

ANNUAL REPORT 2017



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 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.

- *Global network for RECP – RECPnet* -

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FOREWORD

In the past 25 years, industrial development, especially industrial zones, has contributed significantly to Vietnam's average annual GDP growth rate of over 6%. However, this also leads to increased demand for energy and resources consumption and serious environmental problems such as pollution, ecosystem depletion and resource exhaustion, particularly water source. The sustainable development of our country is facing many challenges, especially:

- ✔ To improve production efficiency and competitiveness is the must for the process of integration into the world economy;
- ✔ Vietnam is in top 5 countries most vulnerable to the effects of climate change;
- ✔ The level of technology and management of Vietnamese enterprises lags behind that of developed countries in the region.

Therefore, Vietnam's National Green Growth Strategy for the period of 2013 - 2020 with a vision to 2050 has emphasized on reducing GHG emission intensity & increasing the rate of renewable energy use and greening production, which are two among three strategic tasks.

In the year of 2017, VNCPC focused on scaling up the application of "Resource Efficiency and Cleaner Production" (RECP) approach in enterprises within industrial parks. Through capacity building and in-plant consulting activities, enterprises have received VNCPC's technical assistance to develop and implement RECP solutions for more efficient use of raw materials, energy and water as well as better chemicals safety management and reduced waste generation. This has resulted in economic and environmental benefits for enterprises, workers and community, and at the same time, contributed to the conservation of resources for the country's green growth and sustainable development.

Our biggest wish is that the enterprises sustain their results achieved after their project participation in projects and the implementation of RECP is scaled up in other industries and sectors.

On this occasion, VNCPC would like to express our sincere thanks to our partner organizations: MPI, VASEP, WWF Vietnam, WWF Austria, College of Aquaculture & Fisheries (Can Tho University), Sofies Switzerland, Eco-Industrial Park Project Office, The Management Board of Industrial Parks in Ninh Binh, Da Nang, Can Tho and enterprises for their effective contribution and cooperation in the implementation of the projects. We VNCPC would also like to express our profound gratitude and sincere thanks to the EU, SECO and UNIDO have entrusted us to implement these important projects.

Assoc. Prof. Tran Van Nhan, Director
VNCPC







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ABOUT US

On April 22nd, 1998 Vietnam Cleaner Production Centre, which is predecessor of VNCPC Cleaner Production Centre Company Ltd. (VNCPC) was established within the framework of project VIE/96/063 signed between Ministry of Education and Training and United Nations Industrial Development Organization (UNIDO) under the financial support of Swiss State Secretariat for Economic Affairs (SECO).

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

Aiming at sustainable consumption and production in Vietnam and other countries in the region, VNCPC has made its great effort in providing capacity building and consultancy services on RECP and RECP+ (e.g. sustainable production innovation, corporate social responsibility, environmental management system/ISO14000) to various client groups, such as manufacturing and service enterprises, training/education and research and state authorities.

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

PROJECT HIGHLIGHTS

• EIP

Implementing RECP, participating companies have saved 32.86 billion VND (1,448,215 USD) by reducing specific consumption of raw materials, water, energy and chemicals for the production.

• SUPA

2 - 5 billion VND per year is the cost of each enterprise saved when participating in the project.

• GCTF

50% is guarantee support that an enterprise can receive from GCTF when proposing good technology change investment project to commercial bank for a credit loan.

25% is maximum level of GCTF's reimbursement of money granted to the enterprise implementing the proposed investment project effectively.

• LOW CARBON

A annual saving of 1.08 million kwh (~80,000 USD) and reduction of 621 tons of CO₂ are the results that participating coffee and rice processing enterprises have achieved during project.

A photograph of a rice mill facility. In the foreground, several large, white, industrial-grade machines are visible, likely rice mills. The machines have circular openings and control panels. In the background, a man in a blue shirt and shorts is working at one of the machines. The floor is concrete, and there are several large, round, woven baskets on the ground. The overall scene is an industrial setting for rice processing.

2017 ON-GOING PROJECTS



The SUPA project mainstreams sustainable practices throughout the entire pangasius supply chain by accessing all links of the chain and enhancing collaboration among stakeholders.

The “Pull” component focused in establishing market links, enhancing communication and awareness raising and improving the image of Vietnamese pangasius products in the eye of European consumers.

The “Push” component helped enhance the capacity and provide technical supports to involved stakeholders in the production stage to mainstream resource efficient and cleaner production and meet EU’s product standards.

GENERAL INFORMATION

Donors: European Union (EU) through Switch-Asia

Host institution: Hanoi University of Science and Technology

Project’s implementing partners: VNCPC (leading), Vietnam Association of Seafood Exporters and Producers (VASEP), WWF Austria, WWF Vietnam

Duration: 4 years (April 2013 – March 2017)

Website: <http://vncpc.org/project/supa>; www.supa.vasep.com.vn

Sector: Seafood

Location: The Mekong Delta region

Contact point:

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ESTABLISHING A SUSTAINABLE PANGASIOUS SUPPLY CHAIN IN VIETNAM





PULL COMPONENT RESULTS

2017 was a milestone of SUPA - the year for reviewing all activities and outputs of the four-year project (2013-2017).

1. ENHANCE THE LINKAGE OF PRODUCTION AND MARKETS

Thanks to market linkage activities, the image of Vietnam pangasius products in mindset of EU retailers and importers has been improved, especially in term of the current status of how pangasius products are produced.

Specifically, the project organized the participation in trade fairs for European buyer delegation and 12 Vietnamese seafood companies. Pangasius processing enterprises have gained a better understanding of the market through the participation in the International Seafood Fair in Belgium and field trip to supermarkets in Belgium. As the result of this, one enterprise has successfully negotiated supplying orders for supermarkets in Belgium.

In addition, the project strengthened dialogue between pangasius enterprises, European retailers and importers as well as Vietnamese regulators to provide suggestions, recommendations on sustainable orientation for Vietnam pangasius sector.

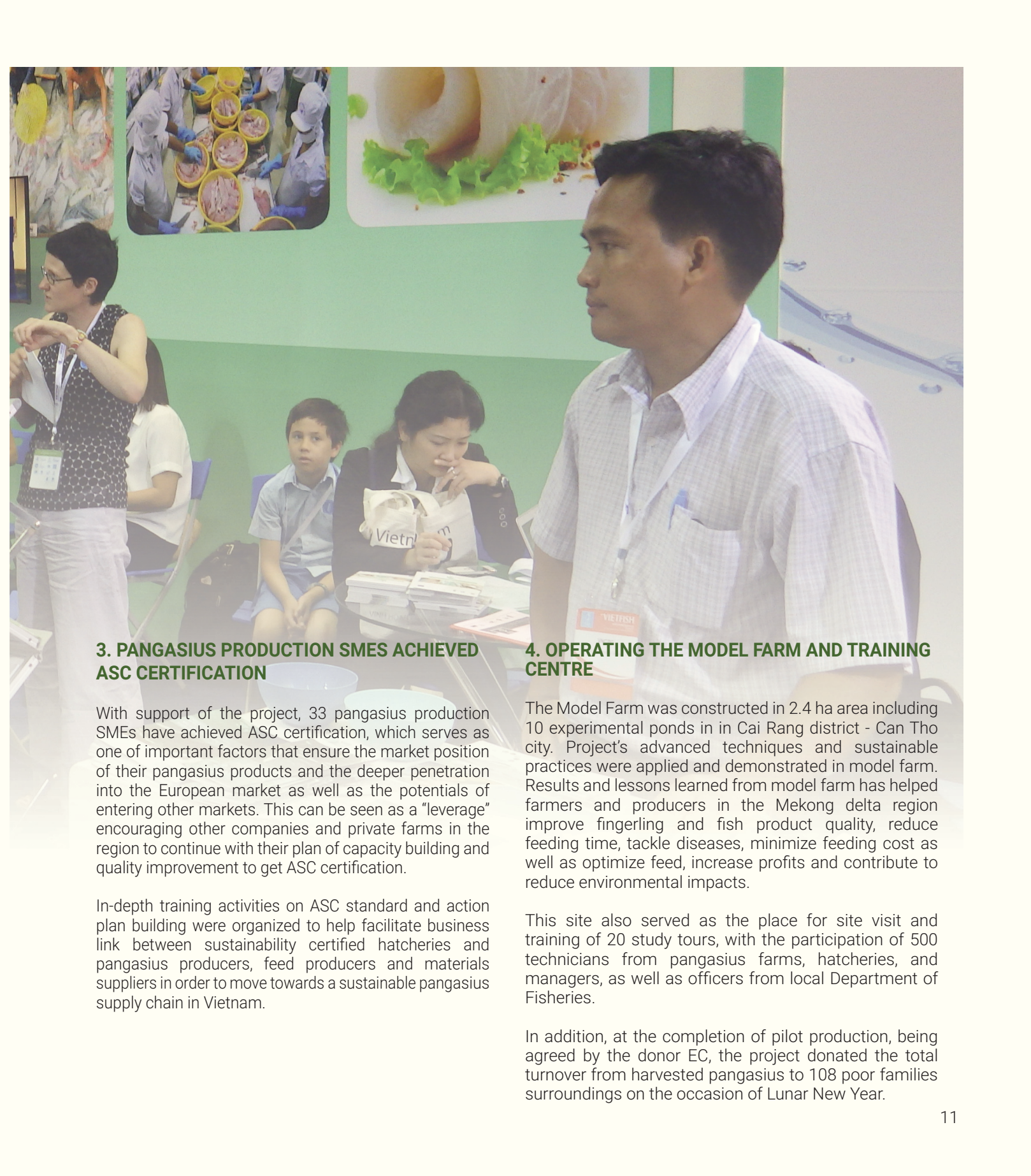
In particular, two dialogue forums on Pangasius in Vietnam with the participation of 300 participants and two European Roundtables with about 100 participants was successfully organized.

2. POLICY RECOMMENDATIONS

A summary study of the current status of the Vietnamese legislations regarding the development of pangasius sector and gap analysis of the Vietnamese legislation with the comparison with other Asian exporting countries were published.

These reports were reviewed by experts through a consultancy workshop for recommendations and orientations for sustaining the pangasius sector in particular and the aquaculture industry in general, then submitted to Vietnam authorities.

The project also organized workshop for introducing European policy to more than 30 policy experts in Vietnam.



3. PANGASIOUS PRODUCTION SMES ACHIEVED ASC CERTIFICATION

With support of the project, 33 pangasius production SMEs have achieved ASC certification, which serves as one of important factors that ensure the market position of their pangasius products and the deeper penetration into the European market as well as the potentials of entering other markets. This can be seen as a “leverage” encouraging other companies and private farms in the region to continue with their plan of capacity building and quality improvement to get ASC certification.

In-depth training activities on ASC standard and action plan building were organized to help facilitate business link between sustainability certified hatcheries and pangasius producers, feed producers and materials suppliers in order to move towards a sustainable pangasius supply chain in Vietnam.

4. OPERATING THE MODEL FARM AND TRAINING CENTRE

The Model Farm was constructed in 2.4 ha area including 10 experimental ponds in in Cai Rang district - Can Tho city. Project’s advanced techniques and sustainable practices were applied and demonstrated in model farm. Results and lessons learned from model farm has helped farmers and producers in the Mekong delta region improve fingerling and fish product quality, reduce feeding time, tackle diseases, minimize feeding cost as well as optimize feed, increase profits and contribute to reduce environmental impacts.

This site also served as the place for site visit and training of 20 study tours, with the participation of 500 technicians from pangasius farms, hatcheries, and managers, as well as officers from local Department of Fisheries.

In addition, at the completion of pilot production, being agreed by the donor EC, the project donated the total turnover from harvested pangasius to 108 poor families surroundings on the occasion of Lunar New Year.

PUSH COMPONENT RESULTS

1. PROCESSING SMES APPLIED AND MAINTAINED RECP

The project provided RECP assessment and coaching for 72 pangasius processing factories in An Giang, Dong Thap, Vinh Long, Hau Giang, Tien Giang, Ben Tre and Can Tho, out of which 54 received in-depth RECP consultancy. Besides, 300 technical staff has been trained on RECP implementation methodology.



VNCPC expert conducts RECP assessment at the factory

During project period, SMEs had implemented 15 RECP options each on average, which resulted in the savings of 18-20% of electricity and 26-30% of water and the reduction of production costs by 2-5 billion VND per year.

After the project completion, participating SMEs are capable to maintain RECP implementation for further improvement of production efficiency and reduction of environmental impacts. Some enterprises supported by project experts have developed ideas change opportunity to approach banks for investment proposal.

| SMEs achievements | |
|-------------------|------------------------------|
| Resource use | Saved |
| Energy | 33,676,245kwh/year |
| Water | 937,420 m ³ /year |
| Emission | Reduced |
| CO ₂ | 21,168 tons/year |

Besides, RECP approach was introduced to pangasius farmers from 120 farms in the Mekong Delta through quick RECP assessment activity.

2. ADVANCED RECP TECHNIQUES DEVELOPMENT FOR HATCHERIES AND PANGASIOUS PRODUCTION

Through studies and pilots in collaboration with several hatcheries and production enterprises, 20 advanced RECP techniques were developed, tested and applied widely for hatchery farmers in project area. Below are some outstanding results:

- ✔ Increased fertilization rate from 81% to 97%, survival rate from 85% to 94%;
- ✔ Increased survival rate and feed conversion rate (FCR) for hatchery;
- ✔ Increased the rate of growth, reduced the amount of phosphorus in the environment by adding phytase enzyme into the feed
- ✔ Cut off by 8-10% of pangasius production costs per kg of pangasius.



Advanced techniques have been applied in pangasius farming

3. SUSTAINABLE PRODUCT INNOVATION (SPI)

Sustainable Product Innovation (SPI) helps develop value-added products, while reduce leftovers and wastes, and therefore, decrease environmental impacts in pangasius processing.

The project organized co-creation workshops with the participation of 2 European and 20 Vietnamese consumer groups. Results of these co-creation served as inputs for sustainable product innovation of enterprises and experts, which gave rise for 20 more sustainable products consisting of 10 newly-designed and 10 redesigned ones and transferred to 7 companies. More of the fish's parts are turned to value-added products. This contributes to broadened domestic market because of more diversified product range.



Co-creation activities bring forth new ideas for diversifying the product range and reducing wastes in pangasius processing

4. WORKSHOPS, TRAININGS, NETWORKING ON PANGASIOUS HATCHERY AND PRODUCTION FOR FARMERS, TECHNICIANS AND LOCAL FISHERY STAFF

There were 24 one-day study tours with 665 participants organized by the project. On-site training workshops were held at several leading farms, such as Hung Vuong's, Caseamex's, Vemedim's and the model farm. Discussed subjects varied from market demand, traceability, water management in pangasius production, ASC certificate to issues on chemicals and diseases.

The participants had the opportunity to access to practical information and techniques for their own application and, at the same time, started committing to sustainability standards and certification.

17 half-day training sessions were provided to 903 participants and other 16 technical workshops were delivered to 800 participants. As the results of these, participating farmers have been equipped with updated knowledge, improvement solutions and the access to advanced hatchery techniques. Along with this, local fishery authorities were engaged through awareness raising and information update for better sector management.



Technical training for technical staff of processing enterprises

5. NETWORKING AND INFORMATION DISSEMINATION

In addition to the participation in networking events such as the roundtables, dissemination workshops, technical workshops within SWITCH Facilitation Network engaging stakeholders, which were organized both in Europe and Vietnam, the project had performed other disseminating activities including brochures, press releases, television reports and articles.

Besides, an e-platform was established as a cross-cutting tool to facilitate useful information and experiences sharing between enterprises, households, experts and managers in the entire supply chain of pangasius.

The objective of the Fund is to encourage promote medium - and long - term investment projects on cleaner technology. GCTF serves as a financial support mechanism for SMEs in Vietnam so that they become more determined in replacing obsolete equipment/technology by advance ones for reducing environmental impacts.

GENERAL INFORMATION

Donor: Swiss Secretariat for Economic Affairs

Partners: VNCPC, Techcombank, Asia Commercial Bank, Vietnam International Bank

Website: gctf.vncpc.org

Duration: 2007 - 2017

Sectors: Industry and services

Region: Vietnam

Contact point:

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**GREEN CREDIT
TRUST FUND**

GREEN CREDIT TRUST FUND



ACB VIB  **VNCPC**
VIETNAM CLEANER PRODUCTION CENTER



Being launched in July 2007, GCTF had finished the 10-year framework of operating in Vietnam since June 2017. In the last year, the Fund evaluated for granting reimbursement to two following projects: (1) boiler replacement in Ha Nam Hoang Ha Paper JSC; and (2) replacing obsolete plastic molding machines by advance injection ones in Dai Hung Tin Company Ltd.

Both projects achieved significant environmental impact improvement and level of reimbursement is determined at 25%.

Ha Nam Hoang Ha Paper JSC

The project, which aimed to replace the existing obsolete coal-fired moving-grate boiler by the biomass fluidized-bed one for the paper making, has been successfully implemented in Ha Nam Hoang Ha Paper JSC with the financial support mechanism of GCTF.

The investment enables the company to utilize biomass, which is generated from agricultural and wood processing activities, such as rice husk and straw, saw dust and planting residues, instead of coal. Total investment of the project is 468,630 USD.

The company received GCTF's guarantee support equivalent to 50% of Techcombank's approved credit of 362,108 USD. Besides, the Fund granted a reimbursement valued 89,030 USD, which is equal to 25% of the disbursement amount, to the company after verifying the project's achievement in environmental impact improvement.

The newly installed boiler uses biomass, which is renewable fuel and having CO₂ emission belonging to the natural CO₂ cycle. Therefore, the project contributes to the cutting down of greenhouse gases emission from company's steam production by nearly 100%. Annual total CO₂ emission reduction is calculated at ~5,900 ton/year.

| Cleaner Technology investment | Environmental benefits | | Economic savings | | |
|--|--|------------------------------------|--------------------------|-------------------------------------|---------------------------------|
| | CO ₂ emission (t/t) old/new | % reduced CO ₂ emission | Total savings (USD/year) | Reduced investment under GCTF (USD) | Shortened simple payback (year) |
| Replacing coal-fired moving grate boiler by biomass fluidized bed boiler | 657.2 / 4.94 | 99% | 132,876 | 378,103 | 2.85 |

Further significant improvement includes the followings:

- ✔ Reduced fuel costs;
- ✔ Reduce input fuel cost;
- ✔ Eliminate harmful slag;
- ✔ Reduced unprompted biomass burning by farmers, which creates uncomfortable to inhabitants.

"Management board of Hoang Ha Ha Nam Paper Company strives for improved production line and technology in order to ensure the product quality, reduce negative impacts to the environment and harmonize company's and workers' benefits."

Mr. Pham Van Ha – the Director

The component “Capacity building and conducting RECP assessments in Vietnam” of the project aims to support enterprises to increase productivity, reduce resource consumption, GHGs emission and pollutions as well as improve water use efficiency and chemical safety management in 3 selected industrial zones (IZ). The in-plant RECP assessment activity serves as a company-level improving step that contributes to the transition of IZs into eco-industrial parks (EIPs).

GENERAL INFORMATION

Donors: Global Environment Facility (GEF), Swiss State Secretariat for Economic Affairs (SECO)

Host Ministry: Ministry of Planning and Investment

Executing Agencies: UNIDO, Ministry of Planning and Investment

Implementing Partner: VNCPC, Management Board of Industrial Zones, Municipal authorities of Ninh Binh, Da Nang, Can Tho

Duration: 2015 - 2019

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Eco-Industrial Park Vietnam

IMPLEMENTATION OF ECO-INDUSTRIAL PARK INITIATIVE FOR SUSTAINABLE INDUSTRIAL ZONE IN VIETNAM



This component lasts for 24 months and it is divided into three 8-month batches, including RECP training, in-plant consultancy (consisting of 4 modules) and monitoring of RECP implementation and sustaining (conducted at the time of 3rd and 6th month after the completion of in-plant consultancy).

1. MONITORING RECP IMPLEMENTATION OF BATCH 1

The RECP training and consultancy activities were implemented completely at 23 enterprises in August 2016. In 2017, two monitoring rounds of Batch 1 were fulfilled in order to update the RECP implementation results of participating companies.



Watering the internal garden by treated wastewater

Accordingly, RECP application helped enterprises save about 32.86 billion VND (1,448,215 USD) by reduced raw materials, water, energy and chemicals consumption for production needs.

| Industrial parks | Number of participating companies | Savings |
|-------------------------|-----------------------------------|--------------------------------|
| Khanh Phu (Ninh Binh) | 7 | 12.75 bil. VND (~ 561,922 USD) |
| Tra Noc 1 & 2 (Can Tho) | 10 | 8.77 bil. VND (~386,514 USD) |
| Hoa Khanh (Da Nang) | 6 | 11.34 bil. VND (~ 499,780 USD) |

| Inputs | Annual consumption reductions | | |
|-------------------------|-------------------------------|-----------------|------------|
| | Da Nang | Can Tho | Ninh Binh |
| Raw materials (ton) | 2,571 | 0 | 98 |
| Coal (ton) | 2,180 | 0 | 2,860 |
| Fuel (ton) | 20 (woodchips) | 54 (rice husks) | 15.8 (gas) |
| Electricity (kWh) | 1,034,300 | 4,106,215 | 1,223,050 |
| Water (m ³) | 6,600 | 114,963 | 10,230 |
| Chemicals (ton) | 0 | 4 | 6.6 |

| Waste streams | Annual pollution load reductions | | | |
|-----------------------|----------------------------------|---------|-----------|---------|
| | Da Nang | Can Tho | Ninh Binh | Total |
| CO ₂ (ton) | 4,854 | 3,348 | 6,307 | 11,273 |
| COD (kg) | 2,204 | 35,615 | 801 | 38,620 |
| BOD (kg) | 726 | | 352 | 1,078 |
| Teq PCDD/F (µg) | 1,480.4 | 368.6 | 1,948.4 | 3,797.4 |
| Solid wastes (ton) | 2,571 | 0 | 98 | 2,669 |

2. COMPLETION OF RECP TRAINING AND CONSULTANCY OF BATCH 2

The RECP training and consultancy of Batch 2 have fulfilled with the last 2 modules at enterprises in 2017.

During this period, there were 23 enterprises in two IZs (12 in Da Nang and 11 in Can Tho) completed a full RECP assessment cycle.



RECP implementation helps enterprises reduce input consumption significantly

The total number of staff trained on- site is 72 (35 in Da Nang and 37 in Can Tho). Annual savings achieved by participating enterprises were briefly listed below:

- ✔ Da Nang: 1.39 billion VND (equivalent to 61,348 USD)
- ✔ Can Tho: 13.99 billion (equivalent to 616,572 USD)



| Inputs | Annual consumption reductions | |
|-------------------------|-------------------------------|----------|
| | Da Nang | Can Tho |
| LPG (kg) | 1,164 | |
| Electricity (kWh) | 721,675 | 2,907.18 |
| Water (m ³) | 11,762 | 40,985 |

| Waste streams | Annual pollution load reductions | | |
|-----------------------|----------------------------------|---------|---------|
| | Da Nang | Can Tho | Total |
| CO ₂ (ton) | 588.8 | 2,370.5 | 2,899.3 |
| COD (kg) | 588.1 | 1,528.5 | 2,116.6 |
| Teq PCDD/F (µg) | 58.5 | 212.1 | 270.6 |

3. IMPLEMENTATION OF RECP TRAINING AND CONSULTANCY OF BATCH 3

RECP training

Representatives from participating enterprises have been not only provided with general knowledge about RECP but also got familiar with the assessment tools and know-how on the integration into daily operations at the plants.

| Locations | No. of enterprises | No. of participants |
|-----------|--------------------|---------------------|
| Da Nang | 12 | 18 |
| Can Tho | 9 | 22 |
| Ninh Binh | 12 | 30 |

Participants appreciated the quality of the training through the feedback on end-of-the-course evaluation.

RECP Assessment

Batch 3 has gone through halfway in 2017 at 26 enterprises, of which there are 7 enterprises from Da Nang, 11 from Can Tho and 8 from Ninh Binh. This assessment cycle will be completed in May 2018.

The project is under framework of the global UNIDO – UNEP's Joint Programme on Resource Efficient and Cleaner Production (RECP). The overall objective of the project is to improve the local environment, reduce GHG emissions and bring economic benefits to enterprises. In Vietnam, the project has been supporting rice and coffee sectors.

GENERAL INFORMATION

Donor: Swiss State Secretariat for Economic Affairs (SECO)

Coordinator: United Nations Industrial Development Organization (UNIDO)

Implementing partners: VNCPC, Sofies (Switzerland), Vietnam Southern Food Corporation (Vinafood II), Vietnam Sustainable Agriculture Transformation (VnSAT) project, Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV), Viet Hien Mechanical Company

Duration: 2013 - 2017

Sector: Rice and Coffee

Region: The Mekong Delta and Central Highlands, Vietnam

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INDUSTRIAL WASTE MINIMIZATION FOR LOW CARBON PRODUCTION



1. SAVING RAW MATERIAL AND ENERGY, AND WASTE MANAGEMENT

In 2017, the project did not focus on in-plant RECP assessment as previous years, but organizing two workshops for the rice and coffee sectors and meetings with partners of the project "Vietnam Sustainable Agriculture Transformation" - VnSAT to introduce cooperation mechanism between the two projects.

The workshop on "Pyrolysis technology improves coffee quality" was held in Buon Ma Thuot city, Dak Lak province on November 10, 2017 with the participation of 130 delegates to present the results of RECP application and assessment at coffee processing enterprises. During 4 years of implementation, the project guided and provided support to 10 rice-processing enterprises and 10 coffee processing enterprises in conducting RECP assessment. This resulted in the saving of 1.08 million kWh/year, equivalent to USD 80,000 and CO₂ reduction of 621 tons/year.

The project achieved a significant objective characterized by the successful transfer of pyrolysis technology from Switzerland to Viet Hien Mechanical Company (Ban Me Thuot City) within the synthesis of the project and REPIC project implemented by Sofies in Peru. Viet Hien Company has mastered the technology and self manufactured an industrial-scaled pyrolysis furnace for coffee husk valorisation. The product of this pyrolysis process is thermal energy used for drying coffee bean, and biochar with high potential to improve soil efficiency.

Workshop on "Towards a sustainable rice value chain in the Mekong Delta in Vietnam" (March 3rd, 2017, Can Tho) was held with the attendance of more than 50 delegates from the related partners and milling plants in the Mekong Delta. This was a consultation workshop under the framework of the project "Industrial waste minimization for low carbon production". The workshop introduced the project's implementation results on technology intervention, low-carbon business models in rice sector and consulted with stakeholders for the completion of low-carbon solutions implementation and replication in the rice sector.



Workshop for coffee sector (Buon Ma Thuot, Dak Lak)



Consultation workshop for stakeholders and milling factories in the Mekong Delta (Can Tho)

2. RECP CAPACITY BUILDING FOR RICE AND COFFEE PROCESSING ENTERPRISES

The project has contributed to capacity building of rice and coffee processing enterprises in RECP implementation through training courses and in-plant coaching.

Approaching to existing issues that range from simple to complex, the project has supported enterprises to analyse, identify and propose various RECP options from no- or low-cost ones to investment-required ones. The early achievements on energy and materials savings and waste minimization can be resulted from simple solutions such as enhancing natural lighting by installing transparent roofing panels, proactive maintenance of machinery and electric system, properly installing capacitors to reduce electrical losses on the electrical line.

Other solutions, which require investment, such as replacing the existing motors by high-efficiency ones, tower drying system instead of bed drying one to improve the quality of rice grain, can bring forth higher efficiency and benefits in the long-run.



RECP solutions proposed by experts help enterprises to save significant energy and raw materials and minimize wastes

3. RAISING AWARENESS ABOUT SECURING THE VALUE CHAIN IN PRODUCTION AND BUSINESS ACTIVITIES

Participating in the project, rice and coffee processing enterprises have been well aware about the importance of securing the value chain in production and business activities. In order to meet government's regulations and market's increasingly strict requirements (traceability, pesticide and fertilizer residues and others), rice and coffee processing enterprises have to plan to build and expand their material area, strengthen the cooperation with farmers, invest in the drying system to ensure the quantity and quality of raw materials for the processing.

4. SOLVING CONFLICTS BETWEEN ENERGY AND FERTILIZER NEEDS OF COFFEE HUSK UTILIZATION

In coffee growing areas, there has been an unsolved ever conflict between the demand for thermal energy from the coffee husks for drying coffee bean and the need to use coffee husks as a fertilizer for coffee planting.

However, with the pyrolysis technology successfully transferred from Switzerland and adapted by Viet Hien Mechanical Company to Vietnam's context, coffee growers can recover heat by a stable burning that well facilitates drying process, while use biochar - a by-product of pyrolysis process - as fertilizer for soil improvement at the same time.



Participants visited the pyrolysis technology model in Dak Lak

The action is part of the Green Growth project, which is implemented in the cooperation between the Friedrich Ebert Stiftung (FES) and the Vietnam General Confederation of Labor.

GENERAL INFORMATION

Donor: Friedrich Ebert Stiftung

Implementing partners: Friedrich Ebert Stiftung, Vietnam General Confederation of Labor

Duration: 2016 – 2017

Sector: Trade Union of industrial enterprises and provinces' Federation of Labour

Region: Vietnam

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TRAINING SUPPORT AND CONSULTANCY ON GREEN GROWTH PLAN FOR COMPANIES



Implementing the Decision No. 403/QĐ-TT dated March 20, 2014 of the Prime Minister approving the national action plan on green growth in the period of 2014 - 2020, the Vietnam General Confederation of Labor (VGCL) has issued the sector's Action Plan for Green Growth Strategy implementation for the period.

Following this, all levels of trade union from the grassroots ones upwards will jointly respond to the strategy to contribute better to environmental protection. The goal set is to mobilize the involvement of all workers and employees.

Vietnam General Department of Labor, in cooperation with the Friedrich-Ebert-Stiftung Institute (Federal Republic of Germany), has implemented the project on "Vietnam's Trade Unions for the Implementation of the National Green Growth Action Plan for the period of 2014-2020". The project's purpose is to raise the awareness of trade union officers and workers on green growth and the application of production and domestic measures to improve the enterprises' environmental performance and health and safety conditions for workers.

Actions taken by VNCPC in the framework of the project include the followings:

- ✔ Training on green growth, energy efficiency and cleaner production (RECP) for the trade unionist participants;
- ✔ Providing distance consultation on technical solutions to trade union officials participating in this project via telephone and email.
- ✔ Supporting trade unionists in reviewing plans for green growth for relevant companies;
- ✔ On - site consulting on energy efficiency solutions, equipment and technology upgrade to promote green growth and cleaner production.

VNCPC experts provided training sessions on Green Growth in 2 trainings courses, which organized by FES. Green Growth team of Trade union at 15 enterprises, which are from various industrial sectors in Long An, Nam Dinh, Quang Nam, Hue, Binh Dinh, Tien Giang and Dong Thap provinces, cooperated and received direct consultancy from VNCPC experts in the period of June - October 2017 in order to develop their own Action plan for Green Growth.



The project's purpose is to raise the awareness of trade union officers and workers on green growth

The project “Firm consultant for comprehensive Resource Efficient Assessment at Da Nang Seafood Service Industrial Zone” aims to improve the efficiency of resource use and reduce environmental pollution, as well as propose action plans for implementation of eco-industrial park initiatives for this industrial zone.

GENERAL INFORMATION

Donor: International Finance Corporation – World Bank Group

Implementing Partner: VNCPC, Management Board of Danang Industrial Zone

Duration: 9/2015 - 8/2018

Sector: Seafood processing

Region: Da Nang Seafood Service Industrial Zone

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VIETNAM RESOURCE EFFICIENCY IN INDUSTRY PROJECT



IFC would like to expand the project including activities on industrial symbiosis and green infrastructure. Preparation steps have been implemented in 2017.

These extension activities will be conducted by VNCPC in 2018 including:

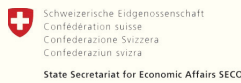
- ✔ Data collection;
- ✔ Identification of eco-efficiency potentials at firm level, industrial symbiosis and circularity and green infrastructure;
- ✔ Business model development for industrial symbiosis.



DONORS - NETWORKS - PARTNERS



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



SECO is the federal government's centre of excellence for all 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 applies its financial resources, technical expertise, global experience, and innovative thinking to help partners overcome financial, operational, and political challenges. Clients view IFC as a provider and mobilizer of scarce capital, knowledge, and long-term partnerships that can help address critical constraints in areas such as finance, infrastructure, employee skills, and the regulatory environment. IFC is also a leading mobilizer of third-party resources for its projects.



UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. As of January 2018, 167 States are member of UNIDO. The mission of UNIDO is to promote and accelerate inclusive and sustainable industrial development in member states.



Delft University of Technology (TU Delft) is a place of learning and working of more than 16,000 students and more than 2,600 scientists. TU Delft cooperates with many other educational and research institutions, both in the Netherlands and abroad. TU Delft has numerous contacts with governments, trade associations, consultancies, industry and small and medium-sized companies.



AIT Vietnam (AIT-VN) was established in 1993 under the agreement between Vietnam government (MoET) and AIT. AITVN takes pride in being the first international education institution in Vietnam and the first center of AIT out of its headquarter in Thailand.



Vietnam Association of Seafood Exporters and Producers (VASEP) members include leading Vietnamese seafood producers and exporters 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.



For 50 years, WWF has been protecting the future of nature. The world's leading conservation organization, WWF works in 100 countries and is supported by 1.2 million members in the United States and close to 5 million globally. Alongside all WWF offices around the world, our Mission remains: to stop the degradation of Vietnam's natural environment and to build a future in which humans live in harmony with nature.



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. Our services are based on scientifically acknowledged tools and methodologies related to environmental management and assessment, such as Material Flow Analysis (MFA), Life Cycle Analysis (LCA), Carbon Balance, industrial symbiosis detection, Cleaner Production assessments, etc...



Vietnam Technological and Commercial Joint- stock Bank (also known as Techcombank), established in 1993, is one of the largest joint-stock commercial banks in Vietnam. Through 25 years of continuous development, TechcomBank has achieved many successful and become an out standing bank in Vietnam.



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, abbreviated as Vietnam International Bank (VIB), was founded on 18th September 1996. 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.



Global Network for Resource Efficient and Cleaner Production (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.



Climate Technology Centre and Network (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.

Davos Declaration on Promotion of Resource Efficient and Cleaner Production (RECP) in Developing and Transition Countries

1. Resolve to renew and redouble our efforts to promote, mainstream and scale-up resource efficiency and cleaner production at all levels as a contribution towards achievement of the Sustainable Development Goals and through further engagement with global initiatives such as the 10 Year Framework of Programmes for Sustainable Consumption and Production (SCP), Climate Technology Centre and Network (CTCN), Strategic Approach to International Chemicals Management (SAICM) and related multilateral environmental agreements, donors and international organizations.
2. Determine to deliver individually and collectively services of the highest quality that are appropriate and effective for governments to create and implement RECP-conducive policies and strategies; for enterprises to implement RECP most beneficially in their operations, products and strategies; and for civil society to act as advocate and change agent for RECP;
3. Commit to collaborate to further strengthen RECPnet, in line with recommendations emanating from the Executive Committee acting on behalf of the Members' Assembly, as well as from UNIDO and UNEP-initiated independent evaluation processes, and operate it as a member-based and member-driven initiative that supports the nationally-owned and nationally-directed RECP service provision and knowledge-sharing in member countries;
4. Call on government, business, financial institutions, academia and civil society that share our concerns and commitments to join with RECPnet in its efforts to advance sustainable development through a rapid and universal uptake of resource efficiency and cleaner production policies, methods, technologies and practices in industries all over the world; and
5. Request the joint UNIDO-UNEP RECP Programme to continue acting as RECPnet Secretariat and where possible to expand its support to RECPnet, according to the needs of the members and regions, by enabling and enhancing our capacity to contribute to the 2030 Agenda for Sustainable Development.

- RECPnet, 2015 -