exported to the United State, European countries, Australia, South American countries, Middle East, Ukraine, and Russia.

RECP ASSESSMENT

VNCPC's experts implemented RECP assessment in the factory for 3 days.

The company sent 48 staff who were from different parts in the company to participate in the RECP training seminar and RECP assessment together with VNCPC's experts. By analysing, measuring, and assessing the production process, a number of RECP options were proposed to improve the resource use performance of the company with potentials for reducing water, electricity, and material consumption.

RECP SOLUTIONS

RECP options were proposed including::

(1) Good housekeeping (checking and maintaining the electric system, repairing electrical leakage);

(2) Equipment modification (Installing capacitor to prevent overloading electric wires);

(3) Process control (Optimizing water use for domestic and production activities);

(4) Technological change (Replacing the water heating system from resistor system to heat-pump combined solar system).

Except for the options of group (4), other RECP options are low cost and can be immediately implemented. All options may bring great economic and environmental benefits for the company.

BENEFITS OF RECP IMPLEMENTATION

RECP implementation brings benefits for the company regarding technical, economic, and environmental aspect. This program also helps the business to reduce their production cost and improve their competition in the market.

Group of RECP solutions	Potential Technical benefit (Reduced resource use/year)	Potential Economic benefit (Saving - VND/year)	Potential Environmental benefit (Reduced emission/year)
Electrical maintainance	216,000 kWh	324,000,000	112.480 tons CO_2
Installing capacitors	33,066 kWh	49,600,000	19,500 tons CO_2
Optimizing water use	35,000 m^3	105,000,000	35,000 m^3 wastewater
Installing heat pump and solar system	229,520 kWh	449,200,000	132,272 tons CO_2

GREEN CREDIT TRUST FUND

Green Credit Trust Fund

The objective of the GCTF is to promote long-term investments in cleaner technology. GCTF serves as a financial support measure for SMEs in Vietnam to be more determined to replace existing obsolete equipment and technology by advanced ones.

Website: www.gctf.vn

Donor: Swiss State Secretariat for Economic Affairs

Partners: Vietnam Cleaner Production Centre, Techcombank, Asia Commercial Bank, Vietnam International Bank

Duration: 2007 - 2017

Sector: Industry and services

Region: Vietnam

Contact point:
Ms. Nguyễn Lê Hằng
Project officer, VNCPC
hang.nl@vncpc.org | (84-4) 3868 4849 - ext 14

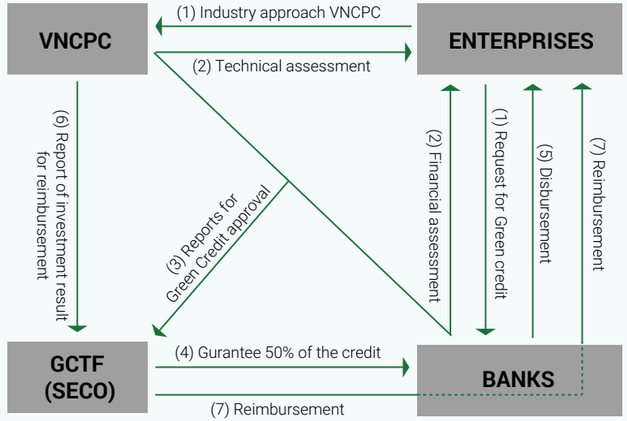


***Figure 1**: Process to give Green credit to enterprises that fulfill all conditions of the GCTF*

On the one hand, the GCTF facilitates the access to finance for Vietnamese Small and Medium Enterprises (SMEs) with insufficient collateral by guaranteeing 50% of the credit granted to the SME by local Joint Stock Banks (JSB) to a maximum of 500,000USD.

On the other hand, the GCTF reimburses the SME up to 25% of the investment costs to a maximum of 200,000USD if the SME has achieved certain environmental improvements.

1_SUPPORTING SMEs TO DEVELOP GCTF PROJECT AND COORDINATING THE PROJECT IMPLEMENTATION.

In the project, VNCPC plays a coordinating role between GCTF's partners as well as first technical appraisal on proposed investment projects.

Receiving proposed projects, VNCPC would conduct initial screen against the Fund's 16 criteria. Screened projects will be passed to the selected banks for financial appraisal. VNCPC conducts onsite investigation and measurement as well as develops the full assessment report on the project's environmental and technical appraisal. The report is also reviewed by the second technical appraiser in Switzerland before submitted to the Fund.

For approved GCTF projects, VNCPC will do on-site measurement after the installation and operation of proposed technology and determined the level of project's reimbursement for submitting to the Fund.

In 2016, the Fund has committed to give supports to eight projects that have shown significant results in CO_2 reduction.

In detail, there were 5 projects receiving reimbursement in 2016, in which the reimbursement level of 3 projects are determined at 25% (selected environmental improvement more than 50%), while that of 2 others are 15% (selected environmental improvement more than 30% and below 50%).

ENTERPRISE	INNOVATION
HT Vina	Boiler
Lửa Việt Paper	Boiler
Hoàng Hà Paper (Hà Nam)	Boiler
Mục Sơn Paper	Boiler
Tây Đô Steel	CNG supply
Hoàng Hà Paper (Hải Phòng)	Kraft paper production line
Bắc Hà Paper	New Kraft paper production line
Đại Hưng Tín Plastics	Servo-motor injection moulding machines

The rest 3 projects are going to finish in 2017 in plan.

2_CASE STUDY OF CLEANER TECHNOLOGY INVESTMENT

HT Vina Investment JSC is a Cardboard packaging box producer to serve domestic market with workforce of 180 employees and turnover of 10,000,000 USD per year. The factory is located at Hapro Industrial Zone, Lệ Chi Commune, Gia Lâm district, Hanoi.

In the production, the existing coal-fired fixed grate boiler was to produce steam for corrugating and drying the cardboard. The GCTF supported the company to replace it with a new coal-biomass co-fired fluidized bed boiler. The change allows the company to use biomass fuel such as husk, saw dust, agricultural residue briquette, etc. therefore reduce or eliminate coal consumption. The investment costs the company a total amount of 241,704USD.

The new boiler using biomass instead of coal has proven to enable the reduction of GHG emission. The CO_2 emission per ton of finished product was reduced up to 99% approximately. Overall CO_2 emission reduction could be achieved at more than 3,936 tons per annum. Accordingly, the company received 25% reimbursement of the approved credit, equivalent to 39,238 USD.

INDICATOR	CHANGE
Environmental benefit	
CO_2 emission [t/t] Old -> New	242.17 -> 2.19
CO_2 emission reduction	99.10%
Economic savings	
Total savings	86,702 USD per year
Reduced investment under GCTF	202,466 USD

Further significant improvements are:

- Reduced consumption of fossil fuel (coal);
- Reduced cost for purchasing fuel;
- Reduced harmful slag;
- Reduced unprompted biomass fire on the rice field, which makes uncomfortable to inhabitants every rice season ending

Photo: Coal-biomass co-fired fluidized bed boiler HT Vina. Source: VNCPC.

"The management of HT Vina Investment JSC is committed with high quality cardboard packaging boxes supplied to clients while strive to minimize the impacts to surrounding residential area."

Mr. Đỗ Xuân Thọ
Director

Industrial Waste Minimization for Low-carbon production

The project is under the global joint UNIDO-UNEP Programme on Resource Efficient and Cleaner Production (RECP) in Developing and Transition Countries. The aim of the project is to achieve step-reductions in the generation of industrial waste and by-products, including organic materials, as well as to foster their valorization. In Vietnam, the project has been supporting rice and coffee sectors.

Donor: Swiss State Secretariat for Economic Affairs

Coordinator: United Nations Industrial Development Organisation

Implementing Partners: Vietnam Cleaner Production Centre, Sofies (Switzerland), Vietnam Southern Food Corporation (Vinafood II)

Duration: 2013 - 2017

Sector: Rice and Coffee processing

Region: The Mekong Delta and Central Highlands, Vietnam

Contact point:
Mr. Nguyễn Thành Trung
Project Manager, VNCPC
trung.nt@vncpc.org | (84-4) 3868 4849 - ext 26

1_RESOURCE EFFICIENT AND CLEANER PRODUCTION ASSESSMENT (RECP)

VNCPC carried out RECP assessment for 6 rice processing factories under Vinafood II, including Dong Thap, Tien Giang, Vinh Long, Thot Not, Long An and Ho Chi Minh city Food companies.

This has resulted in saving 55,000 USD/year and reducing 408 tons CO_2 per year

Several usual solutions can be listed such as increase natural light by applying white panels on roof; replace existing lamps by electricity saving ones; regularly clean maintain electrical cabinets and motors; clean filter of compressor; install capacitors for internal electrical system.

After that, Vinafood II has implemented RECP programmes for their other factories and companies with technical support of the project's experts.

2_DEVELOP A BUSINESS MODEL TOOL TO SUPPORT COMPANY IN DECISION MAKING

The project developed a business model tool to support the rice companies in investment plan to improve product quality, economic efficiency and reduce production cost as well as environmental impacts.

The tool has been applied to analyze investment project "Paddy drying system" in Tien Giang and Vinh Long Food companies. This investment component is under its development strategy to improve rice quality and production efficiency; reduce loss after harvesting; increase benefit and ensure national food security.

The result of tool application has been disseminated in a workshop held in Vinafood II head-quarter in November 2016.

Photo: Chợ Gạo Thốt Nốt Factory, Cần Thơ. Source: VNCPC.

Photo: RECP assessment at factory. Source: VNCPC.

3_SUPPORT TECHNOLOGY TRANSFER FROM SWITZERLAND TO VIET HIEN MECHANICAL COMPANY

Pyrolysis technology using coffee hard shell has been successfully transferred to Viet Hien Mechanical Company.

The pyrolysis technology has been successfully applied in Vietnam context, using coffee hard shell as fuel. The generated heat can be used to dry coffee and other agricultural products. Besides, byproduct of pyrolysis process is biochar can be used to produce a good fertilizer which can store water for the tree.

The technology has been applied for Binh Minh cooperative at Cusue commune, Daklak province.

The existing system consumes 100 kg coffee hard shell per hour and generates 30 kg biochar per hour. The price of biochar is about 8,000 VND/kg. Hence, it has high potential to apply, especially in the urban areas. It also can use many kinds of agricultural waste and dry many agricultural products and improve soil quality. Moreover, this technology also helps protect environment because it will not generate smoke.

Resource Efficiency in Industry

Component **"Resource Efficiency Assessments in seafood processing firms for Vietnam Resource Efficiency – Tho Quang Seafood Service Industrial Zone"** implemented by VNCPC is to collect resource consumption baseline in industry and to provide solutions to enhance resource efficiency in seafood processing. The component is also to identify industrial symbiosis, waste to energy, and renewable energy projects at selected seafood industrial zones.

Donor: International Finance Corporation
- World Bank Group

Partner: United Nations Industrial Development Organisation

Consulting firm: Vietnam Cleaner Production Centre

Duration: 9/2015 - 6/2017

Sector: Seafood

Region: Tho Quang Seafood Service Industrial Zone, Da Nang

Contact point:
Ms. Đặng Nguyên Nhung
Component Manager, VNCPC
nhung.dn@vncpc.org | (84-4) 3868 4849 - ext 26

IFC International Finance Corporation WORLD BANK GROUP

UNIDO VNCPC Vietnam Cleaner Production Centre

Photo: Filleting fish at the factory. Source: VNCPC

1_KICK-OFF RECP

A meeting was held with the participation of the project and involved company's representatives to introduce generally about the project, summarize the results of RECP quick assessment that was conducted in October 2015.

VNCPC also identified the company's concerns in resource and energy efficiency to select focus points of assessment and collected basic data of resource consumption including material, electricity, fuel, water, chemicals and waste.

Only Sơn Trà JSC involved in full RECP assessment. VNCPC experts found out that specific power consumption of the company is 3 times higher than those of other companies in the same sector. It is too high, up to 2,380 kWh/ton of product (2015).

2_RECP TRAINING AND DETAILED ANALYSIS OF PRODUCTION LINE

The project organised RECP training workhops on RECP to provide the company with RECP knowledge through presentations, analysis, group exercises and answer their questions during the workshop. In addition, references and tools for RECP assessment were given to the company.

Participating in the workshop were seven staffs from Son Tra Seafood Processing JSC. After being trained, the participants properly understood the RECP definition and importance to industries and benefits of RECP application.

Next step, they will strengthen their capability of implementing RECP assessment at their company.

3_DEVELOPMENT OF RECP OPTIONS AND ACTION PLANS AT THE COMPANY

VNCPC experts reviewed results of RECP implementation and consulted the company on other solutions that have not been implemented.

To illustrate, Son Tra has potentials for electricity savings of 150,000 kWh per year, equivalent to 13,000 USD and expects to reduce 82 tons of CO_2 per year.

Due to some changes and difficulties that the company was facing, only some solutions were conducted.

4_TECHNICAL SUPPORT TO IFC IN COLLABORATION WITH KICOX TO ASSESS POTENTIAL OF INDUSTRIAL SYMBIOSIS APLLICATIONS FOR HOA KHANH INDUSTRIAL ZONE IN DA NANG

VNCPC collected data on water and heat consumption of 20 companies in Hoa Khanh IZ and suggested several companies that have saving potentials for further study.

Based on collected data and suggestion, Kicox made an analysis on potential of industrial symbiosis applications for Hoa Khanh IZ and the results were presented in a workshop in September 2016 in Da Nang, such as heat network between steel companies and paper mill companies, ash network between construction product companies and ash producing companies, waste-to-energy networks using combustible solid waste generated in Hoa Khanh Industrial Zone, water network between tenants companies with collaboration of DAIZICO (Danang Industrial Zone Infrastructure Company).

Photo: Mr. Dinh Manh Thang - VNCPC expert - is instructing RECP assessment at the factory. Source: VNCPC

Eco-industrial Parks Innitiatives for Sustainable Industrial Zones in Vietnam

VNCPC is the consulting firm of component **"Resource Efficient Cleaner Production and Chemical Management Assessments"**. This is to help enterprises enhance productivity, reduce environmental impacts and resource consumption. The RECP assessment at company level contributes to the transition to Eco-industrial parks in Vietnam.

Donors: Global Environment Fund, Swiss State Secretariat Economic Affairs, United Nations Industrial Development Organisation

Implementing partners: Vietnam Ministry of Planning and Investment, municipal authorities of Ninh Binh, Da Nang, Can Tho

Duration: 2016 - 2018

Sector: Multi-sector

Region: Ninh Bình, Đà Nẵng, Cần Thơ

Contact point:
Mr. Đinh Mạnh Thắng
Component Manager, VNCPC
thang.dm@vncpc.org | (84-4) 3868 4849 - ext 25

1_RECP TRAINING & IN-DEPTH RECP ASSESSMENT FOR ENTERPRISES

In 2016, VNCPC conducted two batches of RECP training and in-depth RECP assessment for enterprises in three target industrial zones.

1.1_Batch 1:

RECP training for enterprises

There were three 3-day training courses at the three IZs with the participation of 107 staff from 34 enterprises, project management units and IZ management boards.

In-depth RECP assessment at 23 companies

Module 1

- Discussion of baseline information and identification of focal area for RECP assessment
- Material & energy balances and benchmark identification
- Cost assignment for waste streams

Module 2

- Causes analysis and development of RECP options
- Screening RECP options
- Feasibility study and selection of RECP measures for implementation
- Analyze causes of waste stream
- Develop RECP options for each cause

Module 3

- Review implementation of obvious options
- Conduct technical and economic feasibility studies and environmental aspect of high cost RECP solutions
- Select RECP solutions and develop implementation plan
- Implement selected RECP solutions

Module 4

- Monitor and evaluate results of implementing RECP solutions
- Review the benchmarks of production and pollution before and after implementing solutions
- Discuss on how to sustain RECP at company

Until August 2016, 402 RECP options have been suggested to the participating companies. Total invested amount on RECP solutions of the three industrial zones is 54,52 billion VND.

INDICATOR	CHANGE
Waste/Emission	Reduce
Wastewater	108,163 m^3
CO_2	3,715 tons
Economic benefit	Savings
Reduction of energy and water consumption	14,225 billion VND

Most of high investment solutions will be conducted by companies themselves without financial support;

Furthermore, they have already had deep perception on how many benefits they can achieve from RECP investment solutions, then they are willing to invest without relying on any outer support.

1.2_Batch 2:

RECP training for enterprises

VNCPC organised two 2-day training course at Tra Noc and Hoa Khanh IZ with the participation of 43 staff from 22 companies.

In-depth RECP assessment at 23 companies

Module 1

- Discussion of baseline information and identification of focal area for RECP assessment
- Material & energy balances and benchmark identification
- Cost assignment for waste streams

Module 2

- Causes analysis and development of RECP options
- Screening RECP options
- Feasibility study and selection of RECP measures for implementation
- Analyze causes of waste stream
- Develop RECP options for each cause

After being trained, the participants properly understood the RECP definition and importance to industries and benefits of RECP application. Next step, they will strengthen their capability of implementing RECP assessment by collaborating with VNCPC experts and at their companies.

2_MONITORING ACTIVITIES OF BATCH 1

VNCPC collected production data and waste status from the month after RECP assessment ended till the time of monitoring and was going to evaluate efficiency of RECP implementation and maintenance.

Photo: Conducting RECP assessment at the company. Source: VNCPC.

DONORS & CLIENTS

The European Union, SWITCH-Asia

Setting “sustainable consumption and production” (SCP) as a priority in the regional cooperation strategy, in 2008 the European Commission launched the SWITCH-Asia programme to help interested consumers, businesses and supporting associations switch to a more sustainable paradigm. The goal of the programme is to promote economic prosperity and help reduce poverty in Asia by encouraging a sustainable growth with low environmental impact from industries and consumers, in line with international environmental agreements and processes.

Swiss State Secretariat Economic Affairs – SECO

SECO is the federal government’s centre of excellence for all core issues relating to economic and labour market policy. It is our aim to contribute to sustained economic growth, high employment and fair working conditions, by creating the necessary regulatory, economic and foreign policy framework. The content is available in German, French and Italian.

International Finance Corporation - World Bank Group

IFC, a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector in developing countries. IFC utilizes and leverages its products and services - as well as products and services of other

institutions in the World Bank Group - to provide development solutions customized to meet clients’ needs. .

United Nations Industrial Development Organisation – UNIDO

UNIDO has been present in Viet Nam since 1978 and providing technical assistance to the Government of Viet Nam in accordance with high international standards. As in other country offices, the overall mission of the UNIDO Country Office in Viet Nam is to strengthen Viet Nam’s sustainable industrial development and competitiveness. To reach the objective to become a modern industrialized country by 2020, UNIDO’s Country Office in Viet Nam is generating new ideas with the Government, business sector, the donor community and some three hundred technical specialists based at UNIDO’s Headquarters in Vienna, Austria.

NETWORKS

Global Network for Resource Efficient and Cleaner Production – RECPnet

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 Programme. RECPnet aims to enable and contribute to the effective and efficient development, application, adaptation and replication of RECP concepts, methods, policies, practices and technologies in developing and transition countries and to facilitate effective North-South and South-South collaboration and the transfer of RECP-relevant knowledge, experiences and technologies. RECPnet has been formalized by its Charter and counts 70 members.

Climate Technology Centre and Network – CTCN

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.

The CTCN consists of two parts: a centre—a coordinating entity located in UN City Copenhagen—and a worldwide network of organizations that delivers CTCN services—both virtually and actually.

PARTNERS

Vietnam Association of Seadfood Exporters and Producers (VASEP)

VASEP is a non-governmental organization, based on the principles of volunteer, autonomy and equality. VASEP members include leading Vietnamese seafood producers and exporters with companies providing services in seafood sector. Based on mutual supports, the association was established on June 12th 1998 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.

World Wide Fund for Nature in Vietnam and Austria

WWF was one of the first international non-government organizations working in Vietnam. WWF has worked closely with the Vietnamese government on a diverse range of environmental issues and implemented field activities across the country. WWF-Vietnam is recognised as the leading conservation organization in the country, strongly rooted in Vietnam, bringing solutions and support to government and other key players to meet the country’s development challenges.

SOFIES

Sofies provides strategic sustainability consulting, project management and services. Using an integrative approach based on industrial ecology, Sofies successfully addresses growing environmental and socio-economic challenges. Sofies has a proven track record of applying its innovative tailor-made solutions for corporate, public and international organizations. Our services are based on scientifically acknowledged tools and methodologies related to environmental management and assessment.

Vietnam Technological and Commercial Joint-Stock Bank – Techcombank

Vietnam Technological and Commercial Joint- stock Bank (TechcomBank), established in 1993, is one of the largest joint-stock commercial banks in Vietnam. Through 19 years of continuous development, TechcomBank has achieved many successful and become a standing bank in Vietnam.

Asia Commercial Bank – ACB

ACB is one of the leading joint stock commercial banks in Vietnam, with the branch network system nationally with nearly 9,000 employees and many various products and services.

Vietnam International Commercial Joint stock Bank – VIB

Vietnam International Commercial Joint Stock Bank, abbreviated as Vietnam International Bank (VIB), was founded on 18th September 1996, with its head office based at 16 Phan Chu Trinh, Hoan Kiem District, Hanoi. After 20 years in operation, we have become one of the leading commercial joint stock banks in Vietnam, with 4,000 people working at nearly 160 branches and transaction offices in 27 key provinces/ cities across the country.

Address:

Vietnam Cleaner Production Centre Ltd.

R228B, Ta Quang Buu E-library Building,
Hanoi University of Science and Technology
No. 01 Dai Co Viet, Hai Ba Trung District, Hanoi

(84-4) 3868 4849 | vncpc@vncpc.org

Resource Efficient and Cleaner Production

Sustainable consumption and production is now at the forefront of the international agenda. At a global level, sustainable industrial development is an accepted practice and the key to this is through Resource Efficient and Cleaner production (RECP).

RECP entails the continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to communities and the environment. RECP addresses three sustainability dimensions individually and synergistically:

In developing and transition economies, the shift towards material use reduction is under way, but there is room for further development in the global South without endangering societies or the environment. By implementing RECP services, industries can reduce the material, energy and pollution intensity per unit of industrial output; thereby reducing the global ecological footprint while simultaneously improving productivity and competitiveness.

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Global network for RECP - RECP*net*