



ISSN: 1859 - 042X
English Edition I-2017

Environment

VIETNAM ENVIRONMENT ADMINISTRATION MAGAZINE (VEM)

Website: tapchimoitruong.vn



Prime Minister Nguyễn Xuân Phúc inspects a waste-to-energy technology made in Việt Nam

**Main orientations
and key tasks on
environmental
protection in 2017**

**Mobilization of the entire
nation in managing and
using wisely natural
resources and environment**

**Promoting
green growth
and low carbon
development**



EDITORIAL COUNCIL

Nguyễn Văn Tài
(Chairman)

Prof. Dr. **Đặng Kim Chi**

Dr. **Mai Thanh Dung**

Prof. Dr.Sc. **Phạm Ngọc Đăng**

Dr. **Nguyễn Thế Đồng**

Prof. Dr. **Nguyễn Văn Phước**

Dr. **Nguyễn Ngọc Sinh**

Assoc.Prof.Dr. **Nguyễn Danh Sơn**

Assoc.Prof.Dr. **Lê Kế Sơn**

Assoc.Prof.Dr. **Lê Văn Thắng**

Prof. Dr. **Trần Thực**

Dr. **Hoàng Văn Thức**

Assoc.Prof.Dr. **Trương Mạnh Tiến**

Prof. Dr. **Lê Văn Trình**

Prof.Dr. **Nguyễn Anh Tuấn**

Dr. **Hoàng Dương Tùng**

Prof. Dr. **Bùi Cách Tuyền**

EDITOR - IN - CHIEF

Đỗ Thanh Thủy

Tel: (04) 61281438

OFFICE

● Hà Nội:

Floor 7, lot E2, Duong Dinh Nghe Str.,
Cau Giay Dist. Hà Nội

Managing board: (04) 66569135

Editorial board: (04) 61281446

Fax: (04) 39412053

Email: tapchimoitruongtcmt@vea.gov.vn

<http://www.tapchimoitruong.vn>

● Ho Chi Minh City:

A 403, 4th floor - MONRE's office complex,
No. 200 - Ly Chinh Thang Street,
9 ward, 3 district, Ho Chi Minh city

Tel: 08.66814471; Fax: 08.62676875

Email: tcmtphianam@gmail.com

PUBLICATION PERMIT

Nº 1347/GP-BTTTT - Date 23/8/2011

Photo on the cover page:

PM Nguyễn Xuân Phúc inspected waste-to-energy technology model in Ha Nam Province

Photo by: VNA

Processed & printed by:

Đà Sắc Printed Co., Ltd

English edition I/2017

Price: 30.000VND

CONTENTS



EVENTS & ACTIVITIES

- [2] VŨ HỒNG: PM inspects waste-to-energy technology model in Ha Nam
- [3] PHƯƠNG LINH: The Minister of MONRE held a spring gathering meeting with international partners
- [5] NAM VIỆT: Formosa nears completion of environmental protection items



LAW & POLICY

- [6] NGUYỄN VĂN TÀI: Main orientations and key tasks on environmental protection in 2017
- [8] NGUYỄN HUY HOÀN: Vietnam's environmental industry basically meets the environmental protection demands in 2025
- [10] NGUYỄN THỊ LIÊN HƯƠNG: Towards building green, clean and nice healthcare centres
- [12] TRẦN ÁNH DƯƠNG: Improve environmental protection activities for transport sector in 2016 - 2020
- [14] HOÀNG NHẤT THỐNG: Việt Nam's Policy on Marine and Island Natural Resources and Environment Management in the International Integration Period



VIEW EXCHANGE

- [16] LÊ BÁ TRÌNH: Mobilization of the entire nation in managing and using wisely natural resources and environment
- [18] NGUYỄN BÁ NGÃI: Review of the five-year implementation of the payments for forest environmental services programme





GREEN SOLUTION & TECHNOLOGY

- [22] NGUYỄN THỊ BÍCH HÒA: Understanding the sustainable consumption and production policy framework promotes ecological renewal in enterprises
- [25] LONG HOÀNG: Companies pay out more than £ 1.5m for breaking environment laws
- [26] HỒNG CẨM: EU approves new rules to drastically cut air pollution



GREEN COOPERATION

- [27] GIÁNG HƯƠNG: The 13th Việt Nam - KOREA Environment Ministers Meeting - Renew thinking and implementation method for better cooperation efficiency and effectiveness
- [28] NGUYỄN THỊ THANH TRÂM, TRƯƠNG THỊ TUYẾT NHUNG: Looking back 20 years of cooperation between Việt Nam and ASEAN in environment
- [30] CHÂU LONG: Four central cities join One Planet City Challenge
- [32] BẢO BÌNH: IUCN launches wetlands project



GREEN GROWTH & DEVELOPMENT

- [34] NGUYỄN TUẤN ANH: Ministry of planning and investment: Promoting green growth and low carbon development
- [36] NGUYỄN THANH GIANG: Improving policy mechanism to promote solar energy development in Việt Nam
- [38] HOÀNG DƯƠNG: Renewable energy in China
- [40] TRẦN TÂN: In 2016, almost 90% of new power in Europe from renewable sources
- [41] NGUYỄN THẾ CHINH, LẠI VĂN MẠNH: Promote the role of businesses in environmental protection and green growth
- [44] PHẠM MINH KIM: Suntory PEPSICO Việt Nam: Sustainable development is our commitment, target and action



NATURE & ENVIRONMENT OF VIETNAM

- [46] PHẠM TRUNG LƯƠNG: Potential and outlook of eco-tourism in Việt Nam
- [48] DƯƠNG LIỄU, XUÂN THẮNG: Protection and development of Cần Giờ mangrove ecosystem



AROUND THE WORLD

- [50] PHƯƠNG LINH: EU steps up enforcement and partners with business sector to crack down on wildlife crime
- [51] TRẦN HƯƠNG: EU countries have to drastically reduce consumption of lightweight plastic carrier bags
- [52] HOÀNG DƯƠNG: Beijing's efforts to combat air pollution





● PM inspects waste-to-energy technology model in Ha Nam



▲ PM inspects waste-to-energy technology model in Ha Nam province

Prime Minister Nguyễn Xuân Phúc on March 18 inspected a waste-to-energy (WTE) technology model made in Việt Nam invention successfully applied at the Dong Van 2 Industrial Park in the northern province of Ha Nam.

Director of Hydraulic Machine Ltd Company (HMC) and WTE inventor Nguyen Gia Long said at the core of the WTE technology

is a process known as gastification, which converts waste into a synthesis gas (syngas) used as a fuel to generate electricity. The WTE model has been successfully trialed by the Ministry of Science and Technology (MoST), the Ministry of Natural Resources and Environment, and the provincial People's Committee since September 21, 2016, during which, 208 tonnes of unclassified solid waste was processed to generate sufficient power for the lighting system installed at the Dong Van 2 Industrial Park over 10 days. The Vietnam Environmental Administration Centre for Environmental Monitoring reported that emissions from the pro-

cess met national standards and standards of the World Health Organization.

The leader suggested that Ha Nam authorize the HMC company to handle part of the waste volume in the province over one month in order to compare the cost of the new technology with that of the conventional waste treatment of burying, thus making a detailed report on the economic efficiency of the technology. The PM also hoped that HMC would strive to raise the WTE power generation capacity above its existing 0.5MW and complete procedures to commercialize the technology■

Vũ Hồng/VNA

● National meeting marks World Water Day



A national meeting took place in the northern province of Bac Ninh on March 22 in response to the UN's annual World Water Day. Addressing the event, Minister of MONRE Trần Hồng Hà stressed this year's "Wastewater" theme sends out a message that recycling wastewater could help improve water sources for living things on earth.

Việt Nam is located in the downstream area. Two third of its river water resources originate outside the country, making it sus-

ceptible to relevant decisions made in upstream countries.

Vietnam's average domestic water resource is estimated to stand at 3,600m³ per person per year, well below the world figure of 4,000m³. Pressures from economic growth and growing population have led to water pollution, degradation and depletion. Taking note of the Government's attempt to boost water resources protection and sustainable use, the minister called for the community's concerted efforts to tackle environmental challenges in general and wastewater in particular.

Chairman of the Bac

Ninh People's Committee Nguyen Tu Quynh said his province is growing rapidly with significant environmental problems, particularly wastewater from craft business and household activities.

He urged active participation of the whole society in improving and protecting water resources. Participating international organizations and domestic businesses shared a commitment of collaborating in addressing water resources challenges and striving for sustainability in development■

An Bình/VNA



The Minister of MONRE held a spring gathering meeting with international partners

On February 2 in Hanoi, Minister of MONRE Trần Hồng Hà and Deputy Ministers Nguyễn Linh Ngọc, Nguyễn Thị Phương Hoa, Võ Tuấn Nhân chaired the spring gathering meeting with international partners. Nearly 100 delegates including ambassadors, representatives of embassies to Vietnam, bilateral organizations, experts working at MONRE participated in this meeting.

Speaking at the meeting, Minister Trần Hồng Hà welcomed international counterparts and friends of MONRE for their attendance. The Minister delivered best wishes to international partners and their family with a healthy, lucky and happy year. According to the Minister, the year 2016 was remarked with significant goals in international cooperation in natural resources and environment sector. The most remarkable event is the join of Việt Nam in signing and approving the Paris Agreement on climate change as well as developing the national plan to implement this agreement.



▲ Minister Trần Hồng Hà speaking at the meeting

The Minister also delivered his sincerely thanks to international partners for their kindly supports in development and capacity building projects. So that MONRE can solve effectively issues on environment, responding to climate change in order

to contribute to sustainable development of the country. For the missions on 2017, the Minister consider that this is a very important year. The year that the whole natural resources and environment sector will have to reach the targets on effective management of natural resources and environment. The Minister believes that international cooperation is a crucial factor to reach these goals.

According to long-standing hospitable tradition and culture of Vietnamese on the occasion of traditional holiday (TET), Minister Trần Hồng Hà and the Deputy Ministers invited international partners to join a warm party to welcome a new year bursting with friendship and cooperation as well as luckiness, happiness and prosperity■

Phương Linh



▲ Leaders of MONRE and international partners



● Ministry of Natural Resources and Environment and Ministry of Industry and Trade sign a cooperation program



▲ The two Ministers signed a coordination program

On February 15 in Hanoi, Minister of MONRE Trần Hồng Hà and Minister of Industry and Trade Trần Tuấn Anh chaired the signing ceremony of "Coordination program on climate change adaptation, natural resources management and environmental protection in industrial production and trade in the 2017 - 2020 period".

The coordination program between the two ministries aims at 3 main objectives including: Strengthening the coordination between the two ministries in proactive adaptation to climate change, strengthening management and efficient use of natural resources. Actively preventing and reducing environmental pollution due to industrial production and trade. Besides, it is vital to strictly control the response to climate change, management and efficient use of natural resources and environmental protection in industrial production and trade, particularly in the planning and approval.

In addition, the two ministries should maximize the functions, missions, existing resources and potential in managing and supervising the enforcement of the laws on natural resources and environment in industrial production and commercial.

Speaking at the signing ceremony, the Minister of Industry and Trade Trần Tuấn Anh said, in order to cope with climate change, manage natural resources and protect the environment in industrial production and trade towards efficiency and sustainability, according to Minister Trần Tuấn Anh, it requires the close coordination between the two Ministries and the change in various fields to match the actual requirements.

Sharing the same point of view, according to the MONRE Trần Hồng Hà, the two Ministries should cooperate closely in order to strengthen natural resources and environment protection, response to climate change to ensure sustainable development, people's health and livelihood. The fields under the management are important and affecting the economic and social development of the country■

Chí Viễn/VEM

● Conference gathers international scientists to address pollution

An International Conference on Environmental Pollution, Restoration, and Management gathered international scientists in central Binh Dinh province to discuss environmental issues as well as share research results and management experience.

It took place at the International Centre for Interdisciplinary Science and Education (ICISE) in Quy Nhon city between March 8 - 11 with 170 scientists, policy-makers and students from 19 countries and territories in attendance.

The event was held by the Ministry of MONRE, the Ministry of Science and Technology, the Meet Vietnam Association and the Binh Dinh provincial People's Committee.



▲ Minister of Natural Resources and Environment Trần Hồng Hà delivers speech at Conference

As many as 150 representations were presented during the conference, with three plenary presentations including "Natural resource damage assessment and restoration for oil and chemical spills" by Dr. Lisa Dipinto from the US-based National Oceanic and Atmospheric Administration (NOAA); "Are harmful algal blooms becoming the greatest global threat to water quality?" by Prof. Bryan Brooks from Baylor University, USA; and "Plastic pollution from a system perspective: linking sources, transport, distribution, and impacts" by Dr. Chris Wilcox from Australia's Commonwealth Scientific and Industrial Research (CSIRO).

In his opening remarks, Minister Trần Hồng Hà said Việt Nam is threatened by soil, water and air pollution as a consequence of rapid economic growth. The declining biodiversity, poor environmental management and complicated climate change have bad impacts on Vietnam's environment and development sustainability. He stressed that Việt Nam determined to develop long-term policies to increase international cooperation in coping with environmental issues■

Thanh Huyền/VNA



● Formosa nears completion of environmental protection items

Hung Nghiep Formosa Ha Tinh Steel Limited Company in the central province of Ha Tinh has completed 52 out of 53 environmental protection tasks required of it after violating regulations on environmental protection, according to the Ministry of Natural Resources and Environment (MoNRE).

At a working session with local officials and representatives from Formosa on April 27, MoNRE Minister Tran Hong Ha agreed with the report from the ministry's inspection delegation, and recognised the firm's efforts to protect the environment.

The report said the Taiwanese company completed and put 12 auxiliary items into operation, with seven others ready for commissioning.

The company is building wastewater and overflowing rainwater treatment systems in waste dumps, and ore and coal storage areas.

Automatic wastewater observation systems were installed in the biochemical and daily domestic wastewater treatment stations and in chimneys.

Minister Ha stressed the need to evaluate technologies and projects to prevent environmental incidents from happening, adding that measures to reuse solid waste should be researched.

He also asked for regulations related to response to environmental incidents and efforts to finetune the human resource and equipment capacity.

The Minister asked ministries and sectors to assess Formosa's environmental protection efforts and come to a unanimous conclusion, while local authorities must help the enter-



▲ MoNRE Minister Tran Hong Ha (blue shirt) inspects Formosa on April 27

prise complete administrative procedures.

Formosa was also requested to provide a plan to test its waste treatment facilities, and submit to ministries, local agencies and sectors for assessment.

The same day, the Minister inspected wastewater treatment stations and the automatic wastewater observation systems in the biochemical and domestic wastewater treatment stations.

The delegation also inspected the building of wastewater testing reservoirs, an important part of controlling waste and preventing incidents, which are expected to be put in to use from June 30.

In July 2016, the Taiwanese company was found to have buried 100 tonnes of waste at a farm owned by the director of the Ky Anh Urban Environment Company in Ky Trinh ward of Ky Anh town.

Earlier on June 30, it admitted responsibility for mass fish deaths in the four central coastal provinces of Ha Tinh, Quang Tri, Quang Binh and Thua-Thien Hue between April and May.

It promised total compensation of 11.5 trillion VND (500 million USD) to support local fishermen to switch to other jobs and recover the polluted maritime environment■

Nam Việt/VNA

● HCM City begins public display of air, water quality data



The Centre for Environmental Monitoring and Analysis in HCM City and the Sai Gon River Tunnel Management Centre have signed an agreement to work together to put up air and water quality readings on LED boards around the city. The former, which is run by the Department of Natural Resources

and Environment, will furnish air and water quality data to the tunnel management centre on the 25th of every month for displaying on the boards.

The readings include concentrations of nitrogen dioxide (NO₂) and carbon dioxide (CO) in the air, dust, water quality in the city's rivers and canals and noise levels. The display is colour-coded with values displayed in green indicating no pollution threats and those in red indicating pollution levels. The first set of data put up on April 10 shows 22 areas in the

city with excessive levels of pollutants or a lack of oxygen in water.

The publication of the data would help raise public awareness of environmental issues and encourage people to protect their surroundings.

Recently the department had recommended that the People's Committee should build 27 automatic and 227 semi-automatic monitoring stations in the city. The 495 billion VND (21.8 million USD) plan is expected to be completed by 2020■

Đinh Hương/VEM

Main orientations and key tasks on environmental protection in 2017



Dr. Nguyễn Văn Tài - *Director General
Vietnam Environment Administration*

1 The year 2016 witnessed many environmental incidents, circumstances and events that have never been as substantial as before. The environmental incident occurred in the coast of Central provinces and more than 50 environmental pollution cases and incidents have reminded and alerted us about a very difficult and challenging period for environmental protection. The growth model is unsustainable; many localities pay more attention to economic growth, pay less attention or even neglect environmental issues in the long-term, which accumulates many substantial environmental problems and challenges; many manufacturing types pollute the environment, many projects have backward manufacturing technologies and facilities, environmental measures do not meet the requirements; environmental management capacity of the State and enterprises are limited and resources for environmental protection are in shortage...

2016 is also a year reflecting efforts, determination and courage in environmental protection. With the participation of the whole political system and uncompromised negotiations, Formosa Hà Tĩnh gave into take responsibility for causing environmental incidents and compensating affected coastal local people; investigating and assessing the environment on a large scale in the ocean and timely giving warnings and informing sea water quality to people; on a large scale reviewing waste sources discharging to rivers

and ocean and implementing large-scale inspection on environment and water resources. Particularly, the Government organised the biggest online conference in history to assess and review challenges and agree on pressing actions on environmental protection. Right after the conference, the Prime Minister has promulgated a Directive on some urgent tasks and solutions for environmental protection. After the environmental incident and event, the whole political system has made fundamental changes in viewing environmental difficulties and challenges and implementing significant efforts and determination of environmental protection. These are extremely important prerequisites and advantages for environmental protection and sustainable development of the country in the future.

2 Moving to 2017, this year will continue to face with many difficulties and challenges and implement a wide range of urgent tasks and solutions on environment in accordance with the Directive of the Prime Minister, which will require substantial efforts and determination to make new changes in environmental protection. Some groups of tasks and solutions should be paid attention to:

- Reviewing and finalizing the legal framework and legislations on environmental protection, including reviewing the Law on Environmental Protection

and relevant laws, and proposing to revise the Law on Environmental Protection if necessary; reviewing and formulating a Decree on revising the Decree guiding the implementing the Law on Environmental Protection; reviewing and finalizing the standard regulations on environment; developing the regulation on responding to environmental incidents; developing the environmental protection planning for the period of 2021 - 2030; developing the screening criteria for investment projects regarding manufacturing types, manufacturing technologies and environmental sensitivity of the project location; studying and developing breakthrough mechanism in mobilising investment resources for environmental protection, particularly the resource mobilisation mechanism based on the principle of "Polluter pays principle", "Beneficiary pays principle" to re-invest in environmental protection...

- Reviewing environmental impact assessment reports, and environmental protection works and measures of large-scale projects and waste sources; establishing a rigid monitoring and supervision mechanism with close collaboration between central and local levels on projects and waste sources that have high potentials to cause environmental protection and incidents to a large-scale extent; Reviewing the planning, capacity, technology and requirements on environmental protection of



▲ *Developing capacity on environmental monitoring and warning*

entities working in treatment and dumping domestic wastes, industrial wastes and hazardous wastes nationwide.

- Strengthening and enhancing the effectiveness and efficiency of the inspection and supervision, with close collaboration among sectors and levels, focusing on manufacturing types that cause environmental protection, large-scale projects and projects with high potential to cause environmental incidents, and environmental sensitive areas, of which focusing on entities with wastewater volumes of more than 200 m³/day.night, entities for which the Ministry of Natural Resources and Environment approves the environmental impact assessment, and serious environmental polluters that are overdue for strictly addressing environmental pollution; strictly addressing violating entities, particularly disposal violation behaviours that cause environmental pollution.

- Enhancing the dissemination and propaganda of information and knowledge which create new changes in awareness on environmental difficulties and challenges in the current development period, and get consensus on viewpoint, actions, responsibilities and efforts of all levels and sectors to control pollution and to protect the environment; developing capacity on environmental monitoring and warning, focusing on key economic zones, waste concentration areas, and environmental sensitive areas.

- Consolidating the organisational structure, enhancing the capacity of the state management staff on environmental protection at central and local levels, particularly at district, wards and commune levels to meet the requirements in the new situation; enhancing the cooperation among ministries and sectors, connecting central and local agencies, collaborating between management agencies at national level with management agencies at regional level and localities, and unifying in state management on environmental protection.

- Continuing to enhance administrative reforms, particularly procedure renewal and administrative procedure, orientating towards localities and grassroot levels; strictly implementing the viewpoint in developing a Government towards services and development assistance, discipline and strictness in conducting tasks and responsibilities; combining enhanced state management on environment with creation of favourable and

supporting conditions for enterprises to manufacture and trade and protect the environment.

- Enhancing information sharing, reporting and result assessment, and environmental classification for systematic connection in environmental protection; implementing dialogues among environmental agencies at central and local levels, between state management agencies with enterprise communities and people on environmental protection.

3 The new year is coming, environmental difficulties and challenges are arising; however, with the attention and instruction of the Party, the Government, the involvement of the whole political system, sectors and localities, the responsibilities, efforts and determinations of state management agencies on environment at central and local levels, 2017 will be a year that creates new changes, and achieves new results, success and prerequisites for the sustainable development in the future ■

Vietnam's environmental industry basically meets the environmental protection demands in 2025

On Feb 13, 2017, "The scheme for environmental industry development in Việt Nam to 2025" was approved by the Prime Minister at Decision no. 192/QĐ-TTg with the target "to 2025, the Vietnam's environmental industry basically meets the environmental protection demands" with specific implementation tasks and solutions. To find out more about this, the Environment Magazine had an interview with Mr. Nguyễn Huy Hoàn - Deputy Director General of the Science and Technology Department, Ministry of Industry and Trade.

★Can you tell us some main objectives of the scheme for environmental industry development in Việt Nam to 2025 that was recently approved by the Prime Minister as well as the feasibility of these objectives?

Mr. Nguyễn Huy Hoàn: 2015 was the final year of phase I to implement the scheme for environmental industry development in Việt Nam that was approved by the Prime Minister at Decision no.1030/QĐ-TTg dated 20/7/2009. With the need to promote the development of the industry for environmental protection, in 2016, the Prime Minister has assigned the Ministry of Industry and Trade to formulate and submit to the Prime Minister for approval of the scheme for environmental industry development in Việt Nam to 2025, with targets in each sector: development of technologies for waste treatment and recycling, environmental pollution analysis, monitoring, supervision and control; technologies for sustainable use of resources, manufacturing of equipment and products to basically meet the demands of environmental protection... which aims by 2025 the environmental industry of Việt Nam will basically meet the demands of environmental protection. This is considered to be a highly ambitious objective compared to the current development status of the environmental industry in Việt Nam. According to the survey data and assessment of the Ministry of Industry and Trade, by now the environmental industry of Việt Nam only meets 2 -



▲ Mr. Nguyễn Huy Hoàn - Deputy Director General
Department of Science and Technology - Ministry of Industry and Trade

3% of the urban waste treatment demands; 15% of solid waste treatment, 14% of hazardous waste treatment. The number and scope of environmental industry enterprises are limited with low chartered capitals (52.6% enterprises are small-scale, with capitals of less than five billion dong, only 2.84% enterprises are large-scale, with capitals of more than 500 billion dong). Environmental industry enterprises mostly focus on the service sector, while there is a shortage of strong enterprises to address large and important issues of the country. Products and equipment on the market are mostly simple and low-level mechanically designed; enterprises have not paid enough attention to development research, product improvement and technology innovation.

To achieve the proposed objectives, the scheme has identified specific tasks and solutions: continuing to improving the policies, legislations and organisations on environmental industry; developing environmental protection technologies, sustainably using natural resources and rehabilitating the environment; manufacturing, producing and supplying environmental protection equipment, facilities, tools and products; developing environmental service; deploying markets and attracting investments in environmental industry; training human resources, enhancing awareness and capacity for the development of the environmental industry.

★In your opinion, what are the main difficulties and challenges for promoting the environmen-



tal industry development in recent years?

Mr. Nguyễn Huy Hoàn: I think that the environmental industry development has many favourable conditions in terms of markets as environmental protection is increasingly being paid more attention and the regulation system on environmental protection is gradually improved. In addition, statistics on goods export - import quotas and environmental service of Việt Nam (according to the classification list of environmental goods and services of APEC) during 2010 - 2015 showed that the average growth rate was 20%/year with the revenue increased from 2.7 billion USD in 2010 to 5.3 billion USD in 2015. These figures are very impressive. The issue is “Why Việt Nam enterprises have not made use of this opportunity?” The practical data shows that the proportion of Việt Nam environmental goods and services only constitutes around 10 - 15%, most products are simple and lack of technology inputs. I think the underlying cause is due to limited competitiveness of Việt Nam environmental industry enterprises and their ability to connect with suppliers in the market. To address this, it is necessary to mobilise enterprises to enhance the ability to supply high quality goods and services, good post-sale service, and competitive price. However, in order to create a “push” for environmental industry enterprises in Việt Nam, the role of the Government is needed. Therefore, the Government needs to clearly identify areas, products and services that enterprises can compete, from which to identify solutions on policy, science and technology to support the development of enterprises. In addition, in terms of state management, it is necessary to have clear assignments and close collaboration among relevant ministries and sectors as environmental industry is multi-sectoral. In the beginning, it is necessary to complete the legal framework on environmental industry development, to promulgate the Decree on environmental industry development as well as guiding documents for unified management and development of the industry.

★What are science and technology solutions for the implementation of the scheme for environmental industry development in Việt Nam?

Mr. Nguyễn Huy Hoàn: To promote the development of the environmental industry in the upcoming time, it is necessary to have comprehensive solutions, particularly those on science and technology. According to ex-

perts' assessments, products and services provided by Việt Nam enterprises are generally simple and have low levels of scientific and technological inputs. Whereas current technologies and products that are being imported and consumed domestically have high selling price and high cost. Therefore, scientific and technological solutions are proposed, on the one hand, to enhance the inputs of science and technology, from which to enhance the value and quality of domestic products, on the other hand, to promote the study, receipt and transfer of treatment technologies, technologies on product and equipment production from overseas into Việt Nam. In the scheme for environmental industry development in Việt Nam to 2025, the Prime Minister approved the national target scientific and technological program on environmental industry development in order to promote and enhance the capacity in development of technologies for environmental protection treatment, equipment and products that have high quality and reasonable price and operation expense and are appropriate with the specific conditions of Việt Nam; at the same time, to promote the linkage between research institutes, universities, financial organisations and enterprises, the coordination and support of the Government in scientific and technologies activities for environmental protection. In addition, the Government studies to promulgate appropriate mechanisms and policies such as: encouraging the import, study, encoding, mastering and development of pollution treatment technologies and equipment that require high technological inputs; establishing risk funds to support applied environmen-

tal technologies; allowing research organisations to apply technological study results to contribute capitals for establishing environmental business companies...

★Can you share with us some experiences in environmental industry development in other countries in the world?

Mr. Nguyễn Huy Hoàn: Currently in the world, leading industrial countries such as USA, Japan and some Western European countries have a high proportion of the environmental industry sector, up to 85%, while developing countries only makes up about 13 - 14%. To promote the development of the environmental industry sector, the Government plays a very important role in promulgating policies, regulations, programs and projects to develop the environmental industry sector as well as deciding in construction of infrastructure and information network to promote the development of the environmental industry sector. In general, many countries have applied following measures development and enforcement of environmental protection laws; formulation of policies promoting the use of environmental industry products and services; encouraging and supporting the study, application and transfer of technologies in environmental industry development; propaganda, organization of workshops, exhibitions, international conventions to disseminate environmental industry products and service... I think there are good experiences, however, during the application, we need to pay attention to the difference in conditions and development levels of each country■

★Thank you!

Phạm Tuyên
(Implemented)

Towards building green, clean and nice healthcare centres

Nguyễn Thị Liên Hương - Director
Health Environment Management Agency - Ministry of Health

Building a clean green and nice healthcare centre is vital to improve the quality of healthcare services provided to patients. Therefore, waste management, provision for clean water and planting of trees at the healthcare centre are expected to prevent and minimize the environmental pollution and protect the health of employees, staff, patients and their relatives. This is a meaningful activity, as there are still limitations to sanitation and environment protection at healthcare centres in Việt Nam.

BUILDING CLEAN, GREEN AND NICE HEALTHCARE CENTRES

In recent years, the State and the Government have made investments to improve the infrastructure, facility, sanitation and medical waste treatment systems for healthcare centres. However, many centres, especially hospitals at local areas, have not met the standards set by the Health Ministry on environment and sanitation protection and medical waste treatment.

In order to help healthcare centres improve their capabilities of environment protection and medical waste treatment, improve the quality of healthcare services and protect the health of people, the Ministry of Health on July 15, 2016, issued Decision 3638/QĐ-BYT to approve the action plan on green, clean and nice healthcare centres. To implement the plan effectively, the ministry also issued Decision 6573/QĐ-BYT regulating instructions for healthcare centres to make their places green, clean and nice. In addition, the decisions aim to help Government agencies inspect and examine the implementation of the plan at healthcare centres and work with patients and their relatives to monitor the implementation of the plan.

CRITERIA TO EVALUATE A CLEAN, GREEN AND NICE HEALTHCARE CENTRE

In order to be recognized as a green, clean, nice and environment-friendly healthcare centre, the centre must obtain the criteria as follows:

Green: The healthcare centre must increase the number of plants and trees inside



▲ Workshop on training and sharing practices about development of green, clean and nice healthcare centres

the area of the centre every year; locate potted plants and flowerpots around consulting rooms, halls, waiting rooms and stairs. Potted plants and flowerpots must be regularly pruned and taken care of to make the environment green and clean.

Clean: The healthcare centre must assure there is sufficient hygienic and safe food and drinks. Each department/room at the centre must have a private lavatory for patients, their relatives and staff. The lavatory must be clean and provided with toilet paper and soap. The rooms/departments, patient rooms, lavatories and halls must be ventilated, lightened and equipped with trash cans.

Medical waste treatment: The healthcare centre must classify the types of medical wastes, and have sufficient bags and cans to dispose them. There must be a storehouse for medical wastes at the healthcare centre. The centre must also ensure that solid medical wastes are collected, transferred and processed in accordance with the regulations. The waste water treatment system must be sealed, and the waste water must be processed by a standardized system.

Nice and environment-friendly: The healthcare centre must be equipped with seats for patients and relatives. There must be pictures, photos, books, newspapers



▲ Healthcare staff plant trees to make the environment green, clean and nice

and other media publications on healthcare and environment protection. Ceilings, walls, gates, doors halls and stairs must be re-painted regularly; blankets, pillows and clothes for patients, as well as beds and closets in the rooms and departments must be clean and well-arranged. Staff, patients and relatives must wear medical outfits that are allowed at the healthcare centre.

Among the criteria above, the “clean” and “medical waste treatment” items have been set as the focus for healthcare centres, so that they can minimize the risks of contamination at the centre and ensure a clean environment for patients to recover. In addition, the “green” and “nice” items will make patients, relatives, the staff and the community pleased with the environment at the centre. Therefore, it is easy to see that a clean, green and nice environment is one of the main criteria to ensure patients' satisfaction with the quality of healthcare centres.

IMPLEMENTATION OF THE PLAN

The Health Environment Management Agency has closely worked with other Government agencies to develop training materials on green, clean and nice environment for healthcare centres. In the future, the agency will enhance the inspection and supervision of the plan implementation to commend and reward those that implement the plan strictly and punish those that violate the plan. The implementation of the plan will be funded from the State budget, donations and other sources from the community.

In addition, the agency will increase the dissemination of clean, green and nice environment in various media forms, so that healthcare centres realize that creating a nice, green and clean environment is necessary and relevant for their development. Healthcare centres must explain to patients and relatives their roles and responsibilities in developing a green, clean and nice environment. More importantly, healthcare centres must study the plan carefully to develop their own action plans at their own places■

Toyota Vietnam joins hands in developing green schools

Toyota Motor Vietnam Co. Ltd. (TVM) will plant 1,000 trees in eight secondary and primary schools in Vinh Phuc, Nghe An and Dong Nai provinces as part of the programme “Toyota chung tay xanh hoa hoc duong” (Toyota joins hands for green schools) launched in Vinh Phuc province on April 4.

Speaking at the event, Nguyen Viet Dung from the VEA said, the programme will create a tree planting movement nationwide, especially at schools. Through the programme, the MONRE hopes for greater involvement of local people, organizations, schools and armed forces in afforestation and forest protection. The programme will be carried out annually and more trees will be grown to create a clean and fresh environment, he highlighted. Meanwhile, according to General Director of the TVM Toru Kinoshita, the programme held for the first time in line with the orientation of Japanese Toyota Motor Corporation, will contribute to the global environment's sustainable development.



Aiming to raise public awareness of environment protection, the company attaches special importance to educating young generations about environment improvement in Việt Nam. Since its establishment in Vietnam in 1995, the TVM has made efforts to carry out social activities in numerous areas, especially environment protection with a line-up of meaningful programmes like using biogas for small-scale electricity energy production, ecological village building, and the television programme Green Journey■

Gia Linh/VEM

Improve environmental protection activities for transport sector in 2016 - 2020

Trần Ánh Dương
Environment Department
Ministry of Transport

To implement Directive 25/CT-TTg, dated 31/8/2016, by the Prime Minister regulating urgent tasks and missions on environment protection, the Ministry of Transport (MoT) on October 24, 2016 issued Decision 3309/QĐ-BGTVT regulating the Action plan to improve environment protection activities by the MoT during the 2016 - 2020 period.

The Action plan focuses on the following five missions and solutions:

First, the ministry will enhance disseminating resolutions of the Politburo, policies of the Party and regulations of the Government on environment protection to its agencies, units, employees, staff and other members; organize training programmes to improve knowledge of environment protection and connect environment protection regulations with those programmes; and provide information and promote the role of media in environment protection.

Second, the Ministry will strengthen the management and administration system

and improve quality and accountability of employees and officials that are working on environment protection issues in the sector; include criteria of environment protection in yearly credits, commendations and rewards for the ministry's agencies and units; organize, appoint and assign specific leaders and units to take responsibility for environment protection, increase strength of the units and employees that are trained in environment protection and use resources in an efficient and economical way; and seek both domestic and foreign resources to organize training programmes to improve the quality of management and professionalism for officials and employees.

Third, the Ministry will strengthen environment protection activities in connection with the development of transport infrastructure and facilities in the following ways: Strictly con-

ducting strategic environmental assessments (SEA), environmental impact assessments (EIA) and environmental protection plans (EPP); ensuring solutions on reducing environmental impact are included in the design, implementation and technical plans of transport infrastructure development projects; and developing and publishing environmental protection management plans, carrying out environmental protection activities and monitoring implementation of activities under the approved SEAs and EPPs. The Ministry will regularly monitor and supervise implementation of environmental protection solutions in construction projects and review SEAs and EPPs that have been approved for transport infrastructure development projects, especially projects that are likely to have negative environmental impact, to make appropriate amendments.



▲ Promote and disseminate the issue of environmental protection in transport activities in general and in development of transport infrastructure in particular



Fourth, the Ministry will improve quality of waste management activities for waste that is produced from transportation activities and vehicles. The solutions are developing multimodal (combined) transportation and increasing the market share for railway, waterway and coastal transportation; improving quality of public transport in urban areas; and giving priority to investment and exploitation of buses and taxi-cabs that are fuel-saving and friendly to the environment.

The Ministry will apply level-three and level-four fuel emission standards for newly assembled and imported automobiles and two-wheel motors; control fuel emission produced by motors and cars in the cities and provinces; and raise fuel emission limits for imported second-hand vehicles and in-circulation cars.

The Ministry will review and update legal policies and technical standards on sea pollution prevention for sea ships and domestic waterway transports and enhance waste management on those waterway transports in accordance with Viet Nam's environmental protection regulations and other international conventions.

The Ministry will develop environmental protection regulations for the civil aviation and railway transportation sectors and complete airport noise maps to minimize noise pollution produced by civil aviation transportation activities. The ministry will also develop activities to collect and process waste produced by sea ships, domestic waterway transports and airplanes at seaports, domestic waterway harbors and airports in accordance with the country's environmental protection regulations.

Fifth, the Ministry will encourage and push companies to achieve green transport business activities and review environmental records of its agencies and units to develop and propose the environmental protection plan in accordance with Item 2, Article 22, Decree 18/2015/ND-CP, issued on 14/2/2015 by the Government.

The Ministry will speed up the development and application of the ISO 14001-based environmental management system; encourage agencies and businesses to apply the ISO 5001-based energy management system and develop and implement standards and regulations on fuel consumption and economical and effective energy use; and develop plans to increase investment in new technologies and replace those that consume high volume of energy and cause environmental pollution. The Ministry will also strictly penalize transport units that cause serious environmental pollution and make sure similar cases do not reoccur in the future.

The Ministry will invest and upgrade facility and equipment that are used to collect, classify, store and process waste produced through the operation of its units and agencies; collect, classify and store solid and toxic waste and contract with organizations and businesses to transfer and process that waste; completely process waste water to meet environmental protection standards; constantly monitor indicators of waste water, emissions, noise and vibration in accordance with regulations; and increase the number and quality of inspections on transport businesses in connection with their compliance of environmental protection regulations■

Energy labels made compulsory for certain equipment, vehicles



▲ One batch of refrigerators

Four groups of equipment and vehicles must have energy labels, according to a recent decision by PM Nguyễn Xuân Phúc. They include home appliances, office and commercial appliances, industrial appliances and transport vehicles. Energy labels are compulsory for strait tube fluorescent lamps, compact tube fluorescent lamps, electromagnetic and electronic ballasts for fluorescent lamps, air-conditioners, rice cookers, electric fans, refrigerators, washing machines, televisions, three-phase distribution transformers and electric motors. They are mandatory from January 1, 2020 for LED lighting products and hot water storage tanks.

Regarding office appliances, energy labels must be on commercial refrigerators. Photocopiers, computer desktops and printers will receive energy rating labels on a voluntary basis. Laptops must have the stickers from January 1, 2020. Seven-seater cars and smaller ones are required to carry energy rating labels. Meanwhile, labeling for those with more than seven seaters to nine seaters will be voluntary until December 31, 2017 and for motorcycles until December 31, 2019. Energy labels are required on those cars from January 1, 2018 and motorcycles from January 1, 2020.

According to a 2011 Government Decree, most energy-consuming products are required to carry energy rating labels before being sold on the market. These labels provide consumers with information about power consumption and the products' energy efficiency■

Vũ Nhung/VEM

Việt Nam's Policy on Marine and Island Natural Resources and Environment Management in the International Integration Period

Hoàng Nhất Thống

Vietnam Administration of Sea and Islands

Ministry of National Resource and Environment



▲ *Việt Nam sea possesses diverse natural resources*

Việt Nam has more than 3,260 km of coastline with more than 3,000 small and large islands, stretching 15 latitudes from North to South, and locates in the humid hot tropical weather zone. Therefore, the marine zone of Việt Nam consists of diverse resources, including biological, non-biological resources and location resource.

VIỆT NAM MARINE POTENTIALS

By now, Việt Nam has identified more than 11,000 marine species located in more than 20 typical ecosystems, belonging to six different marine biodiversity regions. Particularly, in coastal zones, there are hundreds of estuaries, lagoons, inlets, bays, islands and peninsulas... which creates a system of complex landscapes and biodiversity: Mud shrubs, mangroves, estuaries, lagoons, inlets, bays, coral reefs, delta, sandy beach, mudflat, brackish aquaculture, coastal wetlands... Some ecosystems have high biological productivity such as coral reef, sea grass and mangroves. In islands, there are 1,290 fauna and flora species that were discovered. This is the foundation for sustainable development of some marine economic sectors that are based on natural resources such as tourism, fishery and marine health and drugs.

In addition, the marine zone of Việt Nam has identified about 35 types of minerals

having different exploitation reserves, belonging to different groups: fuels (outstanding with oil and gas with the reserve of about 3-4 billion tonnes of oil equivalent) minerals, construction materials, precious stones and semi-precious stones, and liquid minerals. Along the coast, placer of heavy minerals of precious elements such as titan, zirconium and cerium have been found. Our sea also has potentials of natural hydrate, seawater resources, coastal land, wind, tidal energy, wave energy and currents. The coastal geography features with many islands, long coastlines, many estuaries, perching points and inlets, bays, sandy beaches... are potentials for marine and maritime tourism development.

Particularly, Việt Nam has the advantage of ocean facing location and the ocean plays important geo-politics position in the East Sea and

in the world, with the across big international marine route from Indian Ocean to Pacific. Large-scale marine ports and "marine-toward" key economic centres make the urbanization process faster and stronger and create important development dimensions which decide the marine and coastal marine economic development structure of the country. The vast marine zone is a very special important spatial area for the development of marine transportation, marine fishery exploitation, oil and gas exploitation, solid minerals in the continental shelf; at the same time, it will be the place for cooperation activities and dynamic marine economic integration between Việt Nam and the world.

POLICY ON MARINE AND ISLAND NATURAL RESOURCES AND ENVIRONMENT MANAGEMENT DURING THE INTERNATIONAL INTEGRATION PERIOD

In the past, in Việt Nam as the awareness on marine resources was limited, non-material resource types were paid insignificant attention and overexploited, causing natural resources wastes and marine and island environment degradation. In the common trend of the world considering "XXI is the century of ocean" as well as being aware of the impacts of climate change and sea level rise, Việt Nam has initially established marine and island natural resources and environment manage-



ment policy in an integrated manner in the context of international integration with following main contents:

First, the management of marine natural resources and environment takes place in an appropriate, effective and sustainable manner in accordance with strategies, planning and plans on socio-economic development, national sovereignty, security and national defence. To implement above contents, in recent years, the State has established an unified and integrated management agency on marine and islands from central to local levels; developed and implemented inter-sectoral and inter-regional coordination policy mechanisms and tools to ensure that marine and island resources are exploited and used effectively, maintained the function and structure of ecosystems towards sustainable development, protected sovereignty, sovereignty rights, and national jurisdiction of Việt Nam in the sea, and ensured national defence and security.

Particularly, the Prime Minister has promulgated Decision 1570/QĐ-TTg approving the Strategy on sustainable exploitation and usage of marine natural resources and environmental protection to 2020, vision to 2030; Decision 2295/QĐ-TTg approving the National Strategy on integrated coastal management to 2020, vision to 2030. At the same time, the Government instructs the Ministry of Natural Resources and Environment to develop the scheme on sea use planning and plan for appropriate spatial arrangement and resource allocations for sustainable exploitation of marine and island natural resources and environmental protection.

Second, encouraging to promote baseline investigations and scientific studies on marine and island natural resources and environment; establishing an information system and an integrated and comprehensive database on marine and island natural resources and environment for marine economic development, natural defence and security; encouraging organisations and individuals to sustainably exploit marine and island natural resources and environmental protection. Promoting baseline studies and scientific studies on marine and island natural resources and environment to ensure the supply of information and data on marine and island natural resources and environment to meet the requirements of management, marine economic development, response to climate change, sea level rise, national jurisdiction protection, national defence and security guarantee.

Third, enhancing marine and island envi-

ronmental protection, including regulations and contents on pollution control of the marine environment; responding to oil spills, hazardous chemicals on the sea, and ocean dumping; enhancing responsibilities of the State, organizations and individuals in marine and island environmental protection. Currently, the Ministry of Natural Resources and Environment is assigned to implement Decision no. 1278/QĐ-TTg by the Prime Minister "Approving the plan to implement the Joint Statement and Framework Programme among Việt Nam, Cambodia and Thailand on joint oil spill preparedness and response in the Gulf of Thailand", Decision no. 1864/QĐ-TTg approving the Implementation agreement between the Socialist Republic of Việt Nam and the Republic of the Philippines on cooperation in marine oil spill response". The implementation of these decisions aim to implement the obligations that Việt Nam committed to cooperate in timely and effectively respond to oil spills in marine areas in the transition zone between Việt Nam and other relevant countries.

Fourth, enhancing the capacity of monitoring, supervising and forecasting on marine and island natural resources and environment; establishing an information system and a comprehensive and unified database on marine and island natural resources and environment for the marine economic development, national defence and security. In order to effectively manage marine and island natural resources and environment, timely respond to and prevent marine disasters, Việt Nam marine and island natural resources and environment management policy directs to establish an integrated marine and island

natural resources and environment monitoring system that is open, connected and shared thoroughly from central to local levels; and to participate in regional and international marine and ocean monitoring and supervision systems.

Fifth, expanding and enhancing international cooperation in natural resources management, exploitation and usage and environmental protection in the principle of protection of national independence and sovereignty. The Việt Nam Marine and Island Natural Resources and environment management policy in the international integration context is considered in the whole national socio-economic development strategies and planning; in order to ensure the principle of a peaceful, cooperative and partnership sea and to jointly develop in the principle of respecting national independence, sovereignty and integrity, not interfering in each other internal affairs, equality, not intervening in matters within the domestic jurisdictions, fairness, mutual interest, respecting Việt Nam legislations and relevant international conventions that the Socialist Republic of Việt Nam is a member.

In other words, being aware of the important roles of marine and island natural resources and environment to the socio-economic development and the guarantee of national defence and security, the Việt Nam policy on marine and island natural resources and environment management has moved towards international integration. That is the policy on marine and island natural resources and environment management towards integration in order to appropriately, effectively and sustainably manage marine natural resources and environment■

Mobilization of the entire nation in managing and using wisely natural resources and environment

The collaboration programme during 2004 - 2011 and 2012 - 2016 between the Ministry of Natural Resources and Environment (MONRE) and the Vietnam Fatherland Front Central Committee has mobilized the strength of the entire nation in managing and using wisely natural resources and environmental protection and responding to climate change. Collaboration activities have been thoroughly instructed from central to local levels and have achieved many important results. On the occasion of the Rooster Year 2017, the Environment Magazine has an interview with the Vice Chairman of the Vietnam Fatherland Front Central Committee Le Ba Trinh on the outcomes of this programme.



▲ Mr. Lê Bá Trinh - Vice Chairman
Vietnam Fatherland Front Central Committee

****Reporter: Can you tell us some main outcomes of the collaboration programme during 2012 - 2016 as well as the contents of the collaboration programme in the period of 2016 - 2020 between MONRE and the Vietnam Fatherland Front Central Committee?***

Mr. Lê Bá Trinh: After five years of implementation of the collaboration programme No.20 between the Vietnam Fatherland Front Central Committee and MONRE, in general, the program has achieved the proposed tasks.

Since 2012, the Vietnam Fatherland Front Committee at all levels have regularly collaborated with member organizations and the Natural Resources and Environment Sector to develop and expand models and pilots of local communities in environmental protection, with the topics on "Environmentally self-protection residential area", "Residential area harmoniously implementing poverty reduction and environmental protection"; develop new models of residential areas preventing and responding to climate change, sea level rise, wise exploration and usage of resources, biodiversity conservation and development. At the same time, the program promotes the roles typical and esteemed individuals in communities (retired staff, community head, religious dignitary...) which contribute to mobilize citizen in actively participating in self-management of the environment.

In addition to the budget supported by the Vietnam Fatherland Front Central Committee to develop pilot models, Provincial Departments of Natural Resources and Environment have

provided additional budget for the Fatherland front units at residential areas to implement their tasks. Many provinces have conditions to purchase facilities for waste collection, organize dissemination activities, make information boards, slogans, organize preliminary and final reward meetings...which have contributed significantly to achieving environmental criteria of localities that meet the new rural standards.

Inheriting and promoting the results of the collaboration program 2012 - 2016, the collaboration program 2016 - 2020 focuses on main tasks: dissemination, mobilization and awareness raising of each individual, each household, residential community, religious organizations, enterprises and manufacturing entities and commercial entities to strictly implement viewpoints, policies and legislations of the Party and the State on appropriately use and management and natural resources and environmental protection, response to climate change. Continuing to develop new models and expand typi-

cal pilots of residential areas and religious organizations in environmental protection and response to climate change. Mobilizing citizens to promote the ownership and actively and spontaneously participate in developing and implementing agreements, conventions of residential communities towards environmental protection; collaborating to supervise, monitor and socially criticize for the implementation of policies and legislations on natural resources management and use... Of which, focusing on monitoring the treatment of industrial wastes, agricultural wastes and domestic wastes of households and residential areas...; compiling materials, organizing trainings, enhancing awareness and professional qualifications...

****Reporter: After five years of implementation, what are the lessons learnt for the new period?***

Mr. Lê Bá Trinh: After five years of implementation, there are some lessons learnt from the collaboration program including:

First, if the locality strictly



▲ Minister of Natural Resources and Environment Trần Hồng Hà and Vice Chairman and General Secretary of the Viet Nam Fatherland Front Central Committee Trần Thanh Mẫn signed the collaboration program

implements environmental protection as an emulation standard in the campaign “the whole nation unify to develop cultural lifestyle at residential areas” (now the campaign “the whole nation unify to develop new rural, civilized urban areas”) combines environmental protection with the development of cultural communes and towns; new rural commune, civilized urban areas, review and appreciate cultural families and cultural residential areas annually, the environment in that area is ensured.

Second, in order to well implement collaboration contents and tasks, it is important to regularly provide materials, organize trainings for staff of the Fatherland Front, unions at all levels particularly Fatherland Front Units in residential areas; inspect, guide, review and expand the typical models and pilots on environmental protection in localities.

Third, the instruction and establishment of the models play important roles in developing the campaign/movement; of which should focus on selecting key contents to change behavior and actions of officials and citizens; promote the roles of religious dignitary, respected people and self-management of the residential area.

Fourth, due to typical organizational characteristics of the Vietnam Fatherland Front and the natural resources and environment sector, specific results can only be achieved in localities that are flexible and innovative in collaboration and implementation of the tasks.

★Reporter: Last year, the Vietnam Fatherland Front at all levels implemented the collaboration program between the Vietnam Fatherland Front Central Committee, MONRE and religions on environmental protection and response to climate change, can you tell us the effectiveness of this program?

Mr. Lê Bá Trình: At the conference “Pro-

moting the roles of religions in environmental protection and response to climate change” organized in Hue in December 2015, the collaboration program among the Vietnam Fatherland Front Central Committee, MONRE and religions signed with 40 religious organizations and 14 religions nationwide. The central steering committee that consists of leaders of the Vietnam Fatherland Front Central Committee, MONRE and the head of 14 religions was established to implement the program.

Based on that, since then there are 45/63 provinces and cities nationwide sign the collaboration program. The Central Steering Committee has developed pilot models to have religions participated in environmental protection and response to climate change in three regions: Ho Chi Minh City (South); Thua Thien - Hue (Central) and Hanoi (North). In localities, each religion implements the collaboration program in a specific and innovative manner. Through the implementation of the program, dignitaries, religious followers and religious organizations have actively promoted the roles and responsibilities together with the nation to implement environmental protection and response to climate change.

★Reporter: What are specific activities of the Vietnam Fa-

therland Front to create substantial changes to the entire nation on environmental protection and appropriate use of natural resources in 2017?

Mr. Lê Bá Trình: Based on the collaboration program between the Vietnam Fatherland Front Central Committee and MONRE, in 2017 the Vietnam Fatherland Front Committee at all levels will implement many tasks to mobilize different groups to participate in environmental protection and response to climate change, focusing on following activities:

Promoting the dissemination and propaganda of viewpoints, policies and legislations on environmental protection and response to climate change, contributing to enhance awareness, responsibility and agree on actions to implement this task in all citizen groups.

Continuing to implement models of residential areas on environmental protection and response to climate change to be appropriate with conditions of each region, location, urban area, rural area, and areas having ethnic minority people and religious followers. Of which, focusing on tasks to adjust and change behavior and actions in manufacturing processes, trading, and daily activities such as: burying dead people using advanced, scientific and environmentally friendly methods. The Vietnam Fatherland Front Committee collaborates with the natural resources and environment sector to monitor environmental pollution incidents that are causing anger in society such as: waste from industrial production, agricultural production, domestic activities of households and residential areas... to contribute to promote sectors, levels, and the whole society to effectively implement environmental protection and respond to climate change■

★Reporter: Thank you!

Phạm Đình Tuyền
(Implemented)



Review of the five-year implementation of the payments for forest environmental services programme

In 2008, the Vietnam Forest Protection and Development Fund (VNFF) was founded to mobilize social resources to protect and develop forest land in the country. After eight years of operations, the VNFF has made its mark in forest protection and development activities, contributing significant financial resources to the forestry sector and improving the earning and living conditions of those who work in the sector. To provide an explanation of the operations and achievements of the VNFF as well as of the Payment for Forest Environmental Services Programme (the PFES Programme), Vietnam Environment Administration Magazine (VEM) spoke with Nguyễn Bá Ngãi, Deputy Director of Vietnam Administration of Forestry at the Ministry of Agriculture and Rural Development (MARD).



▲ Nguyễn Bá Ngãi,
Deputy Director of
Vietnam Administration
of Forestry

★Can you reveal the results after eight years of operating the VNFF and five years of implementing the Payment for Forest Environmental Services Programme (PFES Programme)?

On January 1, 2008, the government issued Decree 05/2008/ND-CP regulating the Vietnam Forest Protection and Development Fund (Decree 05) to attract and approach non-State financial resources for the management, protection and development of the forest, and the PFES Programme is one of the key resources for the VNFF. On April 10, 2008, the Prime Minister issued Decision 380/QĐ-TTg regulating the pilot implementation of the PFES Programme in Son La and Lam Dong provinces. After two years of the pilot implementation, which was considered successful, the government issued Decree 99/2010/ND-CP on 24/9/2010 which making the PFES Programme officially valid across the country on January 1, 2011 (Decree 99).

After eight years of operation, including five years of implementing the PFES Programme, the VNFF has made a lot of achievements, results and positive impacts. The VNFF has consulted with the Vietnam Administration of Forestry under the Ministry of Agriculture and Rural Development (MARD) to issue multiple legal documents to manage and instruct local

authorities to implement forestry environment policies. To date, 41 provinces and cities in the country have developed their own funds, and these are being run properly and effectively.

Initial success in socializing forest protection and development efforts by the VNFF is expected to raise trillions of dong in investment from non-State sources. Total payments for forest environmental services up to December 30, 2016, amounted to VND 6.51 trillion. In the period 2011 - 2015, the annual average payment for forest environmental services was VND1.2 trillion, equal to 22 %% of the total yearly average social investment for the forestry sector. This has proved to be a stable, sustainable financial resource for the VNFF due to the increase in forestry services and businesses, which helps reduce State spending on the forestry sector. On November 2, 2016, the government

issued Decree 147/2016/ND-CP (Decree 147) to amend and supplement Decree 99, which has become an important factor in resolving difficulties arising from the implementation of the previous decree. In addition, raising charges on hydro-power plants (from VND20/kwh to VND36/kwh) and clean water suppliers (from VND40/m3 to VND52/m3) has increased the revenue from payments for forest environmental services. Therefore, people, especially ethnic minorities and those living in remote, disadvantaged areas, can yield higher profits and benefits from the VNFF. Decree 147 also helps people earn more from the PFES Programme, ensuring better living conditions and encouraging them to make further efforts to protect and develop the forest.

The revenue from the PFES Programme has helped management agencies protect more than 4.6 million



hectares of forest. Besides the main income sources, such as hydropower plants, clean water suppliers and travel agencies, the VNFF has tested some new sources, such as industrial zones, seafood processors and carbonate absorption services. Based on the pilot results, the VNFF will consult MARD to issue a new policy and apply it across the country to diversify the financial resources of the PFES Programme.

It can be said that the PFES Programme has been proven to meet the development initiatives of Việt Nam and the world in terms of environmental protection and improving the management and exploitation of forestry resources in a sustainable way, while contributing to the growth of the Vietnamese economy. In addition, it also improves the living conditions of millions of local people in the mountains, offering them plenty of employment opportunities, reducing poverty and ensuring social security and order.

★How is the PFES Programme carried out?

The money received from businesses involved in the PFES Programme is paid back to forestland owners under the supervision of the VNFF. A total of VND5 trillion has been paid to forest owners, who include households, individuals and organizations, to manage and protect 5.87ha of forestland (42 % of the total forest area in the country). Local authorities are allowed to use nearly VND385 billion to help forest owners develop silvicultural methods and facilities to protect and develop the forest. Since the launch of the PFES Programme, the management and protection of forestland has improved, with the number of cases violating the Law on Forest Protection and Development and the total destroyed forest area falling by 32.9 % and 58.2 %, respectively, compared with the 2011 - 2015 period and the 2006 - 2010 period.

At the moment, there are more than 500,000 households and groups receiving payments from the PFES Programme in cash and packages. The average payment of VND 2 million per household per year has improved the living conditions of the local people, especially the ethnic minority groups, and has become an important earning source for households located in



▲ People of San Thanh Commune, Lai Chau City, Lai Chau Province receive payments for forest environmental services

remote, disadvantaged regions.

Further, the PFES Programme has financed forest owners wishing to develop, manage and protect their forest areas, especially forestry companies, forest management agencies and local people, helping them increase their earnings and improve their living conditions.

★What are the problems and obstacles encountered in conducting the PFES Programme? What are the causes of these problems?

In addition to its achievements, the VNFF and the PFES Programme have encountered some problems. One of the problems is that revenue from the PFES Programme has remained low compared to the programme's potential, while charges to other subjects besides those included in the programme, including industrial zones, seafood processors and carbonate absorption services, are not carried out nationwide. Charges for forest environmental services to hydropower plants and clean water suppliers are much lower than the value of the environmen-

tal services generated by nature. For example, charges to hydropower plants is VND36/ per kwh, up from the previous level of VND20/kwh, but it is still much lower than the value of environmental services produced by the forest, which ranges between VND63 and VND368/ kwh and averages at VND214/kwh. Meanwhile, charges to clean water suppliers is VND52/m3 compared with the environmental service value of VND65/m3.

Further, the average income of VND2 million per household per year for households across the country is considered too low, making it difficult to ensure adequate living conditions. A number of hydropower plants, clean water suppliers and travel agents, which use natural resources from the forest, have not paid their fees or have delayed payments to local authorities, putting themselves in debt and affecting the provinces' plans for spending on forest protection, management and development efforts. Besides this, the legal framework of the VNFF has remained unclear, so local authorities have misunderstood



the framework and applied the regulation in various incorrect ways. Moreover, the provinces have met with difficulties in operating their forest protection and development funds due to the lack of self-financing.

On the other hand, payments for forest environmental services are a new, non-State source of finances. A number of leaders and officials from local authorities have misunderstood the nature of the payments and considered them State spending, thus putting the payments under the management of the State's regulations and making it harder to manage and spend the programme's money.

What do you recommend to improve the efficiency of implementing the PFES Programme in the future?

To continue implementing the PFES Programme effectively in the future, we will propose that the National Assembly approve the amended Law on Forest Protection and Development, which includes policies on the

VNFF and PFES Programme. We will also propose that the government allow and assign MARD to lead and work with other ministries and sectors to develop a new decree in 2018 to amend and supplement Decree 05 and relevant instructional circulars to match the current conditions in order to implement Decree 147 effectively.

In the near future, the VNFF will actively push local authorities to promote Decree 147 to the targeted subjects and apply new charges under the PFES Programme, enhance the monitoring of the programme's implementation, ensure that the charges are collected in full, and ensure the media reports on

businesses and local authorities that strictly follow the regulation on the payments for forest environmental services and other required charges to bring the sectors, ministries, organizations, individuals and society to a consensus. In addition, the VNFF will enhance its supervision of the implementation of the PFES Programme and disburse payments on time to forest owners and households as well as develop and complete the overall forest administration project so that the project becomes a foundation for the PFES Programme■

***Thank you!**

Hương Trần
(Implemented)

Programme on gas emission and deforestation reduction gets approved

Prime Minister Nguyễn Xuân Phúc has approved a national programme on Reducing Emissions from Deforestation and Forest Degradation to 2030. The project aims to lower greenhouse emissions through limiting forest degradation, enhancing sustainable forest management and protecting biodiversity. It is also expected to assist with the implementation of the national strategy on climate change and tackle poverty.

It is designed to raise the forest coverage to 45 percent, contribute to achieving the national target of reducing greenhouse emissions by 8 percent with domestic resources and up to 25 percent with international support by 2030.

Forest land across the country is hoped to reach 16.24 million hectares by 2020.

To achieve the targets, the project will provide technical support in sustainable and deforestation-free agriculture and aquaculture while improving forest governance and livelihoods for people living near and in the forest. In addition, it will help enhance the economic environment for forestry. Set to be carried out across the country between 2017 and 2030, the programme will prioritize areas which are hotspots of deforestation and

forest degradation, as well as regions which are affected by climate change and have the potential for forest carbon stock enhancement■

Đức Anh/VEM

Government approves project on preventing and combating illegal trade in endangered species

The project aims to help Việt Nam stop the illegal trade in wild animals and plants by identifying gaps in the current policy and law; as well as proposing the competent authorities to amend and supplement the legal documents. The project is scheduled to be implemented from 2017 to 2021 nationwide, of which US\$10 million funded by the USAID and over VND11.1 billion of the Government's counterpart fund.

Illegal trade in wildlife has been pushing many species to the brink of extinction while causing risks to environment, economy, development and security. In recent years, the Việt Nameese Government has step-by-step approached to solving the trade in wildlife. Việt Nam's functional agencies has also coordinated to carry out comprehensive investigations with inter-sector investigation teams■

Phạm Đình/VEM



Việt Nam to organize Eco-Products International Fair

The Eco-Products International Fair (EPIF) is held in Việt Nam from May 11 - 13, 2017. This is a very practical activity held annually in member states of Asian Productivity Organization (APO) with an aim to promote awareness of consumers and communities on productivity and sustainable development through the production and consumption of environmentally friendly products. The products exhibited at the fair include environmental technologies such as waste treatment, exhaust emission treatment; ecological materials such as metal steel, polymer materials, natural materials; ecological products and services. The fair is expected to attract around 150 organizations and businesses with ecological products and environmental technologies at home and abroad with the presentation of about 300 stalls, covering a total of 5,000 - 6,000 square meters.



According to the program, the Việt Nam Environment Administration (VEA) will host a workshop on the application of environmentally friendly technologies in waste treatment. In particular, the workshop will focus on introducing the status of the environmental industry in Việt Nam and the models of effective waste and sewage treatment such as domestic wastewater treatment by anaerobic filter technology combined with underground tree-planting filter; reinforcing heat to treat industrial sludge into combustion fuel; Leachate-based water treatment technology by advanced oxidation combined with biology... In addition to the activities mentioned above, the event also organizes other activities to attract the attention of visitors. In particular, the Việt Nam Environment Administration will organize a running event for environment entitled "Community Connectivity for Green Future" on May 13■

Huy Hoàng/VEM

Việt Nam saves 471, 000 kWh of electricity during Earth Hour Campaign 2017



▲ Youngsters join the 2017 Earth Hour Campaign in Hanoi

Statistics from the Việt Nam Electricity (EVN) indicate that during one hour of households and businesses switching off the lights in response to the Earth Hour Campaign 2017, which was implemented across the country on March 25, saved 471,000 kWh of electricity, equivalent to VND764 million.

Earlier, an Earth Hour 2017 event was held at the August Revolution Square in Hanoi from 8:30 pm to 9:30 pm, attracting tens of thousands of participants.

In addition to Hanoi, Ho Chi Minh City, Da Nang and 60 cities and provinces nationwide also simultaneously switched the lights off for one hour in response to the 2017 Earth Hour Campaign with the message "Lights off to turn on the future". The campaign was co-sponsored by EVN, Daikin Việt Nam and others.

Speaking at the Hanoi ceremony, Minister of Industry and Trade Tran Tuan Anh emphasized that in response to the Earth Hour 2017 campaign, Việt Nam affirmed its efforts to protecting the environment, as well as saving and effectively using current and future energy sources, while affirming its desire to build a green economy towards sustainable development. The lights off hour was the main event under a series of activities of the Earth Hour Campaign 2017 to spread the event's message to more than 90 million people across the nation. The programme was kicked off on March 5 across the nation with a range of activities in response. In nearly one month, many activities under the framework of the campaign have been organized, such as making commitments to economically and effectively using electricity in households and businesses, exchanging with schools on the theme of the campaign, and cycling to respond to the campaign■

Nguyễn Hằng/VEM



Understanding the sustainable consumption and production policy framework promotes ecological renewal in enterprises

Nguyễn Thị Bích Hòa

Asian Institute of Technology in Việt Nam

The development strategy of Việt Nam has presented efforts in solving issues of economic growth, environmental protection, reduction of greenhouse gas emission, saving of natural resources and adaptation to climate change. Green growth has become an inevitable development strategy of Việt Nam, which clearly identifies four priority actions including: development of national institution and green growth plan at localities; reduction of greenhouse gas emission intensity and promotion of the use of clean energy, renewable energy; greening production; greening lifestyles, sustainable consumption. These actions have reiterated the commitments of the Government for a green growth economy, of which sustainable production and consumption play important roles and driving forces for the changes and alterations of the current production and consumption ways.

CONCEPT OF SUSTAINABLE CONSUMPTION AND PRODUCTION CIRCLE AND ECOLOGICAL RENEWAL

Sustainable consumption and production circle is the initiative of the United Nations Environment Programme (UNEP). The SCP circle consists of sustainable natural resources management; Design and development of sustainable products; Cleaner

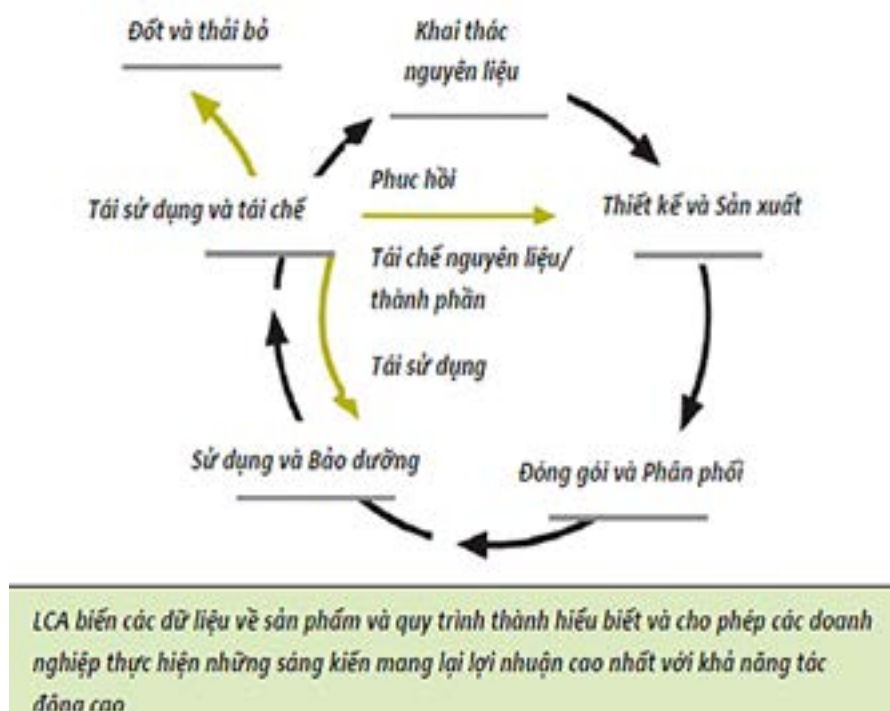
production and effective use of natural resources; Sustainable transport; Ecolabel and sustainable product certification; Sustainable consumption; Sustainable marketing, sustainable consumption; Effective management of emission. SCP is a closed circle, of which the

management is carried out towards product lifecycle approach. Environmental impacts, social impacts and economic growth are managed at all steps according to product value chain, which bring towards the sustainable development model.

Ecological renewal is a tool to support enterprises to contribute significantly to the success of SCP. Ecological renewal is considered as a new approach for strategic business, of which enterprises consider sustainability to be one of their business strategies, implementing interference from the development of the core business strategies to changes in the business models and manufacturing activities of the enterprise. Approaching towards life-cycle and cooperation among stakeholders in the whole value chain of the enterprises is the key to ecological renewal.



▲ Figure 1 - Sustainable Consumption and Production Circle



▲ Figure 2 - Enterprise ecological renewal towards product lifecycle approach

Ecological renewal will support enterprises to explore and participate in new markets and expand the markets, including new market shares and unexplored markets for renewal solutions, participate in global supply chain and purchase green products. At the same time, it will increase profits for the value chain through effective usage of natural resources and human resources, maximize procedures, and use renewable energy sources, environmentally friendly products and packaging; meet environmental regulations and standards; attract green financial sources; increase productivity and technical capacities through knowledge enhancement, skills and linkage with laborers. The SCP policy framework is a prerequisite condition to promote ecological renewal in enterprises and on the other hand, ecological renewal will contribute significantly to the success of SCP.

POLICIES SUPPORTING SCP

Environmental protection has been referred to in the policy framework of Việt Nam including laws, strategies, national action plans, and national target programs. In general, all policies directly or indirectly promote SCP, but focus mainly on the areas of energy, industry and agriculture.

Energy: The Law on Energy Conser-

vation and Efficient Use (promulgated in 2010) and the Việt Nam National Energy Development Strategy to 2020, Vision to 2050 (promulgated in 2007) are bases for the development of other programs and initiatives such as: National target program on energy efficiency and conservation during 2012 - 2015; national project on energy conservation and efficient use, in order to promote the development of the energy market in Việt Nam and positive impacts to the performance of enterprises towards sustainable development. Enterprises are encouraged to save energy and efficiently use energy through financial and technical support for energy auditing, replacement of backward technologies, application of advanced solutions on energy consumption and use of renewable energy.

Industry: The national strategy on cleaner produc-

tion (2009) is the foundation for the development of follow-up policies, which positively influence the production and business of many enterprises towards SCP approaches by applying cleaner production. These policies support the application of advanced technologies, and renew and transfer technologies in enterprises towards sustainable development.

The national strategy on industrial development to 2025 and vision to 2030 (2014), followed by the Master Plan on industry development to 2020 and vision to 2030 emphasized on sustainable production and the close link with sustainable consumption which is the driving force for the green industry. The agenda of these policies focus on changing industrial production models towards applying clean energy, environmentally friendly technologies, environmental management models, cleaner production, efficient and effective use of natural resources, and development of the environmental industry.

National action plan on SCP 2010 - 2020 was promulgated in 2016 which is a substantial step in finalizing the policy framework and developing tools to promote ecological renewal in enterprises.

Agriculture is a priority field, contributing significantly to the green growth of Việt Nam. The national project on "Restructuring of the agriculture sector" (2013) has promoted to form an agriculture sector of high added value, enhanced natural resources management, reduction of greenhouse gas emission, and



development of the sustainable agriculture value chain. The Master plan on development of high technology zone for agriculture to 2020 (2015) has laid out the support of the Government for sustainable value chain investors; the credit policy for agriculture and rural development (2015) has encouraged agriculture production to apply the alliance model and high technologies in business value chain. Since 2008, policies on agriculture have been formulated, which creates the legal environment to support SCP in the agriculture sector.

In general, current policies relating to SCP have basically created favorable conditions for enterprises to implement ecological renewal; however, the implementation of ecological renewal in enterprises is still very slow. Majority of policies relating to SCP are incoherent and “localized”, and focus mostly on particular sectors such as energy, industry, and agriculture. Multi-sectoral supporting policies such as natural resources procurement, products, services and efficiency and cleaner production are very limited.

Some policies are promulgated in order to promote SCP and encourage enterprises to drive towards sustainable business. However, almost all policies and regulations are focusing on the source part (first half of the SCP circle relating to production) while policies/tools to promote the end part (second half of the SCP circle relating to sustainable consumption and disposal) are still limited.

Product design and improvement is considered as a key step of the SCP circle in order to create sustainable products. However, policies/programs relating to product design and improvement towards sustainable development are limited. Policies promoting sustainable distribution and marketing have not been promulgated, except some policies to support to participate in exhibitions and commercial fair trade. Currently, the program on limitations of use of non-degradable plastics and replacement of environmentally friendly bags has been implemented but the result is inconsiderable. The sustainable procurement program plays important roles in promoting sustainable consumption behaviors. This is con-



▲ *Energy saving is considered as an optimum solution to reduce costs for enterprises in order to increase profits*

sidered as an effective tool to enhance the demand of environmentally friendly products; however this tool has not been promulgated.

The State has promulgated policies to encourage enterprises to convert to sustainable business models by investment supports and tax reductions, infrastructure investments and other credits from development funds or official development assistance (ODA) or from international financial organizations, and loan guarantee; however, these funds are very limited.

RECOMMENDATIONS TO FINALIZE THE SCP POLICY FRAMEWORK TO SUPPORT ECOLOGICAL RENEWAL

Reviewing and finalizing promulgated policies relating to SCP at central and local levels such as efficient use of natural resources and energy, renewal in innovation and research, development; cleaner production; eco-labelling and waste

management programs...

Promoting the application of economic tools in order to promote SCP and ecological renewal such as policies to promote sustainable investment and business, tools to promote the models of public - private partnership; international trade and import export tax applied for sustainable products and other incentives.

Integrating the National action plan on SCP into sectoral and provincial socio-economic development strategies.

Establishing the ecological renewal Fund, or mainstream into existing funds (Cleaner production fund, Science and Technology Fund, Innovation Renewal Fund, Environmental Protection Fund, central and provincial SME support Fund) and mobilize other financial sources from individuals, private and international organizations, large companies, donors and enterprises to contribute to the ecological renewal■



Companies pay out more than £1.5m for breaking environment laws

According to Environment Agency - UK, more than £1.5m will go to projects helping wildlife and the environment as companies pay for breaking green laws, the Businesses are paying between £1,500 and £375,000 in “enforcement undertakings” as an alternative to prosecutions for breaking environmental laws by polluting rivers, breaching permit conditions or avoiding recycling. The money on the new list of enforcement undertakings from 26 companies - including six paying six-figure with sums totals £1,535,992 including Northumbrian Water (£375,000), Filippo Berio UK (£253,906), Anglian Water Services (£100,000), Heineken UK (£160,000), Kerry Ingredients UK (£127,975), Sandoz (£120,932)

It will go to 30 charities and projects to clean up stretches of rivers and restock waterways with native species, and for community groups to invest in public parkland, the Environment Agency said. £375,000 was paid by Northumbrian Water for pumping raw sewage into a tributary of the river Tyne, while Anglian Water Services has made two separate payments of £100,000 for pollution incidents that killed fish. Heineken UK and Kerry Ingredients also paid large sums for pollution incidents, while Filippo Berio UK and Sandoz agreed six-figure payments for failing to recover or recycle packaging waste.

As well as making the payments, all the companies have accepted liability, demonstrated they have taken undertaken work to repair environmental damage and invested to reduce the risk of similar breaches in the future. The Environment Agency said its ability to accept enforcement undertakings was extended in 2015 to a wider range of issues. The measure is used where



▲ Northumbrian Water fined for pumping raw sewage into a tributary of the river Tyne (Getty source)

suitable to restore the environment quickly, improve company practices and avoid longer criminal court cases, though serious cases are still prosecuted, the agency said.

According to Legal Director for the Environment Agency Peter Kellett, they take pollution incidents very seriously and the payments of £1.5m... are the result of our firm but fair enforcement action and will benefit people and the environment across the country. Enforcement undertakings allow those who commit offences to restore the environment and to take steps to prevent a recurrence. When appropriate, they allow a quicker resolution than a prosecution and help offenders who are prepared to take responsibility for their actions to put things right with their local communities.

Director of The Wildlife Trusts, England Stephen Trotter said, the principle that a polluter should make amends for the damage they've caused makes good sense so they all depend on a healthy environment and this positive scheme allows some natural improvements to be funded which otherwise wouldn't happen. It would be better if these incidents hadn't happened in the first place, but at least something positive has come out of it. Wildlife Trusts are among the charities receiving payments, with Hertfordshire and Middlesex Wildlife Trust using the money to protect rare chalk streams and Surrey Wildlife Trust supporting projects including conserving heathlands and restoring hedges■

Long Hoàng

(Source: Environment Agency - UK)



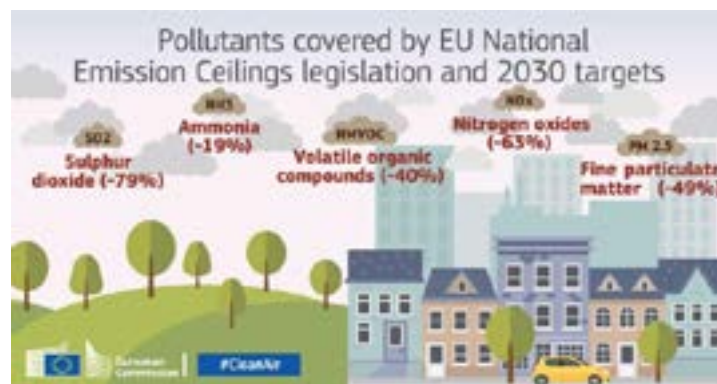
EU approves new rules to drastically cut air pollution

On 14 Dec 2016, the European Parliament and the Council have signed into law the new National Emissions Ceilings (NEC) Directive, based on a Commission proposal that sets stricter limits on the five main pollutants in Europe. It entered into force on 31 Dec 2016.

In December 2013 the Commission published the Clean Air Programme for Europe, which updated the air policy objectives for 2020 and 2030. It comprised a proposal on medium-sized combustion plants; the proposal for a new NEC Directive; and a proposal for ratification of the recently amended Gothenburg Protocol. The NEC Directive sets maximum emission ceilings for each country per year for the five main pollutants: fine particulate matter (PM_{2.5}), sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, and ammonia.

The 2020 reduction commitments are identical with those that Member States have already agreed internationally in the 2012 revision of the Gothenburg Protocol. The 2030 commitments require substantially deeper reductions. These will help to reduce transboundary pollution and background concentrations across Europe. When fully implemented, the Directive will reduce by almost 50% the negative health impacts of air pollution, such as respiratory diseases and premature death, by 2030. Even if air pollutants are invisible killers, people are increasingly aware and concerned at the quality of the air they breathe and the agreement of stricter limits in the NEC is therefore an important achievement. It will also have substantial benefits for the quality of fresh water, soil, and ecosystems and help address the impacts of harmful particles causing climate change like black carbon. The Directive is the central element of the Commission's more comprehensive Clean Air Programme for Europe.

According to Commissioner for the Environment, Fisheries and Maritime Affairs, the new European air quality rules are a significant landmark in the fight against this invisible killer that is air pollution. Air pollution kills over 450,000 people in Eu-



rope each year. This is more than ten times as many as road traffic accidents. Now it is for the national governments to start with implementation so that people can benefit from cleaner air.

Putting the new rules into practice

The role of the Member States in coordinating and implementing the Directive at national level is very important. Member States must transpose the Directive into national legislation by 30 June, 2018 and produce a National Air Pollution Control Programme by 2019 setting out measures to ensure that emissions of the five main air pollutants are reduced by the percentages agreed by 2020 and 2030. They must also coordinate with plans in fields such as transport, agriculture, energy and climate. This will require investment, but the costs will be many times outweighed by the benefits in cost savings, particularly on health care and sickness at work. The recently published Commission proposal for an

Energy Union Governance Regulation highlights the importance of synergies between air quality and climate and energy policies and the new NEC Directive.

The Commission will work with Member States to ensure sound implementation, for example by setting up a new Clean Air Forum by autumn 2017. This will bring together stakeholders to exchange experience and good practice. The Commission will also facilitate access to EU funding instruments.

Finally, the Directive will pave the way for the ratification of the revised Gothenburg Protocol internationally agreed by Member States in 2012 under the United Nations Economic Commission for Europe. This will reduce pollution in the Eastern European, Caucasus and Central Asian states benefiting both the countries themselves and the EU citizens who are most directly exposed to transboundary pollution■

Hồng Cẩm

(Source: European Union)



THE 13TH VIỆT NAM - KOREA ENVIRONMENT MINISTERS MEETING

Renew thinking and implementation method for better cooperation efficiency and effectiveness



▲ *The 13th Việt Nam - Korea Environment Ministers Meeting*

On March 29, 2017, the 13th Việt Nam - Korea Environment Ministers Meeting was taken place. The Vietnamese Minister of Natural Resources and Environment Trần Hồng Hà and Korean Minister of Environment Cho Kyeung Kyu chaired the meeting.

In 13 years of cooperation, the two parties have witnessed a comprehensive development of the special relationship between the Government of Việt Nam and the Government of Korea, including substantial investments of Korean enterprises in Việt Nam. In terms of environmental cooperation, the two parties have closely followed agreements and statements by high level leaders of the two countries to develop a relationship that promotes economic de-

velopment and concentrates on environmental protection for sustainability.

At the meeting, Minister Trần Hồng Hà highly appreciated the cooperation in improving environmental legal documents in Việt Nam, as well as exchanging and sharing of information and experience of both parties. The Minister also mentioned about the current trend of the world that is increasingly paying more attention to climate change and environment globally. Therefore, at this meeting, the two parties continue to exchange and cooperate to promote achieved results; at the same time to renew thinking and methods to enhance the effectiveness and efficiency of the cooperation between the two parties in the upcoming time.

At the meeting, the two parties exchanged, discussed and agreed on some contents that should be promoted in the future, including: Developing and finalizing regulations and standards on wastewater, air emission and solid wastes; Implementing and expanding projects relating to wastewater

and waste treatment technology transfer, projects on electricity generation from waste treatment process; Enhancing bilateral cooperation in biodiversity, development of green products and environmentally friendly products; Developing public - private partnership investment cooperation projects in the principle of mutual benefits, green growth and environmental protection; Organising training, capacity building programs on waste management, pollution control, environmental impact assessments... for Vietnamese staff.

In addition to the environment sector, the two parties will promote the cooperation in other areas such as marine environment management, hydrology - meteorology and response to climate change. In particular, the two parties will cooperate to implement commitments in the Paris Agreement on climate change; implement statistics methods, greenhouse gas inventory, development of climate change scenarios...; continue to propose multi-purpose tasks and projects; mobilize a diverse variety of resources, including domestic and international resources such as Green Climate Fund, the Global Environment Facility... towards green economy and sustainable development■

Giáng Hương/VEM



▲ *Minister Trần Hồng Hà (left) gave a Vietnamese traditional pottery vase to Korean Minister Cho Kyeung Kyu*

Looking back 20 years of cooperation between Việt Nam and ASEAN in environment

Nguyễn Thị Thanh Trâm
Trương Thị Tuyết Nhung
Việt Nam Asoen Office



Through 20 years of cooperation with ASEAN, Việt Nam is increasingly reiterate its role and stance in the region, simultaneously create an image of a country that is renewing, actively developing, responsible and a reliable partner in ASEAN and the international community.

ASEAN cooperation in environment takes place when there are socio-economic and environmental changes in the region and the world, there are natural disasters such as tsunamis, landslides, storms... which create many challenges for ASEAN countries. The year 1989 marked the promotion of environmental cooperation of ASEAN member states through the establishment of the ASEAN Senior Officials on Environment. Afterwards, the ASEAN Charter (took effective in 2008) and the ASEAN Socio-Cultural Community Blueprint 2009 - 2015 are key principles for strong cooperation activities in ASEAN.

Joining ASEAN since July 1995, Việt Nam has actively participated in cooperation activities of the region in all sectoral areas. In February 1996, Việt Nam ASEAN Senior Officials on Environment (ASOEN

Việt Nam) was established and six working groups were formed: Coastal and marine environment, Environmental economics; Transboundary pollution; Environmental management; Environmental education and Nature conservation. Since then, ASOEN Việt Nam has actively participated in environmental activities in the region, proposed many initiatives, and importantly contributed to ASEAN agreements.

During 2011 - 2015, Việt Nam pioneered in implementing priorities towards forming the ASEAN Community. With the motto of being dynamic, proactive and responsible, Việt Nam has registered to organize many working group meetings, implemented cooperation programs and fully participated in ASEAN conference

on environment at all levels as a role of a member state. Of which, the biggest event was when Việt Nam hosted a series of important meetings including the 13th ASEAN Ministerial Meeting on the Environment, the 14th ASEAN + 3 Ministerial Meetings on the Environment and related meetings in 2015. Within these meetings, Việt Nam proposed the initiative and collaborated with the ASEAN Secretariat to develop the Declaration on ASEAN post-2015 environment sustainability and climate change agenda, with an aim towards an ASEAN Community towards sustainable development, guarantee of green and clean environment. Simultaneously, ASEAN committed to actively participate in global efforts to address environmental challenges including climate change, ozone protection, as well as development and application of environmentally friendly technologies.

Within ASEAN working groups on environment, with a role of a key member to the ASEAN Socio-cultural community, Việt Nam has effectively participated in working group's programs, projects and activities, proposed many practical initiatives, and contributed to the general development of the region and the global. In addition to enhancing the coop-



▲ Huế is honoured as one of 10 ASEAN environmentally sustainable city

eration and internal linkage, Việt Nam has actively participated in promoting cooperation between ASEAN and other partners (China, Japan, Russia, America...) in environment, through which to enhance the role and stance of Việt Nam in the world. In 20 years of ASEAN cooperation, friends within and outside the region understand more about the foreign policy of the Party and of the State of Việt Nam. Simultaneously, Việt Nam has conditions to learn and share experience, access to scientific - technology advances, capacity enhancement as well as be active in proposing initiatives to promote the cooperation. By now, Việt Nam has proposed more than 10 cooperation initiatives on ASEAN cooperation in environment, and implemented seven projects that Việt Nam is the focal point. Currently, Việt Nam has six National Parks that are recognized as ASEAN Heritage Parks including Chu Mong Ray, Hoang Lien, Ba Be, Kon Ka Kinh, U Minh Thuong, and Bai Tu Long National Parks. In addition, Việt Nam has four cities that were awarded environmentally sustainable city awards and recognized as clean land, clean air, clean water and ASEAN environmentally sustainable potential cities: Ha Long, Da Nang, Hue, Da Lat; four schools that were awarded with ASEAN Eco-school awards including: Amsterdam Secondary School, Chu Van An High School, Foreign Language Specialised High School, and Experimental Secondary School.

Although, Việt Nam has achieved many substantial achievements in the coopera-

tion process, there are still many limitations and challenges that need to solve such as cooperation programs in the environment are very broad-scale, requiring flexible mechanisms to maximise internal domestic efforts in order to actively and effectively participate in ASEAN cooperation activities in environment. Currently, the quantity and qualification of specialized staff on ASOEN Việt Nam are limited; most staff implementing ASOEN activities are part-time. The cooperation among ASEAN and member states is increasing, requiring timely updates and synthesis of information for advising and coordinating activities among working groups and with relevant ministries, sectors. Particularly, financial source for implementation of Việt Nam's initiative is limited, which cause difficulties in implementation and participation in cooperation activities in the region. These are major challenges, causing difficulties in implementing cooperation activities with ASEAN.

While ASEAN aims to develop and implement objec-

tives of the ASEAN Community to 2025, Việt Nam needs to develop a strategy or an action plan to participate in ASEAN cooperation in environment to be appropriate for each period and timely support national development strategies, particularly strategies on natural resources and environment. In addition, it is necessary to enhance capacity for Việt Nam ASOEN Office to effectively implement its coordination role of all ASEAN cooperation activities, as well as activities of high level East Asia cooperation in environment. At the same time, it is necessary to have policies and strategies to be appropriate with ASEAN cooperation activities, particularly regulations on expenditures for the organisation and participation in international cooperation events. Particularly, the attention and close instruction of leaders at all levels on ASEAN cooperation is important, which contribute to enhance the quality and effectiveness of ASEAN cooperation in environment, for the sustainable development of the region as well as of the world■

Four central cities join One Planet City Challenge

Four cities in Việt Nam, Huế, Đà Nẵng, Hội An and Đồng Hà, have agreed to enter World Wild Fund for Nature (WWF)'s One Planet City Challenge programme to show how cities can be a hub for creativity, ambition and innovation in dealing with climate change.

A WWF statement on Wednesday said cities generate 70 per cent of the world's carbon emissions, and WWF's One Planet City Challenge is a biennial competition that recognizes and rewards cities for developing infrastructure, housing, transport and mobility solutions to power the global transition to a low-carbon, climate-resilient future. Director General of WWF International Marco Lambertini said, cities can be the blueprint and inspiration for a sustainable world. Progressive climate policy by local governments can radically reduce the impact of transport, housing and other high-emitting sectors and deliver greener, healthier and more livable cities and homes for people.

The One Planet City Challenge was designed by WWF to mobilize action and support from cities in global climate efforts, including the goals now set forth by the Paris Agreement. Open for participation to cities in 25 countries this year, the competition invites interested cities to register at carbon[®] Climate Registry (cCR), the leading global climate reporting platform for local and sub-national governments managed by ICLEI - Local Governments for Sustainability. According to Secretary General of ICLEI Gino Van Begin, active reporting is an important way for local governments to prove they are major players in global climate efforts. Since the carbon Climate Registry was launched, we have seen over 700 cities, towns, states and regions from across the world reporting more than 6,100 mitigation and adaptation commitments.

Last year, for the first time, Việt Nam had Huế join the City Challenge and also be one of 18 in the world to be a National Earth Hour City. To gain that honor, Huế submitted a target of decreasing greenhouse gas emissions by 20 per cent from 2011 emission levels by 2020, along with six action plans



▲ Solar panels on the roof of a residential apartment in Đà Nẵng, 30% of the city's population are using solar powered water-heaters.

focusing on urban greening, green tourism development, effective disposal of trash and wastewater, intelligent public lighting systems, renewable energy and use of environmentally friendly construction materials. While this year, Đà Nẵng, Hội An City in Quảng Nam Province and Đồng Hà City in Quảng Trị Province have committed to enter the OPCC 2017 - 2018. Commitments and action plans for each city will be developed and ready to be submitted this September, with technical support from WWF Việt Nam.

Entrants will be evaluated by an international jury of experts on areas ranging from urban planning and transport to consumer behavior and energy systems. The most ambitious cities will be recognized as national winners, and, from among these, one city will be crowned the global winner of the One Planet

City Challenge. WWF will profile the winning cities' achievements in a global digital campaign designed to strengthen public support for city-led climate action.

This year marks the 5th anniversary of the competition, formerly known as the Earth Hour City Challenge, which has engaged over 320 cities across five continents since its inception. Submissions will be evaluated on the below criteria outlined by WWF. There will also be a special focus on level of ambition and ability to deliver on commitments and transformational change; ability to integrate actions into coherent and overarching climate action plans; determination to align with a transparent, science-based GHG emission reduction trajectory; and innovative approaches to addressing urban mobility■

Châu Long/VEM



Nam Định: USAID programme helps protect environment

The US Agency for International Development (USAID) in Việt Nam and the Red Cross Society in the northern province of Nam Định launched a tree planting campaign to protect the environment in Nam Dien commune, coastal Nghia Hung district on March 2. The campaign is part of the USAID-funded Vietnam Forests and Deltas Programme to be carried out in four provinces, aiming to strengthen the localities' resilience against climate change and reduce natural disaster risks in coastal areas. It also targets strengthened management over natural disaster and minimize greenhouse gas, while helping localities in building their plans to tackle natural disaster risks caused by climate change.

According to USAID environment officer Terhi Majanen, Nam Định is among provinces that are greatly influenced by climate change, especially sea level rise, saltwater intrusion and storms. She expressed hope that the programme will help raise the local community's awareness of challenges facing them and provide them with smart approaches in climate change adaptation. Along with the tree planting campaign, the programme has also supported over 2,500 locals in improving their livelihood through models of smart production of potato and rice, shrimp and rice-fish farms adaptable to climate change. The programme has also assisted vulnerable communes to build climate change plans with rapid responding measures and alerting systems.



After the launching ceremony, participants and locals planted 500 trees in bare areas along rivers and sea dyke. Nam Định currently has about 3,110 hectares of forest, including 1,955 hectares of protection forest, mostly in Nghia Hung, Giao Thuy National Park buffer zone in Giao Thuy district ■

Phương Hạnh /VEM

WB helps Việt Nam improve energy efficiency in industry

The World Bank in Việt Nam has announced that the bank's board of executive directors had approved a US\$102 million loan to the Vietnamese Government to support enterprises in adopting energy-efficiency technologies and practices.



Under this project, industrial enterprises can access new credit to fund their purchases of energy efficiency and production-optimization technologies, thus reducing energy consumption and production costs and increasing overall competitiveness in the domestic and international markets. With support of the project, financial institutions and enterprises will be able to prepare, evaluate and appraise energy efficiency projects. Financial institutions can provide loans to support industrial energy efficiency investments, which will enable them to scale up energy efficiency lending to industries.

World Bank's country Director for Việt Nam Ousmane Dione said, the project aims to support Viet Nam's drive to meet its future energy demand, and improving energy efficiency is the single best and cheapest option because it will help consumers save energy and reduce the need for new thermal power generation, while also reducing pollution and mitigating the risks of climate change. If stronger programmes and policies are put in place, businesses would also have an incentive to cut down on wasteful practices and adopt more energy-efficient technologies. Funding under this project will be provided to participating financial institutions, which will then lend to industrial enterprises to invest in energy-efficient subprojects ■

Hoàng Dương/VNS

IUCN launches wetlands project



The International Union for Conservation of Nature (IUCN) launched a regional project to enhance the resilience of wetlands in Lower Mekong countries on the occasion of World Wetlands Day (February 2).

Funded by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), and to be implemented until 2020, the project builds climate resilience by harnessing the benefits of wetlands in Cambodia, Laos, Thailand and Việt Nam.

Mekong WET will help the four countries address their commitments to the Ramsar Convention, an international treaty for the conservation and sustainable use of wetlands, and to achieve the Aichi Biodiversity Targets. With wetlands featured as a key ecosystem, the project also supports governments in implementing their National Biodiversity Strategies and Action Plans (NBSAPs) under the Convention on Biological Diversity and pursuing their commitments on climate-change adaptation and mitigation under the United Nations Framework Convention on Climate Change.

There are a total of 28 Ramsar sites (wetlands of international importance) in the four Mekong WET countries. The project will develop management plans, with a focus on climate-change adaptation and resilience building, in 10 selected Ramsar sites, and improve regional collaboration on transboundary wetlands management. This will include the sharing of best practices, as well as capacity building for 150 wetland management staff and 300 community representatives.

The project also aims to share lessons and approaches with an additional 18 Ramsar sites, as well as a number of potential or proposed new sites in the four Mekong WET countries. Wetlands, like marshes, rivers, mangroves, coral reefs and other coastal and inland habitats, have many important functions, including the regulation of water flows, the provision of clean water and carbon storage. In the Lower Mekong region, millions of people rely

on wetlands for their survival. In recent decades, infrastructure development, increased deforestation, expansion of irrigated agriculture and increasing urbanization have resulted in the depletion of spawning and feeding grounds for fish, shrinking wetland habitats, and reduction of water quality. Farmers are increasingly affected by saltwater intrusion, landslides and flash floods, which are intensified by climate change.

In line with this year's World Wetlands Day theme "Wetlands for Disaster Risk Reduction", Mekong WET emphasizes the important role of healthy wetland ecosystems in reducing disaster risk. Wetlands act as natural buffers by mitigating land erosion, the impact from floods, tsunamis and landslides, and by storing large amounts of water, thereby reducing peak flood flow during the wet season, while maximizing water storage during the dry season ■

Bảo Bình

(Source: IUCN)



700 psychedelic Vietnam geckos found on Hon Khoai, Ca Mau island



Scientists from the Vietnam Academy of Science and Technology have discovered 700 psychedelic rock geckos (*Cnemaspis psychedelica*) on Hon Khoai island, Ngoc Hien district in the southernmost province of Ca Mau.

The diurnal species, informally called yellow-tailed gecko in Vietnam, is currently known only from the island. It lives on large granite boulders in the shade of the forest canopy. It is threatened by extinction due to poaching and illegal trade.

Local scientists have made submission for the lizard to be listed among the endangered species in the Vietnam Red Data Book. They are

also completing documents to make the gecko a subject of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the IUCN Red List of Threatened Species. Experts from the Wildlife At Risk Vietnam have proposed Ca Mau authorities set up a *Cnemaspis psychedelica* conservation centre on Hon Khoai island ■

Phạm Tuyên/VNA

Lâm Đồng: US\$510 billion invested to biodiversity protection

Ostriches are given health treatment at Madagui forest. A project to preserve biodiversity in the province will include wildlife sanctuaries in Núi Voi, Phật Chi and Madagui.

The Central Highlands province of Lâm Đồng plans to invest 510 billion dong (US\$22.35 million) in a project to preserve the province's biodiversity for the next decade and beyond. The funds will be used to develop the Langbiang Biosphere Reserve as well as Bidoup Nui Bà and Cát Tiên National Parks. The province will also launch the Đông Dương Natural Reserve and a number of wildlife sanctuaries including Núi Voi, Phật Chi and Madagui, while building a Tây Nguyên (Central Highlands) Museum of Nature, a Tây Nguyên Park for wildlife preservation and multiple wildlife rescue centres.

The province also hopes to increase forest coverage and protect forests across the province.

In the period of 2017 - 2020, the province will prioritize investment to public awareness projects, biodiversity protection, conservation area construction, and reserve facility development. It will also strengthen the community's engagement in the operation of the reserve areas. The project, which has been approved by the provincial People's Committee, also aims to devise policies for sustain-



able preservation and development of natural ecosystems as well as rare species and gene resources in the locality, while expanding ecologic services to adapt to climate change ■

Châu Long

Quảng Nam: Over \$5.6 million for elephant conservation project



The authorities of the central province of Quảng Nam will spend over 128 billion VND (5.6 million USD) on a project to establish an elephant conservation area. The reserve will cover 18,977 ha in Phước Ninh

and Quế Lâm communes of Nông Sơn district, including 23 sub-zones, and a buffer zone covering 24,985 ha sprawling nine communes of the districts of Nông Sơn, Đại Lộc, Nam Giang, Phước Sơn and Hiệp Đức.

According to Vice Chairman of the provincial People's Committee Lê Trí Thành, the formation of the reserve aims to conserve and develop Asian elephant species

in Việt Nam, contributing to protecting the environment and biodiversity, and sustainably developing wildlife resources.

Quảng Nam sets to maintain and develop a population of 5-7 elephants living in the locality, and safeguard their living habitat. The reserve is also hoped to be home to single elephant individuals from other areas ■

Nhật Minh/VGP



MINISTRY OF PLANNING AND INVESTMENT:

Promoting green growth and low carbon development

Nguyễn Tuấn Anh - Deputy Director General

Department of Science, Education Natural Resources and Environment - Ministry of Planning and Investment

Việt Nam is one of countries that are seriously affected by climate change. To join the world's efforts in environmental protection, Việt Nam has developed the "Green Growth Strategy" to overcome environmental pollution, to reduce greenhouse gas emission, to prevent sea level rise... in order to develop sustainably. The Green Growth Strategy aims to promote the restructuring and to finalise the economic institutions towards more efficient use of natural resources, to enhance the competitive strength of the economy, through enhancing investments on technology renewal, natural capitals and economic tools, from which contributing to respond to climate change, reduce poverty and ensure sustainable economic development.



▲ High level Seminar "Viet Nam Green Growth Strategy: Pathways towards implementing the Paris Agreement - Việt Nam & EU Experience" organized on 11/10/2016 in Hà Nội

IMPLEMENTATION OF THE GREEN GROWTH ACTION PLAN

Key contents is activities on dissemination, propaganda and awareness raising; development and implementation of the short-term training program on green growth for state management staff at central and local levels which contributes to implement the solution "Human resources training and development" included in the National Strategy for Green Growth for the period 2013 - 2020.

Accordingly, the Ministry of Planning and Investment (MPI) takes lead to coordinate and guide ministries, sectors and localities in developing sectoral and provincial green growth action plan. By now, MPI has supported the Ministry of Transport to develop and promulgate the Action plan responding to climate change and green

growth during 2016 - 2020 of the transportation sector with six important tasks and solutions. It continues to support the Ministry of Transport to develop the National action plan on CO₂ emission reduction in the civil aviation of Việt Nam, with the target to implement measures to reduce greenhouse gas emission and minimise the global warming. At local levels, there are current 15 provinces that formulate and approve and some provinces are implementing the action plan on green growth (Hà Tĩnh, Ninh Thuận and An Giang); Simultaneously, MPI is supporting Hà Nam, Cao Bang, Bạc Liêu, Phú Yên, Khánh Hòa, Bình Định, Kiên Giang, Sóc Trăng, Bạc Liêu, Cà Mau, and Hậu Giang to develop the provincial green growth action plan.

MPI implements the



mainstreaming of requirements on environmental protection, green growth, sustainable development and response to climate change into socio-economic development plans and planning, particularly in the development of the five-year socio-economic development plan during 2016-2020. In addition, MPI is promoting the implementation of the Resolution no. 35/NQ-CP dated 18/3/2013 of the Government on some urgent issues on environmental protection; criteria on environment and sustainable development are being reviewed, monitored and assessed according to the instruction of the Prime Minister. The ministry is studying priority activities adapting to climate change of the Việt Nam Nationally Determined Contributions (NDC), private investments in climate change as foundation to propose policy plans and actions to implement the commitments of Việt Nam.

At the same time, it reviews and updates investments and public expenditures in climate change and green growth by the end of 2015 and published in June 2016, with the proposed framework on resources management. It collaborates with international development organisations to support the assessment of investments and public expenditure in climate change and green growth in Ca Mau, considering expanding it to other provinces in the Mekong Delta.

The Ministry enhances the review of legal documents towards green growth and environmental protection, and response to climate change in order to recommend appropriate revisions to the requirements of the new situation. It is collaborating with MONRE, relevant ministries and sectors to develop the action plan by 2030 to implement the Paris Agreement on climate change, and to develop the 2nd Biennial update report of Việt Nam to the UN Framework Convention on Climate Change; collaborating with development partners and Provincial People's Committee of Ha Tinh, Ninh Thuan and Binh Thuan to develop climate change scenarios and revise the 2nd provincial climate change action plan...

ENHANCING INTERNATIONAL COOPERATION

MPI is collaborating with relevant agencies and development partners to build capacity for Vietnamese agencies, to prepare readiness on organisational structure and institutions to access to the Green Climate Fund (GCF).

From the successful organization of the annual workshop on financial source access for green growth implementation and response to climate change within the framework of Asian low carbon emission Development Strategies Forum (Asia LEDS Partnership - ALP), MPI organized a regional workshop of the Forum in the end of June 2016 in Hanoi with the topic "Mechanism that catalyse finance for grid-connected clean energy in Asia"; "Mobilising finance to implement priority climate change impacts reduction actions" linked with targets of environmental protection, sustainable development, and response to climate change.

MPI collaborated with the European Commission in Việt Nam to organize a high level workshop on "National Strategy on green growth of Việt Nam: Pathway towards implementing the Paris Agreement - Experience of Việt Nam & EU" within the Việt Nam - EU Strategic Dialogue Support Program on 11/10/2016 in Hanoi, with the target to discuss the Việt Nam green growth Strategy relating to response to climate change and efforts to achieve the success of the Paris agreement at COP21 through the experience sharing of EU experts

on the implementation of the green growth strategies in Europe, viewpoints and the implementation of the Green growth strategy in Việt Nam, and enhancing international support in green growth...

Together with the United Nations Development Programme (UNDP), USAID, GIZ, and DFAT, MPI organized a training/workshop "Finance for climate change and green growth in the Mekong Delta"; this was an important collaboration activity in the Mekong Delta, where are suffering negative impacts of climate change and sea level rise, with the efforts of the local authorities and people in responding to climate change. This not only helps provinces to assess to the investments in climate change, but also to improve the planning and allocating budget for climate change and green growth, at the same time to ensure the accountability with the Government and donors.

The Government of Việt Nam has signed the Paris Agreement on climate and promulgated the Action Plan to implement this agreement. The implementation of the National Strategy and National action plan on green growth contributes considerably to the implementation of the Agreement. In 2016, Việt Nam has moved a step in finalizing the policy institutions and enhancing capacity, creating important alterations for subsequent years. Hopefully by 2020 or earlier, Việt Nam can arrange to promote the implementation of international commitments in the period of 2020 - 2030 ■



Improving policy mechanism to promote solar energy development in Việt Nam

Nguyễn Thanh Giang

General Department of Energy - Ministry of Industry and Trade

In addition to electricity source such as thermal power, hydro power... the development of solar power plays an important role in contributing to the national electricity system and promoting the development of energy types and reducing greenhouse gas emission and protecting the environment.



▲ Solar energy system in Spratly Islands

POTENTIAL AND CHALLENGES

According to the study of the Energy Institute (Ministry of Industry and Trade) Việt Nam has huge potential for solar energy development, with an average radiation volume of 4.3 - 5.7 million kWh/m². Provinces in the North (from Thua Thien - Hue up north), on average, have about 1,800 - 2,100 sunny hours. Provinces in the South (from Da Nang down south) on average have about 2,000 - 2,600 sunny hours; the solar radiation is 20% higher than that in northern provinces. In this region, the sun shines almost throughout the year, even in rainy season, this is a favourable condition for the development of solar energy.

However, in reality, the exploitation of solar energy is not equivalent to its potential, almost all solar energy projects in Việt Nam are small-scale, mostly apply for households and service centres.

On 25/11/2015, the Prime Minister has promulgated Decision 2068/QĐ-TTg approving the development of renewable

solar energy to 2030, vision to 2050, which clearly orientates the development of solar energy, from now to 2050, and emphasises the development of solar energy to provide electricity for the national electricity system and the border, island, remote and mountainous regions that have not been yet supplied from the national electricity grid. At the same time, to increase the rate of electricity manufactured from the solar power in the total electricity volume from insignificant level to about 0.5% in 2020, 6% in 2030 and 20% in 2050. The Electricity Planning VII (revised) that was approved by the Prime Minister also requires to enhance the progress of solar

energy projects, including focal source installed on the land surface and separate source installed on the roof, increasing the capacity of solar energy to about 850 MW in 2020, 4,000 MW in 2025 and 12,000 MW in 2030. According to the plan, from now to 2020, each year, Việt Nam needs to construct solar energy plants with the capacity of 200 MW; from 2020 - 2025, each year needs to install more 600 MW and the next five continuous years, need to install 1,600 MW in order to achieve the targets.

Currently, there are about 30 solar energy projects that are being implemented by domestic and international enterprises, mostly in Central provinces such as:



Quang Nam, Quang Ngai, Binh Dinh, Khanh Hoa, Ninh Thuan, Binh Thuan and the Mekong Delta. Of which, there are remarkable projects of Thien Tan Investment and Construction Company (in Quang Ngai, Ninh Thuan) and Tuy Phong project of DooSung Vina Limited Company (Korea) in Binh Thuan. In addition, the Electricity of Vietnam (EVN) also has a plan to implement two solar energy projects in Dong Nai and Binh Thuan.

However, the biggest challenge for the solar energy development is the substantial cost in investment in solar energy exploitation and usage because all manufacturing technologies and equipment need to import from overseas (mostly from China). Almost all solar energy projects use grants or foreign loans. In addition, solar energy plants are usually installed in locations that are far away from electricity transmission centres, which cause difficulties in connecting to the national electricity grid, at the same time increases connection expenses.

ENHANCING THE DEVELOPMENT OF SOLAR ENERGY

In August 2016, at a regular government meeting on mechanisms to promote solar energy projects, the Prime Minister agreed with the proposal of the Ministry of Industry and Trade on promulgation of mechanisms to support the development of solar energy projects in Việt Nam. At the same time, the Prime Minister requested the Ministry of Industry and Trade to regulate in more details on the solar energy planning (development of projects based on solar radiation map, inclusion of electricity projects using solar energy into the electricity development planning...); to update the cost of solar energy equipment in order to develop appropriate electricity buying and selling prices; to study and issue regulations on procurement of solar energy projects in a transparent and open manner.

To develop solar energy projects, the Government should regulate an appropriate price of solar energy, to be harmonious with the interest of investments and to meet the objectives of green electricity development. In addition, it is necessary to study and issue regulations on the purchase of Certified Emission Reductions for solar energy projects; promulgate mechanisms to promote the development of solar energy equipment production, mechanism for connection to the national grid for enterprises and households that manufacture and use solar energy; develop standard criteria for equipment and quality tests, productivity of import products, domestic business; enhance propaganda and enhance awareness for local people on the efficient use of solar energy...

In other words, the completion of mechanisms and policies promoting the development of solar energy is very necessary, in order to create investments in solar energy, contribute to implement green growth and sustainable development in Việt Nam■

Việt Nam urged to generate funds for green growth



A meeting was held in Hà Nội to report on the implementation of the Việt Nam National Green Growth Strategy in the 2012-16 period. The event was jointly held by the Ministry of Planning and Investment (MPI), the US Agency for International Development (USAID), and the United Nations Development Programme (UNDP).

Director General of the MPI's Department of Science, Education, Resources and Environment, Phạm Hoàng Mai, said five ministries and 30 cities and provinces in the country had built and were implementing their plans of action on green growth. Việt Nam participated in the Paris Agreement adopted at the 21st Conference of Parties (COP) in November 2015, and Government agencies had co-ordinated with development partners to realise the country's commitments under the agreement, he said.

In 2016, the Government had promulgated a plan to implement the Paris Agreement and the Intended Nationally Determined Contribution (INDC) commitment, he added. Deputy Director of USAID in Việt Nam Craig Hart noted that while it was important to mobilise international financial resources for the purpose, it was necessary to improve the efficiency of domestic funding mechanisms. He cited as an example the collection of fees for forest services, which earns around US\$60 million for the country each year.

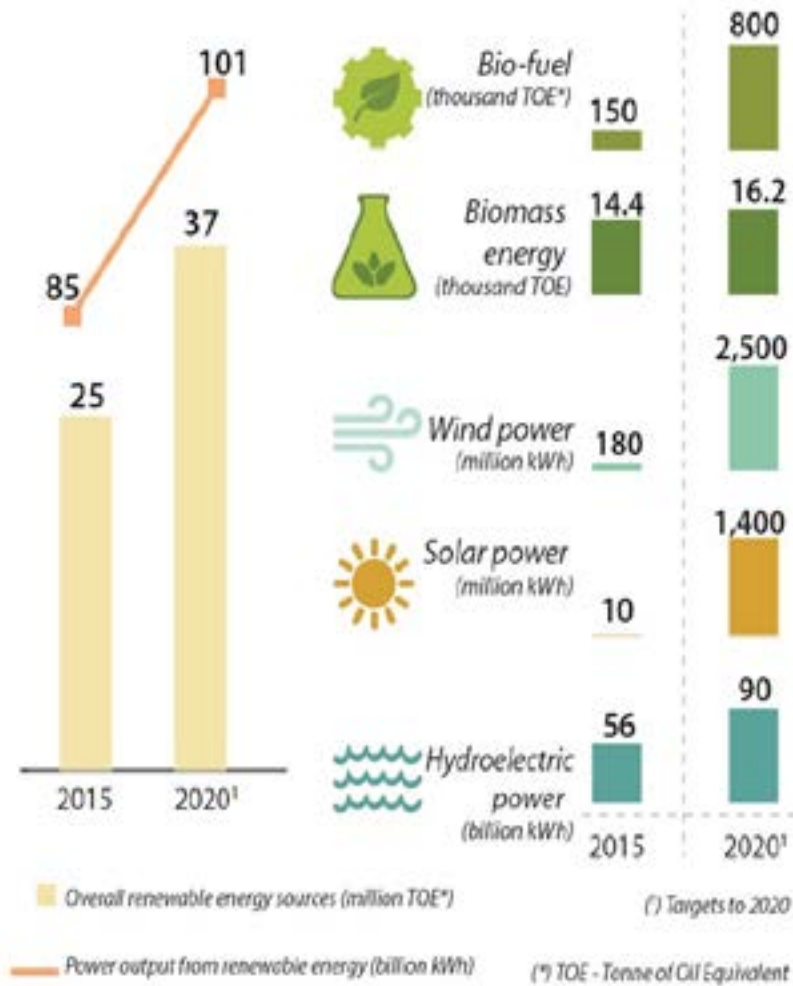
Last year, nearly 20,000 rural residents for the first time received payment for their forest care from this source. Meanwhile, Country Director of UNDP Louise Chamberlain proposed the Vietnamese Government put forth policies and long-term commitments to mitigate risks for investors in green growth and reform energy prices and investment encouragement mechanisms. She also recommended changing the methods of managing and supporting State-run businesses operating in the field of energy. Attracting investment and improving investment efficiency were essential to develop the green growth economy■

Duy Bạch/VEM



Vietnam energy development toward 2020

Development of clean energy and renewable energy is a major target in the National energy development strategy toward 2020 with a vision to 2050.



RENEWABLE ENERGY IN CHINA

China is taking considerable steps to shift to a low-carbon growth strategy based in the development of renewable energy sources. The outline of 11th Five year Plan (2006 - 2010) allocated a significant share of investments to green sectors with an emphasis on renewable energy and energy efficiency. The Plan projects that the per-unit GDP energy consumption by 2010 should have decrease by 20% compared to 2005. In addition, the Chinese government has committed itself to producing 16% of its primary energy from renewable sources by 2020.

Passed in 2005, China's Renewable energy Law serves as the principal framework for development of the sector. The law offers a variety of financial incentives such as a national fund to foster renewable energy development, discounted lending and to preferences for renewable energy projects. And a requirement that power grid operators purchase resources from registered renewable energy producers. The combination of investment and policy incentives has encouraged major advances in the development of both wind power and solar power.

WIND POWER

The additional generating capacity from wind power has exhibited an annual growth rate of more than 100% from 2005 to 2009. With new installation of 13.8 GW coming on line in 2009, China led the world in added capacity, and is second in terms of installed capacity, after the



US. To reflect increasing ambition in the industry, the government has indicated its intention to increase its previous target of 30GW of installed capacity by 2020 to 100 GW.

To directly encourage local wind turbine manufacturing, China has implemented policies to encourage joint-venture and technology transfers in large wind turbine technology and mandated the use of locally made wind turbines. The Ministry of Science and Technology has subsidized wind energy R&D expenditures at varied levels over time, beginning most notably in 1996 with the establishment of a renewable energy fund. Domestic wind turbine markets, such as Sinovel Wind, Goldwind Science and Technology and Dongfang electric, have contributed an increasing share of total new installations. Together they accounted for at least half of a market dominated by foreign firms until 2008.

China's National Development and Reform Commission issued the interim Management Measures for Renewable Power Tariff and Cost Allocation in 2006, and the Interim Measures on Renewable Power Surcharge Collection and Allocation in 2007. Together with the Renewable Energy Law, the regulation aims to encourage a reduction in the price of wind power by stimulating that a competitive pricing bidding model be used for the majority of wind power development in China.

SOLAR POWER

Being the largest solar PV manufac-

turer in the world, China produced 45% of global solar PV in 2009. The domestic solar market has started developing more recently, with about 160MW solar PV installed and connected to grid in 2009. But with more than 12GW of large projects in the pipeline, it could rapidly become a major market in Asia and the world. For solar PV, the government has also indicated that the target for installed capacity in 2020 could be increased from 1.8 GW to 20 GW.

China is now the world's largest market for solar hot water, with nearly two-thirds of global capacity. More than 10% of Chinese households rely on the sun to heat their water with more than 160 million square metres as total collector area. The rapid development of the solar water heater sector is due to its basic profitability for both business manufacturing the units and households that install them. There are also the considerable health and sanitation benefits afforded by the improved availability of hot water, made more feasible and economic with

solar water heater systems. Within the context of Five - Year Plan for New and Renewable Energy, an Implementation Plan on Promoting Solar Thermal Utilization in China was adopted in 2007. Under this national policy the installation of SWH systems is given priority for major hot water consumers such as hospitals, schools, restaurants and swimming pools.

JOB CREATION

The energy sector as a whole generates output worth US 117 billion and employed an estimated 1.5 million at the end of 2009, of which 600,000 were in the solar thermal industry; 266,000 in biomass generation, 55,000 in solar photovoltaic and 22,200 in the power. In 2009 alone, an estimated 300,000 jobs were created.

China's experience provides an example of policy led growth in renewable energy that has created jobs, income and revenue streams for nascent low carbon industries.

Hoàng Dương
(UNEP source)



In 2016, almost 90% of new power in Europe from renewable sources



▲ *The London Array site in the North Sea, the largest offshore windfarm in the world (Getty source)*

Wind energy overtakes coal as the EU's second largest form of power capacity but concerns remain over politicians' enthusiasm for renewables

Renewable energy sources made up nearly nine-tenths of new power added to Europe's electricity grids last year, in a sign of the continent's rapid shift away from fossil fuels. But industry leaders said they were worried about the lack of political support beyond 2020, when binding EU renewable energy targets end. Of the 24.5GW of new capacity built across the EU in 2016, 21.1GW or 86% was from wind, solar, biomass and hydro, eclipsing the previous high-water mark of 79% in 2014.

For the first time windfarms accounted for more than half of the capacity installed, the data from trade body WindEurope showed. Wind power overtook coal to become the EU's second largest form of power capacity after gas, though due to the technology's intermittent nature, coal still meets more of the bloc's electricity demand. In details, Germany installed the most new wind capacity in 2016, while France, the Netherlands, Finland, Ireland and Lithuania all set new records for windfarm installations. The total capacity added was 3% down on 2015 but a surge in

offshore windfarms which are twice as expensive as those built on land being connected in Britain saw total, Europe-wide investment hit a record €27.5bn (£23bn). The biggest project was the Gemini windfarm off the Netherlands' coast, which was connected to the grid last February and will be the world's second largest offshore windfarm when finished this year. Gemini was followed in size by two other offshore windfarms, Germany's 582MW Gode Wind 1 and 2, and the Netherlands' 144MW Westermeerwind project.

Despite Europe's installed wind power capacity now standing at 153.7GW, it is still a relatively small fraction of the region's 918.8GW of total power capacity. The industry is hoping much of its growth will come from filling the gap as governments force old coal power plants to close to meet climate change goals, as the UK has committed to doing by 2025. According to WindEurope's new report, 2016

European Statistics, paints a picture of a Europe increasingly divided on wind power. Spain, Portugal, Italy and Greece, which together drove much of the growth in new windfarms in the noughties, now amount to a tiny fraction of new installations. Poland last year passed a law limiting how close wind turbines can be to buildings, effectively stalling the industry there.

The result is an increasingly small number of countries connecting serious amounts of new wind power. Germany, which already has three times as much wind power as any other EU country, installed 44% of Europe's new wind capacity last year. Dickson said the wind power industry will be lobbying Europe's capitals for more support in their national energy and climate plans, which member states, including the UK, have to submit to the European commission in draft form by the year's end ■

Trần Tân

(Source: WindEurope)



Promote the role of businesses in environmental protection and green growth

Nguyễn Thế Chinh, Lại Văn Mạnh

Institute of Strategy and Policy on Natural Resources and Environment

Promoting the role of enterprises in environment protection is the key to resolving urgent issues due to the current conditions of the environment, especially in the context that State budget spending on environmental protection has been reduced and tightened. Therefore, it is important for enterprises to attach green growth and sustainable development to their business operations in order to socialise environmental protection activities.

1. CURRENT STATUS OF THE CONNECTION BETWEEN ENTERPRISES, GREEN GROWTH AND ENVIRONMENTAL PROTECTION IN VIET NAM

According to the report “Business performance of Vietnamese enterprises in 2011 - 2014 period” released by the General Statistics Office (GSO), the number of Vietnamese enterprises in 2011 - 2014 increased sharply, to more than 400,000 enterprises (2014), from more than 279,000 (2011). However, the scale of business in those enterprises in terms of labour and capital rose at a slow pace. At present, 72% of those companies are supermicro businesses, in terms of labour, and 76% of them are small businesses, in terms of capital. It can be seen that most small enterprises are among the main challenges for environmental protection activities, due to their being limited in receiving access to modern, environment-friendly technologies to reduce the negative impact of their production on the environment and improve their competitiveness, as Việt Nam integrates more deeply into the global community.

Also, many enterprises have caused serious environmental pollution. Until now, 44 of 439 companies that are responsible for environmental pollution, in accordance with Decision 64/2003/QĐ-TTg, have not completed their waste treatment systems and caused prolonged environmental pollution; and 268 of 435 enterprises that caused serious environmental pollution in accordance with Decision 1788/QĐ-TTg are working

to completely resolve the impact of this pollution, 136 of whom are lagging behind schedule for completing the solutions. The percentage of producers and businesses disposing of sub-standard waste water and emissions to the environment was 45.9% (2011) and 24.5% (2015). However, many industrial zones, industrial clusters and craft villages have not invested in waste treatment systems, causing environmental pollution. Overall, there are a total of 283 active industrial zones across the country. Of these, 212, or 75% of the industrial zones have completed building collective waste water treatment systems, although only 5% of the 615 active industrial clusters have invested in collective waste water treatment systems. The remaining industrial zones and clusters treat waste water by their own techniques and dispose waste water directly into the environment, causing substandard waste water pollution.

Việt Nam has faced many challenges from the consequences of environmental pollution in its efforts to achieve green growth and sustainable development. In fact, there have been some urgent cases of environmental pollution that have rocked the public; with waste water used in daily life activities in the urban areas being directly disposed into the environment without being processed; living and industrial

wastes not being well managed and having a negative impact on the environment; the total area of natural ecosystems being reduced rapidly; and biological diversity being damaged.

Although environmental pollution issues have been increasing and taking place in various fields, the resources to resolve these issues remain limited. At present, funding for environmental protection mainly comes from State budget sources, such as environmental protection funds, investment and development funds, the national target programme and some environmental protection projects. The State has increased its funding for work on environmental protection, however, its efforts have remained limited and insufficient to completely resolve urgent problems. Besides this, there are still problems with the disbursement and use of State funding for environmental protection, for example, State funding for environmental protection has been misused in both central and local areas.

The practices above have set some significant challenges for the implementation of the National Action Plan on Green Growth, with the focus on “greenising” local production and promoting “green” technologies in Vietnamese businesses. Therefore, it is required to push local companies to care about and make investments in activities to



▲ *Enterprises' investment in environment-friendly technologies will be able to reduce their production costs by using natural resources, energy and other resources less*

protect the environment.

2. THE RESPONSIBILITIES AND INTERESTS OF ENTERPRISE IN MAKING INVESTMENTS IN ENVIRONMENTAL PROTECTION ACTIONS AND GREEN GROWTH OPERATIONS.

Before discussing the benefits that local enterprises may receive from investing in environmental protection and green growth, it is necessary to review Corporate Social Responsibility (CSR). According to the World Business Council for Sustainable Development, "Corporate Social Responsibility is the continuing commitment by businesses to contribute to economic development, while improving the quality of life of the workforce and their families, as well as of the community and society at large." Therefore, CSR means companies must contribute to economic sustainable development and comply with regulations on environmental protection. Superior CSR programmes for environmental protection would benefit both enterprises and the nation.

At the level of enterprises: Businesses will have the following benefits when they comply with CSR and environment protection standards:

The business image and brand: With better awareness in society on the importance and meaning of environment protection, businesses taking part in en-

vironment protection will be able to earn the trust of society and consumers for their products and businesses. Therefore, their image and brand will witness an improvement and their market share and production will be sustained.

Businesses have opportunities to integrate deeper into the global supply chain in the context of global economic integration: In recent years, environmental issues have become an indispensable part of bilateral and multilateral trade agreements between Viet Nam and other economies and organisations. Therefore, good application of CSR and environment protection by local companies will help their products meet international standards.

Minimized costs and improved production efficiency: Companies that invest in new, environment-friendly production technologies could see an increase in their production costs at the beginning, but in the long term, they will be able to cut

costs by reducing the use of energy, input materials and legal expenses for environmental issues, such as fixing environmental pollution incidents and creating a more efficient working environment for employees. In addition, businesses will increase their competitiveness in the market, especially keeping in mind that more and more countries are implementing their national programmes on green shopping and consumption.

At the national level

When companies increase their spending and investment in activities to protect the environment, they will help implement the policies of the Communist Party and the Government to "Enhance the management of natural resources, environment protection and sustainable development," "restructuring of the economy" and "national strategy on green growth and sustainable development."

Increased investment of companies in environment protection will help create and boost new green economic sectors, in which there are businesses supplying and producing environment-oriented goods and services, offering more employment opportunities and improving living conditions of the people.

Increased investment in environment protection will also help the State reduce its budget spending for environment protection activities. In the context that sources for State budget are limited, active participation of companies in building infrastructure and solutions on environment protection will help socialise environmental protection activities, easing demand and pressure



from local authorities on State budget disbursement for environmental protection activities.

Enhance restructuring and transformation of the economic growth model: Mobilizing companies to make investment in environment protection will be one of the key solutions to transform the country's economic growth model and restructure its economy in the period 2011 - 2020.

The main benefit the nation may get through mobilising companies to perform their CSR is the improvement of Vietnam's position and strength in the global community. In addition, the country will be able to ensure environmental security, social stability and achieve sustainable development goals, especially the 17 targets that are part of the global millennium sustainable development goals that must be reached by 2030.

3. Recommendations to encourage companies to take part in environment protection and green growth actions to develop the country in a sustainable way.

The following are possible solutions to encourage local businesses to participate in environmental protection and green growth activities for the nation's sustainable development:

The Government must increase efforts to popularise policies on environment protection to raise awareness and social responsibility of enterprises on green growth to help them achieve sustainable development, implement the national green growth strategy and achieve the millennium sustainable development goals by 2030.

In a market economy, companies and people are what create products and boost the country's economic growth, leading it towards prosperity. Therefore, we need to complete the market economy mechanism in managing the use and exploitation of natural resources and environmental protection, motivating and encouraging companies to actively enhance their activities to protect the environment and achieve green growth.

We need to study and develop economic tools and new financial mechanisms to mobilise resources from society and the business community for environmental protection. The Government needs to apply basic market economy principles in managing environmental issues such as "polluter pays principle" and "beneficiary pays principle," and flexibly apply economic tools that suit practices in Việt Nam such as taxes, fees, charges, deposits and waste and emission trading quotas to ensure companies' actions are subject to the legal system.

The Government needs to complete its environmental management system from the central level to the local level, strengthen cooperation between ministries, sectors and local authorities in inspecting, checking and dealing with environmental pollution cases made by companies, and improve the role of local people and authorities to monitor enterprises in environmental protection.

The Government needs to review, adjust and supplement regulations on environment protection to improve their validity, effectiveness and enforcement for businesses and connect them with green growth and sustainable development■

Việt Nam urged to explore renewable energy

According to Việt Nam Energy Association, Việt Nam has huge potential for renewable energy which can account for 43% of total energy used in the country by 2050 if it is invested wisely.



▲ A wind farm in Bac Lieu Province

As mentioned in VEA's report, Việt Nam has huge potential in energy from biomass and waste, with the ability of 1 billion kWh in 2020 and 6 billion kWh in 2050 from waste. The total amount of energy can be produced from biomass and waste can reach up to 9 billion kWh in 2020 and 80 billion kWh in 2050. The solar and wind farm projects are also being expanded. However, such projects need huge investment while electricity prices are low. A kWh of wind power is sold only for seven to eight US cents.

Wind power in Việt Nam also has plenty of rooms to grow especially in the Mekong Delta and South Central Coast, with about 1,300 household-sized wind farms, most of them placed in the southern region. The potential for wind energy and the wind farm models for households are opportunities and challenges for Việt Nam.

VEA also stated that many provinces, from Danang City southwards, have long days with 2,000 to 2,500 sunny hours a year and this is an ideal environment to develop both huge and household-sized solar plants. VEA estimated that Việt Nam will produce 101 billion kWh of renewable energy in 2020 and 452 billion kWh in 2050, accounting for 43% of the total energy in Việt Nam■

Thu Hà/VNA



SUNTORY PEPSICO VIỆT NAM:

Sustainable development is our commitment, target and action

With a business strategy targeting sustainable development and harmony between nature and human life, Suntory PepsiCo Viet Nam Factory in Bac Ninh Province (Suntory PepsiCo Bac Ninh) has concentrated its investment on environmental protection and energy saving. The company has also implemented many projects that benefit the local community to create a clean environment for the Vietnamese people. The Vietnam Environment Administration Magazine (VEM) has talked to Ms Phạm Minh Kim, Director of Suntory PepsiCo Việt Nam Bac Ninh, to understand the firm's work on environmental protection.

★Suntory PepsiCo Việt Nam is considered to be among foreign direct investment (FDI) enterprises that have strictly complied with Vietnam's legal system on environmental protection. How are environmental regulations carried out in the scope of the factory and of the company?

Suntory PepsiCo Việt Nam Beverage Co Ltd (SPVB) and Suntory PepsiCo Bac Ninh always gives priority to environmental protection, considering it was one of the key activities that helped the company develop in a sustainable way. The factory has strictly carried out its environmental impact assessment (EIA), assuring its operation will have no negative effects on the environment. The factory has implemented the EIA, which was approved by authorities. All the machinery, equipment and materials are evaluated and tested for their effects on the environment, and based on the evaluation, the appropriate machinery, materials and production methods that are friendliest to the environment and compliant with Vietnam's legal system would be selected. Besides, the factory also looks for oppor-



▲ *Phạm Minh Kim, Director of Suntory PepsiCo Bac Ninh*

tunities and solutions to improve its environmental impact management system. The factory also launches awards to encourage its business units to come up with ideas about environmental protection, which would help the factory improve its operation efficiency and minimise impacts on the environment. The factory also updates its legal documents on environmental protection via the portals of the National Assembly, the Government and other sources. The up-to-date legal documents have helped avoid violations and the factory has been commended by the Government and its agencies for its efforts to protect the environment.

In addition, the factory also raises the awareness of employees and contractors about environmental protection regulations and puts strict, heavy sanctions on individuals and organisations that fail to comply with the environmental protection

law. To raise the awareness of environmental protections and respond to events, such as the International Water Day (March 22) and the International Environment Day (June 5), SPVB and Suntory PepsiCo Bac Ninh organize practical activities, such as improving the facility and the sanitation system in primary schools, planting trees and cleaning roads. In Bac Ninh, Suntory PepsiCo Bac Ninh organized "Green Environment Day," with participation from employees and workers in the factory.

★ The production of beverage will generate negative impacts on the environment if the producer has no solutions for it. What has the factory done to resolve its environmental issues?

To achieve a harmonious relationship with the nature, environment and people, SPVB always needs ideas to minimise its production impacts on the environment and thoroughly applies the most



▲ *Modern and synchronized production line at Suntory PepsiCo Bac Ninh*

modern waste treatment process to protect the local environment. As a sub-unit of SPVB, Suntory PepsiCo Bac Ninh has been applying environment-friendly production methods to increase its energy use efficiency and save input materials. More specifically, the factory has developed a waste management system and has instructed all employees, workers and contractors to be aware of the system and strictly follow the waste treatment procedure. The factory has developed a procedure to select contractors, who are able to collect, transfer and process waste. 100% of waste is classified at-source in accordance with regulations. All employees and workers of the factory are trained on waste classification and disposal. The factory has been equipped with standardised garbage cans and a waste storage facility that is used to temporarily store waste before it is handed to contractors. The waste management system is evaluated and approved by the Bac Ninh Department of Natural Resources and Environment. It is standardised to meet requirements of the EIA and is completed before being used.

Also, the factory has built a waste water treatment system, with a capacity of 2,500m³/day-night, which meets the column A of the standard QCVN40:2011/BTNMT issued by the Ministry of Natural Resources and Environment and the standards of the Viet Nam Singapore Industrial Park (VSIP). The waste water disposed by the production and cleaning activities is gathered at the waste water treatment sys-

tem, which is tested and certified by the MONRE. Every day, factory employees and VSIP representatives check and test the waste water sample to make sure it meets standards after being processed.

Regarding emissions, the factory commits to using modern, environment-friendly technologies only. The fuel used in the production is clean diesel oil and emissions are constantly checked to assure they meet standards after being treated. The factory staff often takes care of machines, assures their proper functioning and causes no impacts on the environment. Currently, the factory has developed and put into practice the environmental management system based on the international standard ISO14001:2015. With non-stop efforts of directors, managers and staff, Suntory PepsiCo Bac Ninh in recent years has received a lot of environmental awards, such as the “National Green-Growth Business 2014 Award” and the “National Green Environment 2014 Award.”

★ *What are the effects of the factory's investment in solar energy panels?*

Saving natural resources is a key solution to reduce the impacts of production on the environment. The factory commits to protecting natural resources by using land, electricity, water and input materials in an efficient way. Saving and minimizing the use of energy and water are two of the most important targets that the factory has been applying.

To achieve that target, the factory has invested and equipped a system of solar energy panels with 400 platforms, generating total 350Kwh of electricity to reduce its dependence on the national electricity network and minimise its carbon dioxide disposal. Each year, the factory cuts 1.78 tonnes of CO₂ disposed by its production (each generated 1Kwh is equal to 0.58kg of CO₂). The factory makes use of solar panels on its roofs to reduce the use of electricity for lighting. Each year, the factory is able to save a total of 140,160Kwh, equal to 81 tonnes of CO₂ from being disposed in the environment. The factory also re-collects and recycles water as well as applies technologies and methods to reduce the use of water, cutting the amount of waste water.

The factory has cut nearly 50% of water and power used to produce an output unit (from 4 litres to 2.5 litres of water, and from 1.7Kwh/8oz to 0.924Kwh/8oz).

★*Thank you!*

Phuong Tam



Potential and outlook of eco-tourism in Việt Nam

Phạm Trung Lương

Institute of Environment and Sustainable Development

Ecotourism is one of the tourism models that increasingly develop and attract international and domestic customers. It is considered as an effective solution for ecological environmental protection towards sustainable development through the reduction of pressures on natural exploitation, meeting the requirements of tourists and local people while participating in ecotourism.

ECOTOURISM APPROACH

In recent years, ecotourism is increasingly attracting the interest of tourists, as a type of responsible natural tourism that supports natural environment conservation targets, indigenous cultural values, and community development; at the same time, it brings significant economic benefits, which contributes positively to the tourism development in particular and the socio-economic development in general.

Being aware of the global importance of ecotourism to the effort of natural environment conservation, particularly ecosystems, biodiversity, indigenous cultural values to the socio-economic development in the natural environment context, biodiversity has been suffering impacts caused by human beings through economic development activities and the increasingly severe impacts of climate change, the United Nations decided 2002 to be the International Year of Ecotourism.

In Việt Nam, ecotourism has just been studied to develop as a tourism type since 1990s; however, it has attracted special attention of managers and researchers on tourism and environment as well as tourism enterprises. Due to different levels of awareness, in different angles, currently there are different viewpoints on the concept of ecotourism. However, through time and with the support of international organizations, particularly the International Union for Conservation of Nature (IUCN), the aware-

ness on ecotourism in Việt Nam is initially consistent, accordingly, "ecotourism is a type of tourism that is based on nature and indigenous culture linked with environmental education, which contributes to the efforts of conservation and sustainable development with active participation of the local community". Tourism is the economic sector that clearly orientates towards natural resources; in other words, tourism is unable to develop without tourism resources. Ecotourism development is not also an exception.

Based on the concept of ecotourism as well as from the practicality of ecotourism development in many countries in the region and in the world, major natural potentials for ecotourism development consist of values of typical ecological landscape, values of biodiversity, particularly unique and rare biological species listed in the international and national Red Book; indigenous cultural values linked with the natural environment such as indigenous knowledge on cultivation methods, production, festivals, traditional activities linked with natural legends...of the local communities. In addition, typical agriculture ecosystems from cultivation activities of local people which are based on indigenous knowledge such as terraced paddy fields in mountainous areas, fruit tree garden in river areas... are usually used to develop some specific ecotourism products.

Of ecotourism resource types, biodiversity plays an important role; the main pur-

pose of tourists is to experience landscape and biodiversity values of the destination. The diversity of species, particularly the presence of unique, rare and threatened species in typical landscape will create significant attractions to tourists. This explains the reason why some countries in Africa, South America such as Kenya, South Africa, Costa Rica, Brazil... where conserve many species in the tropical ecosystem landscape, are always the attractive ecotourism destinations with many tourists from different places in the world.

POTENTIAL AND OUTLOOK OF ECOTOURISM IN VIỆT NAM

Located in the monsoonal humid tropical climate, stretching more than 15 latitudes with $\frac{3}{4}$ areas of mountains, diverse topography, more than 3,200 km of shoreline and the marine zone of more than 1 million km² which consists of nearly 3,000 islands, Việt Nam has diverse ecosystems including 95 ecosystems belonging to 7 major terrestrial ecosystem types; 39 wetland ecosystems and 20 marine ecosystems. The diversity of ecosystems is the living environment for species and makes Việt Nam to be known as one of the largest 16 biodiversity centres in the world, with nearly 14,000 flora species including 12,000 of higher plants in 3,000 orders and 298 families; nearly 19,000 fauna species including 275 mammals, 828 avian, 180 reptiles, 80 amphibians; 2,470 fish; 400 corals (Scleractinia).

The flora system in Việt



▲ *Đồng Tháp Mười in the floating season*

Nam has high endemic level; endemic species account for 33% of the total flora species in the North and more than 40% of the total flora species nationwide. Majority of these endemic species focuses in four main regions: Hoang Lien Son high mountain area (the North), Ngoc Linh high mountain area (Central), Lam Vien central highlands (the South) and the tropical rain forests (Northern Central) with many precious timber trees such as gỗ đỏ (*Azelia xylocarpa*), gụ mật (*Sindora siamensis*), thông nước (*Glyptostrobus pensilis*), hoàng đàn (*Cupressus torulosa*), bách xanh (*Calocedrus*), pơmu (*Fokienia hodginsii*)... In 2014, botanist benchmarked with the discovery of the thông năm lá rù (*Pinus cernua*) in Son La.

The fauna system of Việt Nam is not only diverse but also unique and representative for the South East Asia. Similar to the flora system, the fauna system consists of many endemic species, with more than 100 endemic avian species and sub-species, 78 endemic mammal species and sub-species. There are many species having high practical values and many species having high conservation meaning such as: elephant, Việt Nam rhino, banteng, gaur, wild water buffalo, kouprey, brow-antlered deer... Of 25 recognized primate species in Việt Nam, there are 16 endemic species of Việt Nam, 3 sub-species distributes in Việt Nam and Laos, 2 sub-species can only be found in the tropical forest of Việt Nam - Cambodia. The richness on biodiversity and endemic of Vietnam can be seen through 10% of the world's mammals, birds and

fish can be found here, more than 40% flora species are endemic which could not be found anywhere else (local endemic - indigenous species).

According to the assessment of the International Union for Conservation and Nature (IUCN), the Việt Nam fauna system is diverse in terms of species and high level of endemic compared to other countries in Indochina (15/21 primates, 7 endemic mammal species and sub-species, 33/49 bird species). Việt Nam has many world's new species that have been recently discovered recently such as: sao la (*Pseudoryx nghetinhensis*), mang lớn (*Megamuntiacus vuquangensis*), mang Trường Sơn (*Muntiacus truongsonensis*), bò sừng xoắn (*Pseudonovibos spiralis*), mang Pù Hoạt (*Muntiacus puhoatensis*), cây Tây Nguyên (*Viverra zibeth*), cá lá giang (*Parazacco fasciatus*)... Ecological values, in general, and biodiversity, in particular, focus mainly in the system of 9 biosphere reserves which were recognized by UNESCO; 34 national parks; 58 nature reserves, 14 species conservation, landscape conservation areas.

With the diversity and speciality of ecosystems, biodiversity, indigenous culture values in high ecological value areas are also very diverse and special such as knowledge in terraced paddy rice fields with the way to convey water from river and spring to the field by "water wheel" in high mountainous topography in the North; method of "heightening soil track" for fruit trees in the water lowland areas in the Mekong Delta...; traditional festivals of the ethnic minorities linked with worshipping for fertile seasons... This is a substantial natural resource potential, which contributes to the competitive advantage for ecotourism development in Việt Nam.

Being aware of the importance of ecotourism, the Việt Nam Tourism Development Strategy always identify ecotourism to be a tourism type that is prioritized for development. This orientation plays important roles in tourism developments orientating towards the green economy, which contributes significantly to the sustainable development and response the impacts of climate change in Việt Nam ■



Protection and development of Cần Giờ mangrove ecosystem

Dương Liễu, Xuân Thắng

Cần Giờ mangrove forest consists of terrestrial and aquatic forest fauna and flora, which was established in the downstream of the Đồng Nai - Sài Gòn river system, located in the Southeast direction/gateway of Hồ Chí Minh City, has an area of 75,740 ha, of which the core zone is 4,721 ha, buffer zone 41,139 ha and the transition zone of 29,880 ha. With diverse, typical and unique fauna and flora system, Cần Giờ mangrove forest plays important roles in preventing disasters, acting as a green lung to regulate the climate and a place to provide many valuable aquatic species of the South West region, recognized by UNESCO as the world's biosphere reserve.

In the past, Cần Giờ mangrove forest was very vast, and was also named as Sac forest (as Southern people call *Avicennia* as sac tree). This is a mangrove species growing with other species such as: sú (*Aegiceras corniculatum*) vẹt (*Bruguiera*), đước (*Rhizophora*) ô rô (*Acanthus jicifolius* L.) chà là (*Phoenix dactylifera*) to make a group of mangrove species. The pioneer sea invading species are appropriate with unstable muddy areas in accretion areas in coastal estuary. *Avicennia* and *Rhizophora* species grow first. When the mud is stable, and the water is less salty, the *nypa* grows finally in the sea invading army.

During 1962 - 1971, the American destroyed the Sac forest using herbicides; in addition, the widespread destruction of forests, forests were totally destroyed and turned into bare areas, vacant lands, and shrub lands. Many mangrove fauna species such as shrimp and fish also disappeared. In 1985, Cần Giờ people and the army determined to replant the forest. Ten thousands of ha of Sac forest regenerated. Up to now, 60 flora species have reappeared, mostly *Rhizophora* species. Tens of watery birds stay in the forest, including pelican,



▲ Tourists will have more chance to experience ecotourism types in Cần Giờ mangrove forest

ibis, crane, heron, flamingo, and mallard.

After 30 years of rehabilitation, Sac forest now is called as Cần Giờ mangrove forest which has been rehabilitated in 30,491ha, the previous bare land has become a green forest, which create a beautiful landscape and an appropriate habitat for many flora and fauna species. Cần Giờ mangrove forest has been highly assessed by international experts on forest plantation, nursing and protection in Việt Nam as well as in the world. Forestry scientists have rehabilitated the ecosystem of Cần Giờ mangrove forest to its natural status which was awarded the Hồ Chí Minh Award in 2005.

Cần Giờ mangrove forest is located in a very special geographical location with coastal wetland ecosystem; the mangrove forest is affected by the impacts of estuaries and the sea. Annually, the mangrove forest receives a high amount of sediments

from Đồng Nai River together with the influence of the sea and tides which make the fauna and flora system here is very diverse. Trees in the forest have become food source and habitat for many aquatic species, fish and other vertebrate species.

Cần Giờ mangrove forest has 157 flora species belonging to 76 families, of which 35 mangrove tree species of 36 genus, 24 families. The invertebrate and aquatic fauna system consists of 70 species belonging to 44 families (mostly marine crab, tiger prawn, banana prawn, blood cockle...); the fish system consists of 137 species in 39 families (with different fish species: eeltail catfish, bông lau (*Pangasius krempfi*) dứa (*Pangasius kunyit*); the bird system consists of 130 species, 47 families, 17 orders (grey pelican, grey heron, night heron, adjutant, painted stork...) the mammal has 19 species, 13 families, 7 orders (wild cat, long tailed ma-



▲ *Cần Giờ mangrove forest is a green lung of Hồ Chí Minh City*

caque, common palm civet, porcupine...) the amphibian and reptile system consists of 9 amphibian species and 31 reptile species (Asian water monitor, Chinese cobra, reticulated python, saltwater crocodile...) Particularly, 11 reptiles are in the Việt Nam Red list such as gecko, Asian water monitor, black tailed python, reticulated python, banded krait, Chinese cobra, king cobra, Pacific ridley sea turtle, and saltwater crocodile.

In addition, the forest consists of many tree species, mostly *bần trắng* (*Sonneratia alba*), *mắm trắng* (*Avicennia alba blume*), mixture of *đuốc đôi* (*Rhizophora apiculata*) - *bần trắng* (*Sonneratia alba*) and *xuối* (*Xylocarpus granatum*). Trees in brackish water consist of *bần chua* (*Sonneratia caseolaris*), *ô rô* (*Acanthus jicifolius* L.), *nypa*, *ráng* (*Acrostichum aureum*). Agricultural trees consist of rice, purple yam, and different types of bean, coconut, fruit trees. Cần Giờ mangrove forest is an ecotourism site, which bring considerable income for local people. Cần Giờ mangrove forest is also a laboratory which is used for scientific studies on this special ecosystem. Annually, hundreds of students of universities nationwide visit and choose it as research topics

and receives many domestic and international scientists to study on the fauna and flora.

Currently, the land use planning is inappropriate such as sea invasion works for beaches and tourism, and the overexploitation of natural resources are threats to the ecosystems of Cần Giờ mangrove forest. Therefore, to support the local communities to protect the natural resources, support local people to have sustainable livelihoods, it's foremost to finalize the policy mechanism on management and detailed planning of land resources, river channels, mangroves, fauna and flora, tourism sites, transportation... spatial identification - areas of core zones, buffer zones and transition zones for the purpose of biodiversity conservation and environmental protection in inland areas, river and sea. It is also important to mobilise the

participation and contribution of relevant stakeholders to the planning, management and exploitation of resources, particularly of tourism service area.

Regularly implementing the propaganda and education on environmental protection and biodiversity, response to climate change and sea level rise. Studying community livelihoods for people living surrounding the buffer zone by surveying nearby people; training skills on community jobs, linking vocational training colleges on tourism and cooking with tourism companies to implement ecotourism services. Organizing community group to protect the forests, establishing protection units in key areas and in all sub-sites, effectively performing the forestry extension, and job creation and income for labourers through plantations■

EU steps up enforcement and partners with business sector to crack down on wildlife crime



Recent years have seen a dramatic surge in wildlife trafficking. An estimated 8 to 20 billion euro pass annually through the hands of organized criminal groups, ranking alongside the trafficking of drugs, people. Fuelled by corruption, inadequate governance, poverty and poor enforcement, as well as rising demand in some world regions, wildlife trafficking not only threatens the survival of some emblematic species, it also claims human victims, and deprives poorer communities of much-needed income. In parts of Africa, it serves as a source of funding for militia groups, threatening regional stability.

On 26 February 2016 the European Commission adopted an EU Action Plan to tackle wildlife trafficking within the EU and to strengthen the EU's role in the global fight against these illegal activities. The Action Plan comprises 32 measures to be carried out between now and 2020 by the EU and its 28 Member States. It focuses on three priorities: Prevent trafficking and reduce supply and demand of illegal wildlife products; Enhance implementation of existing rules and combat organized crime more effectively by increasing cooperation between competent enforcement agencies such as Europol; Strengthen cooperation between source, destination and transit countries, including strategic EU financial support to tackle trafficking in source countries, help build capacity for enforcement and provide long term sources of in-

come to rural communities living in wildlife-rich areas. It is also an important contribution to achieving the Sustainable Development Goals' dedicated target (Goal 15) to "take urgent action to end poaching and trafficking of protected species of flora and fauna, and address both demand and supply of illegal wildlife products". One year after adopting the EU Action Plan against Wildlife Trafficking, the Commission takes stock of progress and ensures commitment from key business sectors on the Plan's three dimensions - prevention, stronger enforcement and global partnership.

According to Report released on February 8, 2017 at High-level conference in Brussels, the implementation of 32 actions to tackle wildlife trafficking in Europe and globally is on track. Member States have prioritized enforcement with a big number of seizures of ivory, eels or rhino horn in the last months. National enforcement agencies and Europol have strengthened their cooperation, and Member States work closer together to raise

awareness and build capacity against wildlife crime. EU Commissioner for Environment, Fisheries and Maritime Affairs Karmenu Vella said, EU Action Plan is making a real impact on the ground. Europe and its international partners are on the right track to eradicate wildlife trafficking, which threatens our biodiversity, costs human lives and robs innocent people of their livelihoods. But we still have a long way to go. It's encouraging to see the business sector on board. Only with the commitment and cooperation of everybody involved can we fight this crime that is becoming more organized and more ruthless.

The Commission has mobilized the EU business sector, in particular pet trade sector, aviation and courier sectors, to prevent that Europe is used as a market, transit point or source for illegal wildlife products. Work is advancing on many of the objectives of the Action Plan. With the Member States, the Commission is working on guidelines to ensure that neither the EU domestic ivory market nor



the export of ivory from the EU contributes to international ivory trafficking. On the international front, the EU played a key role at the recent Conference of the Parties of the international convention regulating trade in endangered species (CITES). The EU participated for the first time as a Party, alongside all 28 Member States, speaking and voting as a block with a strong united voice. Parties agreed to trade restrictions and bans on a large number of species in need of greater protection, such as rosewood, pangolins, parrots and fish species. In 2017, work with our partners to implement CITES decisions will be a priority.

The EU has strengthened diplomatic efforts in the Far East, the most important market region, and worked closely together with partners to tackle the roots of the problem. Efforts were aimed at targeting organized criminal groups and looking at ways to reduce demand for illegal products, from rhino horn to pangolin scales. Being already the number one donor against wildlife trafficking in the world, the EU intends to increase its financial support to reinforce the capacity of developing countries to deal with that problem and to strengthen the activities of international organizations such as CITES or Interpol against wildlife crime.

Finally, the European Union has also contributed actively to include the issue of wildlife trafficking on the agenda of the G20 anti-corruption work and of the Financial Action Task Force, the main international body in charge of money laundering■

Phường Linh
(EC.Net source)

EU countries have to drastically reduce consumption of lightweight plastic carrier bags

In view of tackling resource waste and littering, EU governments have until 27 November 2016 to adopt measures to cut the consumption of lightweight plastic carrier bags, and inform the European Commission about it. This is required by the EU Plastic Bags Directive. It obliges Member States to achieve this by putting a price on plastic bags, and/or introducing national reduction targets.

National governments can choose from among a number of measures to achieve the commonly agreed objectives. These include economic instruments, such as charges or levies. Another option is national reduction targets: Member States must ensure that by the end of 2019, no more than 90 of these bags are consumed per person a year. By the end of 2025 that number should be down to no more than 40 bags per person. Both options may be achieved either through compulsory measures or agreements with economic sectors. It is also possible to ban bags provided those bans are in line with EU law.

Approximately 100 billion plastic bags are consumed in the EU every year. Plastic carrier bags easily escape waste management streams and accumulate in our environment, especially in the form of marine litter. Once discarded into the environment, plastic bags can last for over 100 years. In the sea, they have a devastating

effect on marine life that get entangled in plastic debris or ingest it in the form of microplastics.

To tackle the problems of resource waste and littering, the EU passed a law in 2015 to help Member States drastically cut light-weight plastic bag consumption, focusing on all plastic carrier bags below thickness of 50 microns. Very lightweight bags (less than 15 microns and used for wrapping of loose food (e.g. fruit, vegetables, fish) may be exempted if this helps to prevent food wastage. According to EU Commissioner for the Environment, in the EU we currently consume up to 200 bags per person, every year. Only about 7 % are recycled. Billions end up as litter across Europe, especially on our beaches and in the sea. This has serious environmental and economic effects. Now it's up to the Member States to do their part. Some have already shown that simple measures can lead to big changes.

In many EU countries plastic bags are no longer

available at grocery stores for free. Some Member States, such as Denmark, Finland and Luxembourg, have already achieved great results. In Ireland, for example, since the introduction of the levy in 2002, the consumption of single-use plastic bags has decreased from 328 per person per year to just 18 - a reduction of nearly 95%. The UK and the Netherlands have also brought in charges on bags. Here too a small charge proved to be equally effective. Some countries have opted for mandatory charges, others for voluntary agreements with the retail sector, such as Germany. France and Italy, in turn, have decided to ban plastic bags, apart from those that are biodegradable and compostable.

The European Commission is developing a common methodology for calculating how many lightweight bags are consumed per year. EU Member States must report annual consumption figures to the Commission as of 27 May 2018■

Trần Hương
(EC.Net source)

Beijing's efforts to combat air pollution



▲ A traffic police works among heavy smog during a polluted day in 2017.

VOWS 30 PERCENT CUT IN COAL USE IN 2017

China's smog-hit capital Beijing plans to slash coal consumption by a further 30 percent in 2017 as part of its efforts to combat air pollution.

Beijing has promised to implement "extraordinary" measures this year in a bid to tackle choking smog from traffic congestion and the heavy use of coal.

"We will try to basically realize zero coal use in six major districts and in Beijing's southern plain areas this year. Beijing would also eliminate small coal-fired boilers. The new cuts will bring coal use in the city to less than 7 million tonnes in 2017, Beijing Major Cai said.

Beijing originally aimed to bring coal consumption to below 10 million tonnes this year, down from around 22 million tonnes in 2013, and has already shut major coal-fired power stations.

It has made up the supply shortfall by importing power from neighboring provinces via the grid, raising fears that the capital is exporting its pollution to surrounding regions.

BANS HIGH-EMISSION VEHICLES

Beijing would also take 300,000 obsolete vehicles off the roads this year to help to raise fuel standards and promote new energy cars. Heavy traffic is responsible for about a third of Beijing's total emissions of harmful breathable particles known as

PM2.5, according to the Ministry of Environmental Protection.

Gasoline-powered vehicles that fail to meet China's Emission Standard III will not be allowed to enter the city's main districts on weekdays, and drivers will be fined if they fail to comply,

Beijing was one of 24 cities to issue a smog "red alert" at the end of last year, allowing authorities to impose emergency restrictions on traffic and industrial output in order to reduce emissions.

The 5.7 million vehicles on Beijing's roads account for 31 percent of the city's hazardous breathable particles known as PM2.5, a major constituent of smog. Cars are also estimated to be responsible for more than 80 percent of the carbon monoxide in China's air.

China has drawn up new rules requiring all light vehicles to adhere by 2020 to its strictest "China VI" emission standards, which are based on ones used in Europe and the United States.

China's cities need to reduce PM2.5 to an annual average of 35 micrograms in order to meet state standards. Average concentrations of PM2.5 in Beijing stood at 73 micrograms per cubic meter in 2016, down 9.9 percent on the previous year. However, readings have regularly exceeded 500 micrograms since mid-December, with fireworks to help celebrate the Chinese new year driving PM2.5 concentrations to their second highest level in five years at the end of January.

China is also considering tough new measures restricting industrial activity in the region surrounding Beijing, according to a draft policy document■

Hoàng Dương/VEM



▲ Buildings are seen in smog during a polluted day in Beijing. (Picture taken January 26, 2017)



CÔNG TY CỔ PHẦN PHÂN BÓN BÌNH ĐIỀN

BINH DIEN FERTILIZER JOINT STOCK COMPANY



- **Đầu Trâu 46A+**
- **Đầu Trâu DAP-Avail**



Tiết kiệm hơn
Năng suất hơn

www.binhdien.com



SỮA CÔ GÁI HÀ LAN ACTIVE 20+™ NĂNG LƯỢNG SỮA CHO CẢ NHÀ NĂNG ĐỘNG



SỮA CÔ GÁI HÀ LAN ACTIVE 20+™ là sữa bột trung và nặng không đường, có chứa vitamin - chất Dutch Lady Active 20+™. Thuộc nhóm thực phẩm bổ sung.
Sản xuất tại:
Công ty TNHH FrieslandCampina Việt Nam, Phường Nhai, Thị trấn An, Tỉnh Quảng Bình
Công ty TNHH FrieslandCampina Hà Nam, Quận Cầu Giấy, Hà Nội, TP. Hồ Chí Minh, TP. Thủ Đức, TP. Đà Nẵng