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Working together to address the issue of marine debris in the ASEAN region

Bringing about new changes in the management and action of environmental protection

Development of an implementation plan for the unified state management of solid waste

Use of tax policy tools for the economic regulation towards green growth and sustainable development in Việt Nam

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OFFICE
● **Hà Nội:**
Floor 7, lot E2, Duong Dinh Nghe Str.,
Cau Giay Dist. Hà Nội
Managing: **(024) 66569135**
Editorial: **(024) 61281446**
Advertising: **(024) 66569135**
Fax: **(024) 39412053**
Email: **tapchimoitruongtcmt@vea.gov.vn**
http://www.tapchimoitruong.vn
● **Ho Chi Minh City:**
Room A 907, 9th floor - MONRE's office complex, No. 200 - Ly Chinh Thang Street,
9 ward, 3 district, Ho Chi Minh city
Tel: **(028) 66814471** - Fax: **(028) 62676875**
Email: **tcmtphianam@gmail.com**

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NATURE & ENVIRONMENT OF VIETNAM

The Ministry of Natural Resources and Environment meets international partners for the new lunar year

Minister of Natural Resources and Environment Trần Hồng Hà and Deputy Ministers Nguyễn Thị Phương Hoa, Trần Quý Kiên and Lê Công Thành on February 20, 2019 met ambassadors, international organizations' representatives in Việt Nam and international specialists to welcome the new lunar year - the Year of the Pig 2019 - at the headquarters of the Ministry of Natural Resources and Environment (MONRE). This is the annual meeting to take an overall review of the previous year, in which the Ministry and its partners made new achievements and efforts, eye higher targets for the new lunar year.

Speaking at the meeting, Minister Trần Hồng Hà highly appreciated the efforts and contributions made by international organizations and specialists last year to help Việt Nam make remarkable achievements in environmental protection, sustainable management of natural resources, and enhancement of climate change responses. 2019 will be an important year for the ministry to speed up and achieve its comprehensive targets set for the 2016-2020 period. Under the plan for the period, the ministry will focus on some major matters such as developing the Government's action plan to implement the Party Central Committee's resolution on sustainable development of Việt Nam's marine economy; promoting the implementation of the Government's resolution on sustainable development of the Cửu Long Delta Region towards climate change adaptability; developing a suitable policy to build a circular economy, turn wastes into resources, dealing with the disposal of plastic wastes and assisting the global community to handle the issue of plastic wastes that is covering oceans; encouraging the use of information and technology to connect different departments and units at the Ministry such as land management, sustainable development, environmental protection, water management and weather forecast; and preparing for opportunities brought by new-generation trade agreements.

Mr. Caitlin Wiesen, representative of the Ministry's international partners cum the Acting Country Director of the United Nations' Development Programme (UNDP) to Việt Nam, spoke highly of achievements that MONRE has made in protecting and encouraging the sustainable use of natural resources, especially when Việt Nam successfully organized the 6th Environment Facility Assembly and the Release ceremony for the Climate Change Inter-Governmental Committee's report on the global impact of El Nino. According to Caitlin Wiesen, the approval of the Paris Agreement in December 2018 at the 24th Climate Change Conference (COP24) has created a firm foundation for national-level climate change responses, and the upcoming United Nations' Climate Change Summit 2019 - which takes place in September 2019 - will be the opportunity for Việt Nam to show its strong commitment and contributions to global efforts in avoiding disastrous impacts of climate change.

▲ *Minister of Natural Resources and Environment Trần Hồng Hà delivers his remark at the meeting*

▲ *Minister Trần Hồng Hà (right) and one of the international partners at the meeting*

At the meeting, international partners of the Ministry also expressed they will continue supporting and working with Việt Nam and MONRE to improve their performances in natural resources management, environmental protection and responding to climate change so that the country is able to develop in a sustainable way.

Đức Anh

Strengthening the Việt Nam - Japan Environment Policy Dialogue

From January 9 - 11, 2019, the 5th Việt Nam - Japan Environment Policy Dialogue and a series of events in the Việt Nam - Japan Environment Week took place successfully in Hà Nội. The events were organized by the Ministry of Natural Resources and Environment of Việt Nam in coordination with the Ministry of Environment of Japan.

In recent years, the cooperation between Việt Nam and Japan has always been strengthened and developed in both depth and breadth. In 2018, the 45th anniversary of diplomatic relations was celebrated, marking an important milestone in the relationship between the two sides. In the 5th Việt Nam - Japan Environment Week, the Environment Policy Dialogue was held for the first time with various contents: Workshops on environmental infrastructure and technology; International cooperation on pollution prevention; Low-carbon cities; Meeting of the Joint Working Committee on waste-to-energy development and management…, attracted many agencies, organizations and enterprises. The event contributed to affirming that the two parties will continue to promote comprehensive cooperation relations in all fields.

▲ *Deputy Minister of MONRE Võ Tuấn Nhân speaks at the International Cooperation Conference on pollution prevention*

MANY OUTSTANDING RESULTS IN THE FRAMEWORK OF THE ENVIRONMENT POLICY DIALOGUE

In the framework of the Việt Nam - Japan Environment Policy Dialogue over the past time, the two parties have coordinated to effectively implement the Joint Crediting Mechanism (JCM); to successfully organize the 7th Bilateral JCM Joint Committee Meeting in Việt Nam; to establish a Joint Committee of representatives from Việt Nam and Japan to direct, coordinate and manage JCM implementation activities under the Memorandum of Understanding on cooperation between the two parties on low carbon growth.

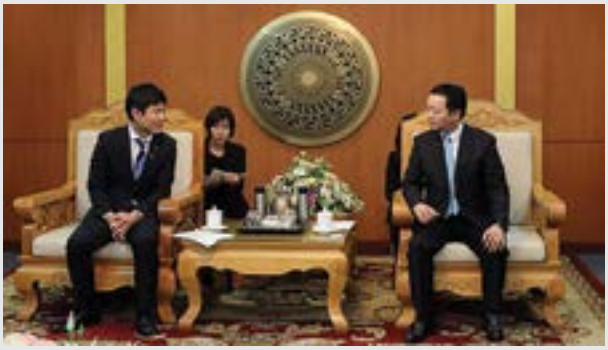
In addition, the two parties have signed the implementation of projects: To support for climate change adaptation planning in Việt Nam for Thừa Thiên - Huế province, Hải Phòng city, Đà Nẵng city; to develop activities and policies in adaptation planning process in pilot cities of Huế, Hải Phòng and Đà Nẵng; to develop plans to nationally appropriate mitigation actions (SPI-NAMA); to support Hồ Chí Minh city in developing guidelines on inventory, measurement, reporting and verification of greenhouse gas emission reduction activities... The cooperation projects have contributed to assisting Việt Nam to solve problems related to management policy in the field of environment and climate change response.

Regarding the revision of the Law on Environmental Protection (LEP) in 2014, the Vietnam Environment Administration (VEA) has cooperated with the Japan In-

▲ *The Meeting of Vietnam - Japan Joint Working Committee on the management and development of waste-to-energy*

On this occasion, the Minister of Natural Resources and Environment Trần Hồng Hà had a meeting with Mr. Takaaiki Katsumata, the Japanese Minister of Environment. The Minister said that the policy dialogues on the fields of cooperation between the two parties are very important. However, the two parties need to take more concrete and practical actions to solve the environment and climate change issues which are becoming more and more complicated.

The Minister hopes that Japan would support Việt Nam by sharing its experiences in developing policies and management models to promote periodic economic development, in accordance with Vietnam's practical conditions, in which, prioritizing solutions for pollution management and minimizing plastic waste and ocean waste, etc. Currently, the problem of Việt Nam is that the waste has not been separated at source, making foreign technology that has been introduced yet to be applied effectively. The Minister also affirmed that Việt Nam would pioneer in reducing ocean plastic waste and hopes that Japan would support Việt Nam to build an International Research Center on plastic waste by 2020. The center will be a regional forum for parties to share knowledge and information related to waste and plastic waste pollution; to develop new tools and policies on plastic waste; to enhance capacity and raise awareness for enterprises and communities to better apply 3R...



▲ *Minister of Natural Resources and Environment Trần Hồng Hà works with the Japanese Deputy Minister of Environment Takaaki Katsumata*

ternational Cooperation Agency (JICA) to organize workshops on environmental impact assessment and life-cycle project management tools. Through the workshops, it is necessary to amend and supplement the regulations on environmental impact assessment in LEP, ensuring that it is consistent with reality as well as international practices.

At the same time, the VEA has also coordinated with Japan's focal agency to propose the establishment of a Joint Working Committee between the two parties; to discuss in detail the issues of the Joint Working Committee for waste-to-energy development model as a member of the Committee (expected to include representatives of the Ministry of Environment of Japan and Vietnamese Ministries/branches of: Natural Resources and Environment, Construction, Industry and Trade, Health, Planning and Investment, Finance, Agriculture and Rural Development).

In addition, the Ministry of Natural Resources and Environment (MONRE) is cooperating with Japan to implement the Project on strengthening the capacity of river basin water environment management; Project on survey among the private sector to introduce Japanese technology for simple water monitoring devices to enhance water environmental management capacity; Receiving experts on environmental policies dispatched by JICA to work at MONRE...

TO CONTINUE TO IMPLEMENT MORE SPECIFIC AND PRACTICAL COOPERATION ACTIVITIES

Speaking at the 5th Environment Policy Dialogue and workshops within the framework of Việt Nam - Japan Environment Week, Deputy Minister of MONRE Võ Tuấn Nhân highly appreciated the cooperation and support of the Ministry of Environment of Japan for Việt Nam in human resource development, strengthening the management and professional staff's capacity of the MONRE in recent years, etc. Especially, when the LEP in 2014 is proposed to be amended and the economic development in Vietnam is implementing the direction of green economic development and low carbon emissions, the cooperation with Japan will be an opportunity for Việt Nam to learn from experiences as well as strengths of Japan. The Deputy Minister hoped to receive the support of the Japanese Government for some key areas of the natural resources and environment sector, especially the support in the establishment of institutions, legal policies and effective implementation of the projects on environmental protection and climate change response.

According to the Deputy Minister of the Environment of Japan, Takaaiki Katsumata, Việt Nam is facing many environmental problems such as increasing amount of waste, the impact of climate change... The Deputy Minister Takaaki Katsumata affirmed that from practical experience and advanced technology, Japan will continue to support Việt Nam to address environmental challenges, aiming at sustainable development. The Việt Nam - Japan Environment Week attracts 350 participating enterprises, of which, there are 150 Japanese enterprises with

advantages in environmental monitoring and review, waste and wastewater treatment technologies, etc. This dialogue is an opportunity for cooperation between management agencies and enterprises of the two countries, together to find solutions to solve today's urgent environmental problems.

At the 5th Việt Nam - Japan Environment Policy Dialogue, the two parties reported an overview of the implementation of commitments under the Memorandum of Understanding on environmental cooperation; to discuss, exchange ideas and share experiences to come up with solutions and orientations for cooperation in the future, etc. Accordingly, in 2019, the two parties will continue to strengthen the relationship and promote cooperation in field of environment, climate change, through materialization of cooperation programs and projects on policy development, green growth, pollution control, waste and wastewater management and serious pollution point treatment and to promote environmental technology and climate change response.

It can be said that the relationship between Việt Nam and Japan is a sustainable cooperation with clear objectives and practical meanings. With the efforts and determination of the both parties, we will soon reach the destination in the work of environmental protection, creating breakthroughs in socio-economic development while ensuring green, clean and sustainable environment■

Bùi Hằng

China to host World Environment Day 2019 on air pollution

The head of Chinese delegation, Zhao Yingmin, Vice Minister of Ecology and Environment, and Joyce Msuya, Acting Head of UN Environment, jointly announced that China will host the global World Environment Day (WED) celebrations on 5 June, 2019 with a theme of air pollution.

Approximately 7 million people worldwide die prematurely each year from air pollution, with about 4 million of these deaths occurring in Asia-Pacific. WED 2019 will urge governments, industry, communities, and individuals to come together to explore renewable energy and green technologies, and improve air quality in cities and regions across the world.

The Government of China has committed to organizing World Environment Day celebrations across multiple cities, with Hangzhou, in the province of Zhejiang, to host the main event.

The announcement comes as environment ministers from across the globe participate in the world's highest-level environmental forum in Nairobi. Negotiations at the Fourth UN Environment Assembly 11 - 15 March are expected to tackle critical issues such as stopping food waste and promoting the spread of electric cars. It also follows the publication of a review report of 20 Years' of air pollution control in Beijing.

"China will be a great global host of 2019's WED celebrations," said Joyce Msuya at the announcement on Friday. "The country has demonstrated tremendous leadership in tackling air pollution domestically. It can now help spur the world to greater action. Air pollution is a global emergency affecting everyone. China will now be leading the push and stimulating global action to save millions of lives."

China with its growing green energy sector, has emerged as a climate leader. The country owns half the world's electric vehicles and 99 percent of the world's electric buses. By hosting WED 2019, the Chinese government will be able to showcase its innovation and progress toward a cleaner environment.

According to a new UN report on air pollution in Asia and the Pacific, implementing 25 technology policies could see up to a 20 per cent reduction in carbon dioxide and a 45 per cent reduction in methane emissions globally, leading to a third of a degree Celsius saving of global warming. WED is a UN Environment-led global event, which takes place on June 5 every year and is celebrated by thousands of communities worldwide. Since it began in 1972, it has grown to become the single largest celebration of our environment each year■

Phương Linh

Air Pollution facts:

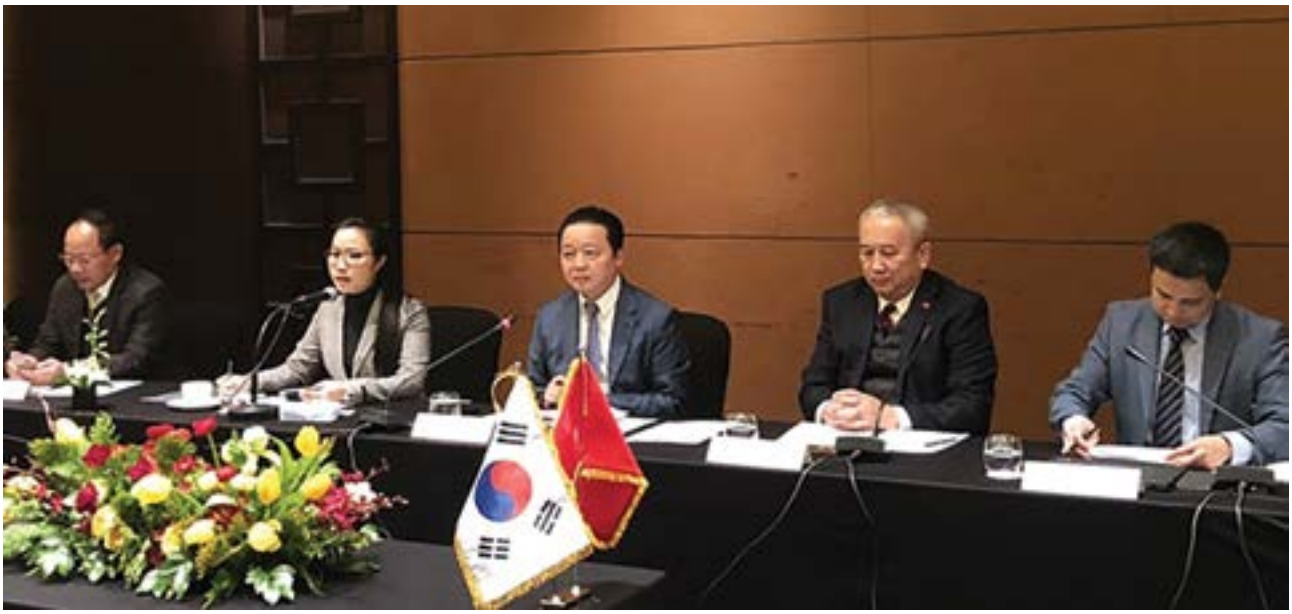
- 92 per cent of people worldwide do not breathe clean air;

- Air pollution costs the global economy $5 trillion every year in welfare costs;

- Ground-level ozone pollution is expected to reduce staple crop yields by 26 per cent by 2030

Imprint of Việt Nam - Korea cooperation on natural resources and environment

Nguyễn Thị Cẩm Uyên
Department of International Cooperation, Ministry of Natural Resources and Environment



▲ *Minister of Natural Resources and Environment Trần Hồng Hà (middle) attended the 14th Viet Nam - Korea Environment Ministers Meeting (VKEMM-14)*

The 14th Việt Nam - Korea Environment Ministers Meeting (VKEMM-14) held on December 20, 2018 in Seoul, South Korea has evaluated the results of cooperation between the two countries in the past period and agreed on the cooperation activities in 2019 in the field of natural resources and environment based on the Memorandum of Understanding on comprehensive cooperation signed between the Ministry of Natural Resources and Environment of Việt Nam (MONRE) and the Ministry of Environment of Korea in April 2018.

The report on the results of cooperation achieved in 2017 - 2018 period between the Ministry of Environment of Korea and the MONRE at the Meeting shows that the Memorandum of Understanding on comprehensive cooperation signed between the two Ministries is a premise for Việt Nam and Korea to implement extensive cooperation in the areas of the environment, climate change, water resources management, hydrometeorology and biodiversity conservation, with details as follows: Over the years, the Ministry of Environment of Korea has cooperated and actively supported Việt Nam to develop human resources and improve management capacity for the environment, water resources, hydrometeorology through training programs, exchange of experts and projects to support research, development and transfer of natural resources and environment technologies.

From these supports, Việt Nam has implemented a number of activities as follows: Amending and perfecting the Law on Environmental Protection in 2014; implementing the Target National Programs on pollution remediation and environmental improvement; restoring contaminated soil and groundwater; joint cooperation projects in the areas of environment, climate change, water and wastewater management, biodiversity conservation, etc.

Việt Nam appreciates the role of Korea in international activities on environmental protection, especially activities such as training, capacity building and staff exchange; studying and modifying the system of technical regulations on the environment; supporting environmental enterprises; bilateral cooperation in the field of hydrometeorology; and sharing experiences on "green public procurement".

On the basis of the cooperation results in the past period, the Ministers of Environment of both countries has exchanged and agreed on specific cooperation ac-

tivities in 2019 within the framework of the 2018 Memorandum of Understanding on comprehensive cooperation. Regarding the priority activities in the coming time, MONRE proposed the Korean Ministry of Environment to consider giving priority to Việt Nam in activities such as:

First, regarding cooperation in the field of the environment, it is recommended to continue to support MONRE to develop, implement and amend the Law on Environmental Protection in 2014, in which the Korean side will send experts on policy on natural resources and environment, experts on environmental standards (especially wastewater and exhausts), experts on environmental impact assessment and environmental licensing to support Việt Nam in the enactment and implementation of environmental technical standards and regulations; to review and propose amendments to Vietnam's environmental technical regulations.

MONRE proposed that the two Parties focus on signing the Memorandum of Understanding on cooperation in the field of technology and environmental industry in the period of 2019-2024 between the Vietnam Environment Administration, MONRE and the Korea Environmental Industry and Technology Institute (KEITI), the Ministry of Environment of Korea.

MONRE will continue to coordinate with KEITI and other relevant Korean agencies, Vietnamese ministries/sectors to develop a policy framework to promote sustainable consumption, sustainable production policies as well as policies and regulations on environmental protection; to strengthen coordination among specialized agencies and issue a national action plan on "green public procurement", etc.; to cooperate with KEITI to regularly organize seminars to disseminate environmental laws to Korean enterprises doing business in Vietnam.

Second, regarding capacity building training support, it is suggested that the two Parties continue to participate in the Program to send senior Korean volunteers to work in Việt Nam to support the fields in the natural resources and environment sector; to support training, technology transfer and capacity building for managers and professional staff of the MONRE on environmental technology and water resource management; to continue to cooperate with Yonsei University to develop programs to strengthen capacity for Climate change and Sustainable development sectors.

Third, to cooperate in the field of science and technology focusing on building and implementing programs, projects, general research tasks in service of state management of natural resources and environment; to cooperate in training science and technology human resources for the natural resources and environment sector; to consult and share experiences on intellectual property, to develop standards - regulations and develop science and technology potentials through organizing scientific conferences and seminars, thematic activities, exchanges among expert groups; to develop and support the implementation of technology transfer projects in the natural resources and environment sector.

Fourth, regarding hydro meteorological cooperation and water resources management, based on the results of effective cooperation between the Vietnam Meteorological and Hydrological Administration and the Korea Meteorological Administration (KMA), the MONRE proposed to continue to maintain cooperation on science and technology and support in capacity building and communication in the hydrometeorology sector; to expand cooperation activities in the field of climate change monitoring and natural disaster warning.

In addition, the MONRE also asked the Korean side to support and enhance cooperation and technical assistance to review and amend the Law on Water Resources in 2012; to enhance exchange activities between the two Parties to transfer technology and exchange management experiences of Korea to Vietnam towards sustainable water resource management, restoration and maintenance of aquatic ecosystem; to implement sea and island planning.

Consistent with the proposals of Việt Nam, Korea is willing to assist Việt Nam in training to improve environmental protection capacity as well as responding to climate change, helping Việt Nam develop laws and regulations on environment. At the same time, Korea agreed with Việt Nam that it is necessary to turn waste and wastewater into a reusable resource. Currently, Korea is implementing the Law on Resource Circulation and has a lot of experience in managing wastewater and waste from industrial zones and is ready to assist Việt Nam to solve this important issue. In addition, Korea also pledged to help Việt Nam develop water resources management and biodiversity protection planning. Many Korean enterprises are also interested in investing in Việt Nam in the field of renewable energy.

In the coming time, Việt Nam and Korea will promote bilateral cooperation activities, contributing to effective implementation of the Memorandum of Understanding signed between the two Ministries and the 2019 Action Plan; to actively exchange information and experience on management and promote technology transfer and reception; to implement cooperation projects in the fields on the principle of efficiency, practicality and mutual benefits■

International Day for Biological Diversity 2019

THE VALUE OF BIODIVERSITY

While there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations, the number of species is being significantly reduced by certain human activities.

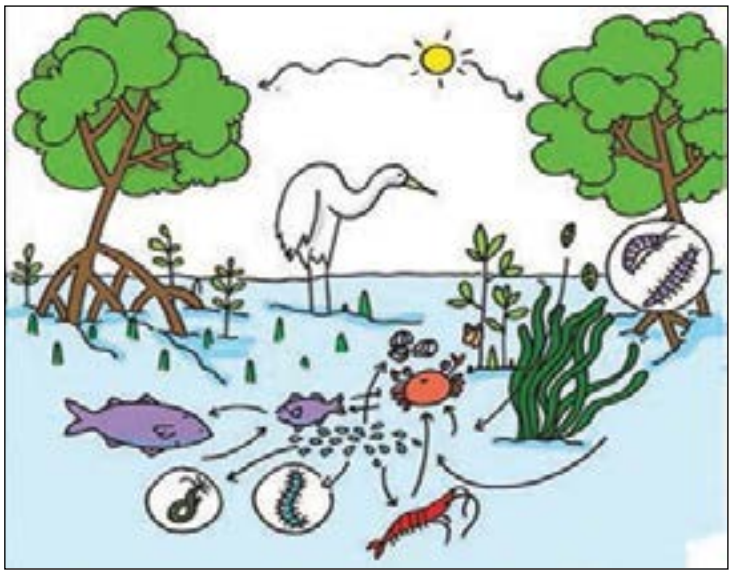
The Convention on Biological Diversity is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" that has been ratified by 196 nations.

Given the importance of public education and awareness for the implementation of the Convention, the General Assembly proclaimed 22 May, the date of the adoption of its text, as the International Day for Biological Diversity by its Resolution 55/201 of 20 December 2000.

2019 THEME: OUR BIODIVERSITY, OUR FOOD, OUR HEALTH

Nowadays, we have access to a greater variety of food than your parents or your grandparents once did. But even as the offerings become more diverse, the global diet as a whole - what people actually eat - is becoming more homogenized, and this is a dangerous thing.

This year's celebrations of the International Day for Biological Diversity focus on biodiversity as the foundation for our food and health and a key catalyst to transforming food systems and improving human health.



▲ *2019 Theme: Our biodiver-sity, our food, our health*

The theme aims to leverage knowledge and spread awareness of the dependency of our food systems, nutrition, health on biodiversity and healthy ecosystems. The theme also celebrates the diversity provided by our natural systems for human existence and well-being on earth, while contributing to other Sustainable Development Goals, including climate change mitigation and adaptation, ecosystems restoration, cleaner water and zero hunger, among others.

In the last 100 years, more than 90 percent of crop varieties have disappeared from farmers' fields. Half of the breeds of many domestic animals have been lost, and all of the world's 17 main fishing grounds are now being fished at or above their sustainable limits. Locally-varied food production systems are under threat, including related indigenous, traditional and local knowledge. With this decline, agrobiodiversity is disappearing, and also essential knowledge of traditional medicine and local foods. The loss of diverse diets is directly linked to diseases or health risk factors, such as diabetes, obesity and malnutrition, and has a direct impact on the availability of traditional medicines.

Decisions from the 14th meeting of the Conference of the Parties to the UN Convention on Biological Diversity (CBD COP 14), along with reports on biodiversity and health, provide recommendations■

Phương Tâm

▲ *Biodiversity as the foundation for people's food and health*

Development of an implementation plan for the unified state management of solid waste

In response to the shortcomings and problems in the state management of solid waste (SW), on February 3, 2019, in Resolution No. 09/NQ-CP, the Government assigned the Ministry of Natural Resources and Environment (MONRE) as the focal point for state management of solid waste toensure consistency from central to local levels; at the same time, create a positive change in solid waste management.To implement the direction of the Government, in recent years, the MONRE has organized many meetings with the Vietnam Environment Administration (VEA) and related agencies under the Ministry on this issue.

At the meeting of reviewing the Plan in organizing, receiving and implementing the Plan of unified state management of solid waste (the Plan) taking place on March 15, 2019, Deputy Minister of the MONRE, Võ Tuấn Nhân, asked the VEA to consider the Plan as a key task which need to focus resources to implement it on schedule and with quality.

On that basis, the VEA has reviewed and finalized the contents of the draft Planning Framework, focusing on a number of key tasks and solutions such as: Reviewing legal documents related to state management on solid waste and proposing the revised and supplemented contents; surveying and assessing the situations and proposing solutions to strengthen solid waste management; organizing missions to study policies and regulations on solid waste management; organizing National Workshops on solid waste; developing the Scheme on unified state management of solid waste to submit to the Prime Minister for consideration and approval in September 2019.

The VEA also organizes missions to work with local governments to review and evaluate state management in localities, including: planning and implementation of planning; capacity of waste collection, transportation and treatment of localities compared to the amount of generated waste; organization of apparatus, allocation of responsibilities among specialized agencies on domestic solid waste management; development and issuance of regulations on domestic solid waste management; issuance of unit price of solid waste collection, transportation and treatment in the locality, annual allocation budget; organization of inspection and examination missions to provide an overall picture nationwide.

▲ *Minister Trần Hồng Hà chairs the meeting to discuss urgent tasks on solid waste management taking place on March 19, 2019*

On March 19, 2019, Minister Trần Hồng Hà chaired a meeting to discuss urgent tasks on solid waste management.

At the meeting, the agencies under the Ministry reported on the development and amendment of legal documents on solid waste management; system of environmental standards and technical regulations; implementation of strategies, planning, programs, schemes and plans on solid waste management; direction, guidance and implementation of solid waste management; inspection and supervision of the compliance with the law on solid waste management; handling of law violations in solid waste management; technology assessment and evaluation in the field of solid waste management, etc.

On the Plan for implementation of the Unified Solid Waste Management Scheme, Minister Trần Hồng Hà directed the VEA to submit the Plan to the Government for consideration and approval in order to quickly create positive changes in the solid waste management, especially for domestic solid waste, contributing to the successful implementation of the National Strategy for integrated management of solid waste up to 2025, with a vision to 2050 approved by the Prime Minister in Decision No. 491/QD-TTg dated May 7, 2018. At the same time, the VEA coordinate with functional agencies to study and develop the bidding model for providing solid waste treatment services nationwide based on the standards, criteria, technical regulations and techniques promulgated by the Government, thereby, publicizing the nationwide solid waste treatment projects meeting the technical standards for localities to select solid waste treatment projects which are suitable for technology and prices with management areas.

In order to unify the solid waste state management, the MONRE intends to preside and coordinate with ministries, sectors and localities to propose to the Government

some options to overcome inadequacies such as construction and issuance of legal documents on solid waste management; issuance of a system of environmental standards and technical regulations. MONRE is the unified focal point, submitting and issuing legal documents on solid waste management. On the contents related to solid waste management within the scope of management of the sector or field, the Ministry managing the issuance of legal documents must have consensus of the MONRE.

On the inspection and supervision of the compliance with the law on solid waste management; resolution of complaints and denunciations related to solid waste; handling of law violations in solid waste management, the MONRE is responsible for conducting specialized inspection activities and inspecting responsibilities for solid waste state management; Ministries and sectors carry out activities of inspecting and supervising the implementation of environmental protection requirements related to solid waste in areas under their management.

Regarding decentralization to localities in solid waste management, the Provincial People's Committee is fully responsible for classification and collection activities..., under the guidance of the MONRE; issuing relevant unit prices in accordance with the localities; performing inspection and other contents according to regulations and management scope.

▲ *Minister Trần Hồng Hà inspects the waste treatment line being conducted operational trial by the Green Desert Company Limited*

Immediately after the meeting to discuss urgent tasks on solid waste management, on March 20, 2019, Minister Trần Hồng Hà, Deputy Minister Võ Tuấn Nhân, leaders of the VEA and leaders of functional agencies under MONRE surveyed the waste treatment line of the Green Desert Company Limited in Hưng Yên Province. The Minister said that the viewpoint of the MONRE is to support the socialized model of waste treatment and environmental protection, attracting all economic resources to participate in waste treatment. The Ministry always pays attention to the waste treatment technological lines in accordance with the conditions of Việt Nam■

Đức Anh

Prime Minister calls for joint action to deal with plastic waste pollution

Prime Minister Nguyễn Xuân Phúc has written a letter urging joint action for a healthy, safe and sustainable living environment as well as dealing with pollution caused by plastic waste.

In the letter, the Prime Minister said the amount of plastic waste produced each year is enough to cover the surface of the earth four times over. As many as 13 million tonnes of plastic waste discharged into oceans are harming ecological systems, human health and the sustainability of each nation.

Many countries have taken specific actions to reduce and ban the use of environmentally-unfriendly plastic products while increasing the recycling of plastic. At international forums, Việt Nam proposed initiatives, joined global and regional cooperation mechanisms for the effort.

As plastic waste is increasing in Việt Nam, the Government is taking drastic measures to effectively control it, especially disposable plastic products and imperishable nylon bags, towards a circular and green growth economy. According to the Prime Minister, dealing with plastic waste pollution is an urgent task requiring regular involvement of departments, agencies and the entire society.

He suggested changing plastic use habits; reducing, classifying, collecting, reusing and recycling plastic waste; using more eco-friendly products and promptly honouring good examples and models. Each official and Party member should set good examples in the effort while ministries, agencies and localities should continue refining mechanisms and laws to synchronously and effectively address the issue■

Quang Ngọc
(VNS source)

Bringing about new changes in the management and action of environmental protection

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

▲ *Nhân Cơ Aluminum Project in Đắk Nông Province*

Environmental protection is always a political task of significant meaning and has a great influence on the sustainable development of the country. Following the guideline of "Discipline, integrity, action, creativity, efficiency" of the Government, in 2018, the Vietnam Environment Administration (VEA) actively responded and solved environmental problems in a methodical and scientific manner with a high sense of responsibility to gradually transform challenges into opportunities, focusing on removing barriers and creating a clear and substantive change in the state management on environmental protection. The outstanding results are as follows:

- Establish and implement new management modality and way of thinking for arising environmental issues with a focus on moving from passive handling to active pollution control and prevention, ensuring that big projects with high potential risks of environmental pollution are strictly monitored; actively implement monitoring measures during testing and operation, online connection with monitoring system of the Department of Natural Resources and Environment, without serious environmental pollution incidents, thereby preventing the environmental degradation trend. Many big projects such as Hưng Nghiệp Formosa Hà Tĩnh Steel Company, Lee & Man Company in Hậu Giang, Nhân Cơ Aluminum Plant, Nghi Sơn Refinery and Petrochemical Co., Ltd. in Thanh Hóa, Bình Sơn Refining and Petrochemical Joint Stock Company, Hòa Phát Dung Quất Steel Joint Stock Company and some thermal power plants... have been closely controlled and monitored, ensuring safe operation, and contributing to the state growth. This new management modality and way of thinking has continued to be specified and institutionalized in direction; strongly moving from pre-check to post-check for environmentally friendly high-tech application projects, strictly controlling projects with high risks of environmental pollution.

- The overall environmental picture of Việt Nam has started to have some "bright color", which are the regions and the localities having performed well on the expanding of environmental protection, while the "gray color" has been narrowed. Governments from the central to local levels have quickly and timely addressed environmental issues such as responding and solving problems and handling imported scrap. In 2018, many localities have implemented recycling models for domestic waste such as Hà Nội, Bắc Giang, Bến Tre, Bình Dương, Bình Phước, Ninh Thuận, Phú Thọ, Quảng Nam and Quảng Ngãi. Environmental indicators such as the ratio of industrial parks (IPs) and export processing zones (EPZs) having centralized wastewater treatment systems and the ratio of collected and treated solid waste and domestic wastewater have positive changes.

- There is a change in management way of thinking, switching to the growth model without trade-off between environmental protection and economic growth. Localities have focused on selecting and attracting high-tech projects and the projects which have a large investment in the environment, step by step harmoniously connecting economic development with environmental protection to improve the quality of growth. There have been more and more eco-friendly industrial parks and production and business establishments. The economic growth becomes more sustainable and more environmentally friendly. Local governments have strictly implemented management measures to protect environment in industrial zones in accordance with the Prime Minister's directions in Directive No. 25/CT-TTg, increasing the ratio of IPs and EPZs which are operating with centralized wastewater treatment systems meeting environmental

standards up to 228 units, reaching 88%, of which 121 IPs invests in installation of automatic and continuous wastewater monitoring equipment. The whole country has completely handled 233/366 units causing serious environmental pollution (increasing 62 units compared to 2016). The ratio of collected and treated domestic wastewater is 12%, an increase of 5% compared to the 2011 - 2015 period; the ratio of collected and treated solid waste is 85,5% (82% in 2010 and approximately 85% in 2015); hazardous waste has been more strictly controlled; more than 60 contaminated areas due to plant protection chemicals have been handled, over 400 environmental areas polluted by residual plant protection chemicals have been newly detected and strictly controlled; a list of 160 craft villages at risk of environmental pollution and serious environmental pollution have been identified.

In addition to the achieved outcomes, in the context of the country's development and globally strong moving on the environmental pollution issues, our country's environmental protection still faces challenges that need to be resolved. Specifically:

- Although the environmental degradation trend and biodiversity degradation have been initially stopped, the situation of environmental pollution is still complicated due to long-term cumulative impacts. Awareness and sense of responsibility of some provincial-level agencies, local authorities, enterprises and people in environmental protection are not high; the role of the whole political system has not been promoted. Mechanism to promote 3R-based waste separation at source to serve the circulation economy is not available; the participation of people and enterprises has not been high.

- The system of legal policies on environmental protection and relevant laws still overlap, contradict, and do not meet the actual management of environmental protection in the context of the country's development and the global strong movement of the environmental issues. There is no close linkage of domestic regulations on environmental protection with international regulations and laws that Việt Nam participates in, as well as regulations on environmental protection of countries in region.

- The system of environmental standards of Việt Nam has been still in conflict between general standards and industrial standards; has been still lower and not synchronized with the standards of some developed countries in the region.

- The management and professional organization system on environmental protection has been developed in quantity, but been still low in quality, not meeting the requirements of the process of decentralization in management; There is no high association between the Central and local authorities in environmental issues.

- Initially, investment in environmental protection have positive changes, but it is still at a low level; effectiveness of using environmental resources is not high; regulations on environmental protection taxes and fees are insufficient and weak, failing to fully meet the demand for handling and solving actual environmental pollution problems; mechanism to attract financial investment in the field of environment and pollution treatment has not been created.

- Projects with high risk of environmental pollution still have an interest in investing in Việt Nam, while the country lacks mechanisms to screen and prevent them at the beginning, leading to high risks of environmental pollution and incidents. There is still a large amount of common industrial solid waste remaining in industrial production facilities, especially in projects of coal-fired power, chemical production and mineral processing. Environmental management in industrial clusters, craft villages, infrastructure for domestic wastewater treatment and domestic solid waste management is still inadequate; many contaminated areas, especially areas contaminated with chemical residues are slowly handled. Natural forest areas continue to decrease, and biodiversity continues to be degraded.

2019 is the important transitional year with particularly important for accomplishing the targets set for the 2016 - 2020 period, in order to achieve environmental targets by 2020 that are set in the National Strategy for Environmental Protection, so it is necessary to focus on implementing some of the following key activities:

First, focus on amending the Law on Environmental Protection in 2014, overcoming the limitations and shortcomings in the legal system on environmental protection to meet the new development requirements of the country and at the same time to meet international and regional laws on environmental issues that Việt Nam has participated in. In addition, develop guidelines for the laws to ensure that the laws can be implemented immediately after it takes effect; conduct a review of the entire system of environmental standards in order to build, submit and issue environmental standards in a synchronous, systematic manner which are similar to the standards of some countries having good performance in environmental protection in the region as well as in the world.

Second, create fundamental changes in environmental protection management and action, proactively prevent, control pollution, reduce pol-

lution and improve environmental quality:

- Focus on implementing planning for environmental protection in accordance with the spirit of the Law on Planning such as: National Planning for Environmental Protection; National Planning for Biodiversity Conservation, Planning for developing the national environmental monitoring network as a basis for zoning, investment orientation and development of economic sectors, ensuring compatibility with the environmental carrying capacity threshold and environmental quality; improving the quality of appraisal, strategic environmental assessment, environmental impact assessment and environmental licensing.

- Continue to strengthen the monitoring of projects and facilities with high risk of environmental pollution by continuing to maintain and consolidate the Environmental Protection Supervision Groups for projects and manufacturing facilities that are at risk of causing high environmental pollution incidents to ensure that no serious environmental incident occurs and these projects and facilities operate safely on the environment; applying environmental criteria in screening and selecting investment projects in the direction of not attracting investment in industrial production with high risk of causing environmental pollution, especially investment in environmentally sensitive areas; encouraging environmentally friendly high- tech application projects.

- Focus on solving current environmental hot issues such as urban and rural domestic solid waste management, industrial zones, industrial clusters, craft villages, river basins, importing of scrap materials as production materials, facilities causing environmental pollution. Each locality must set a high determination and immediately carry out propaganda, mobilization and implementation of waste separation at source to collect, recycle, reuse and dispose waste in combination with energy recovery. Review and request investors of industrial zones and industrial clusters to build the centralized wastewater treatment systems, the facilities with large waste discharge scale need to install an equipment system for controlling and supervising discharge activities. There are appropriate mechanisms and policies to regulate consumer behavior through taxes, fees and propaganda tools to raise awareness; facilitating people to access environmentally friendly alternative products; promoting civilized and hygienic lifestyles.

- Promote the implementation of the Law on Biodiversity and issued biodiversity management documents, the National Strategy on Biodiversity to 2020, with a vision to 2030; comprehensively assess the organization of the implementation of nature and biodiversity conservation to propose solutions to enhance the effectiveness of this work.

- Speed up the building of environmental warning systems in 4 central area provinces and synchronous environment database system, including: database on waste sources, existing environmental pollution areas, environmental quality and biodiversity conservation monitoring, thereby effectively and closely control arising environmental issues to handle them in time, control the rate of increasing environmental pollution over the years, and towards preventing this increasing trend.

- Clearly define responsibilities of agencies in environmental protection management at central and localities; there are mechanisms to address inter-sectoral issues, responsibilities of the agencies taking the major responsibility for and agencies directly managing specific issues.

Third, continue to strengthen the inspection and examination of environmental protection, effectively promote the Hotline on environmental protection. Implement inspections in the form of "handling thoroughly one at a time" in each locality, focusing on the facilities which are at high risk of causing environmental pollution and violate laws on environmental protection. All acts of violating the law on environmental protection must be inspected, checked, detected in time and strictly handled. The process of inspection must be closely linked with ministries, sectors and localities to avoid overlapping and obtain high efficiency; mobilizing the participation of political, social, professional organizations and the community in supervision. Continue to organize effective operation, expand the scope of activities, strengthen inspection and urge to effectively promote the Hotline for receiving, verifying and handling the feedback and recommendations of organizations and individuals on environmental protection to promote people's participation in monitoring environmental protection.

Fourth, coordinate with ministries, sectors and localities to effectively use financial resources, especially the funds for environmental tasks to focus on handling environmental pollution hotspots following the roadmap, contributing to improving the quality of life for people. At the same time, develop and issue mechanisms and policies to attract financial investment in the environment and pollution treatment; comply with the principle of "polluters pay", and "beneficiaries pay for the services"; promoting the role of political, social organizations and the community in environmental protection. This is an indispensable force which has an important meaning in creating qualitative changes in environmental protection.

Fifth, promote admin-

istrative reform, strictly implement disciplines in state management and office culture, strengthen the application of information technology in work to definitely resolve the overdue handling of administrative procedures on environment, matters of slowly processing, answering, removing problems and shortcomings in the state management of environmental protection of localities and enterprises.

Sixth, discover, set examples, replicate good movements, areas, models, practices on the environment; promote the "bright colors" about the environment to gradually reduce and narrow areas, types and objects which negatively impact on the environment.

In order to implement the planned tasks, in the coming time, the very important task of the VEA is to focus on the training, fostering and building of cadres, civil servants and public employees who are excellent in their profession, strong in political viewpoint and enthusiastic with their work. At the same time, the activities of the VEA are increasingly linked towards local and grassroots levels. Thereby, the actual environmental problems at localities can be understood to have effective policies and solutions. With the tradition of solidarity and working with a high sense of responsibility and creativity, the leaders, civil servants, public employees of the VEA will well fulfill the tasks set out in 2019 and the following years■

● PM hails supermarkets using eco-friendly alternatives to plastic bags

Prime Minister (PM) Nguyễn Xuân Phúc has praised several supermarkets for using natural alternatives in wrapping goods, saying it contributes to raising public awareness of protecting the environment for the community's benefits.

Co.op Mart Vietnam, Big C Đà Nẵng and Big C Hà Nội have used banana leaves to wrap foods in an effort to slash plastic waste.

In his letter sent to these supermarkets on April 4, PM Nguyễn Xuân Phúc called on the business community, supermarkets, restaurants and hotels to join in efforts in reducing plastic bags and waste.

He suggested the Ministry of Natural Resources and Environment (MONRE), the Ministry of Industry and Trade, the Ministry of Science and Technology, the Ministry of Information and Communications, relevant branches and local authorities encourage the use of environmentally-friendly goods while cutting the production of plastic bags.

Việt Nam is one of Asia's five worst polluters of ocean plastic waste, according to international organisations. With 13 million tonnes of waste released to the ocean every year, the country ranks 17th in the world for ocean plastic waste pollution. Although there are no official statistics on the amount and varieties of plastic in the Vietnamese sea and islands, plastic waste is easy to see in Vietnamese waters, with the country's 112 estuaries the main gateways of plastic to the ocean.

Numbers from Vietnam's Association of Plastics illustrate the scale of the problem. In 1990, each Vietnamese consumed 3,8kg of plastics per year, but 25 years later, the figure hit 41kg. As many as 1.000 plastic bags are used each minute but only 27 percent of them are treated and recycled.

The MONRE estimated that about 80 tonnes of plastic waste and bags are thrown away every day in Hà Nội and Hồ Chí Minh City combined■

An Vi
(VNS source)

● Action programme on sustainable development in Mekong Delta

Prime Minister Nguyễn Xuân Phúc has approved an action programme implementing the Government's Resolution 120/NQ-CP on sustainable development of the Mekong Delta in response to climate change.

The programme outlines six groups of tasks and solutions, including the revision, improvement and supplementation of mechanisms and policies on land to serve large-scale, highly competitive and sustainable agricultural goods production; supporting the application and transfer of science technology in agro-production; and developing urban and rural residential areas suitable with the conditions of each region.

The Prime Minister requested an appropriate agricultural production structure focusing on aquaculture, fruit and rice along with developing the green and low-carbon emission industry, renewable energy and forestation, as well as protecting coastal areas.

He suggested developing service - tourism into a strong economic sector by tapping the delta's potential and natural advantages as well as its cultural characteristics.

Investment projects on infrastructure development must have a reasonable roadmap and prioritise works which can boost the whole region's economy and society, as well as essential facilities for local people.

The Prime Minister also urged the prevention of erosion and subsidence in coastal areas and river banks via reinforcing the sea dyke and irrigation systems, developing mangrove forests and building flood-proof houses■

Sơn Tùng
(VNA source)

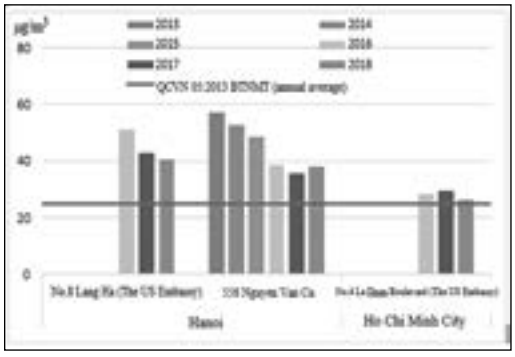
Air quality in Hà Nội in 2018 and the first 3 months of 2019

Dr. Hoàng Văn Thức - *Deputy Director*
Vietnam Environment Administration
Lê Hoàng Anh
Northern Centre for Environmental Monitoring

Air pollution is always a matter receiving a lot of attention from the public due to the direct impacts on human health through respiratory tract. In recent years, there have been many media reporting on air pollution in Hà Nội. However, proper understanding and comprehensive evaluation of air pollution is needed. In terms of physical and chemical properties, air pollution is classified into 2 categories: Particulate matters, including: total suspended particles (TSP), PM_{10}, fine particles ($PM_{2.5}$, PM1) and gaseous pollutants (SO_2, NOx, CO and VOC). In recent years, Hà Nội and some cities of Việt Nam have been contaminated with dust at different levels. However, the concentration of gaseous pollutants (SO_2, NOx, CO and VOC) is still within the permissible limits and much better than other cities in the region.

AIR QUALITY IN HÀ NỘI IN 2018

Monitoring the developments of air quality in recent years shows that the situation of air pollution in Hà Nội has been generally improved, in which dust pollution level in the period of 2016 - 2018 has decreased compared to the previous period.



▲ *Figure 1. Developments of $PM_{2.5}$ concentrations at some monitoring stations in Hà Nội and Hồ Chí Minh City*

Dust pollution in urban areas is now mainly from local sources (transport, construction, industrial production) and some external sources (fine dust from industrial sectors using fossil fuels, forest fires... from neighboring countries...)

Hourly AQI calculation results at Hà Nội's automatic air monitoring stations (1 station of the Vietnam Environment Administration (Nguyễn Văn Cừ Station), 10 stations of Hà Nội City Department of Natural Resources and Environment (Hàng Đậu, Hoàn Kiếm, Kim Liên, Tân Mai, Thành Công, Trung Hòa, Tây Mỗ, Mỹ Đình, Phạm Văn Đồng and Minh Khai) and 1 station of the US Embassy (No. 8 Láng Hạ) in 2018 show that there is no results of hourly AQI at the hazardous level, and hourly AQI at the poor and very poor level accounts for a very low rate. Most hours of the day at stations have air quality at moderate level (the ratio of hourly AQI at moderate level is about 68%).

AQI level	Scale	Ratio (%)
Good	0 - 50	15.6
Moderate	51 - 100	68.2
Poor	101 - 200	14.1
Very poor	201 - 300	2.1
Hazardous	Over 300	0.0

Above evaluation table synthesizes general overview data for Hà Nội. However, in each area affected by different pollution sources there will be different assessment rate according to AQI. Particularly, Minh Khai and Phạm Văn Đồng stations have quite high ratio of AQI results at poor level (about 23 - 35%). However, at stations, including Hoàn Kiếm, Tân Mai, Tây Mỗ, Kim Liên and Nguyễn Văn Cừ, the ratio of days at good and moderate level is higher.

Regarding information that "Hanoi had the second-worst average $PM_{2.5}$ in Southeast Asia" mentioned in some recent articles, due to inadequate explanation and lack of accuracy, leading to misunderstandings in the public when receiving information. Specifically, the State of Global Air Quality report of the Greenpeace Organization (translated and summarized by Green Innovation and Development Centre (GreenID) has ranked the fine dust pollution level of 20 cities of 4 countries in Southeast Asia, including: Thailand (14 cities), Indonesia (1 city); Philippines (3 cities), and Việt Nam (2 cities). According to the ratings, Hà Nội ranked the second after Jakarta (Indonesia) in pollution level. Thus, this ranking does not have enough data of 11 countries in Southeast Asia to be able to evaluate and rank according to the above-mentioned statement.

In comparison with some other cities in Asia, the pollution level of Hà Nội and Hồ

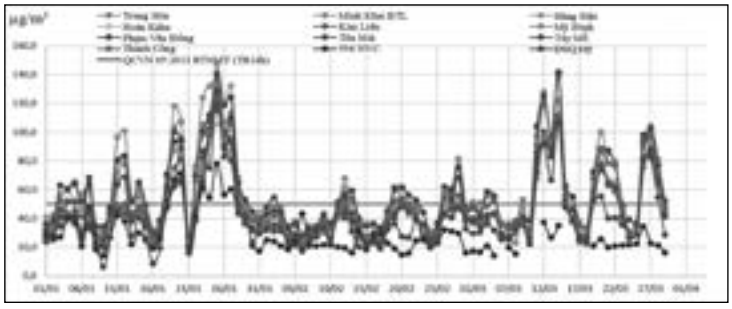
Chí Minh City is moderate. The average $PM_{2.5}$ value in 2018 in Hà Nội is 40.8 µg/m³ and in Hồ Chí Minh City is 26.9 µg/m³, while Dhaka (Bangladesh): 97.1 µg/m³; Delhi (India): 113.5 µg/m³; Chinese cities such as Hetian, Hebei, Xuzhou, Zhengzhou, etc., are from 65.5 to 116 µg/m³... To view online information and compare air quality in Hà Nội and Hồ Chí Minh City with other cities in the world, please refer to more complete information and data at the website: *https://www.airvisual.com/orhttps://airnow.gov/index.cfm?action=airnow.global_summary.*

Up to now, air pollution in Việt Nam, in general and Hà Nội, in particular, is mainly dust pollution (due to transport, construction... Some areas are contaminated with NO_2, or SO_2, but only occur locally at times. Meanwhile, in China, India and some other countries, in addition to dust pollution, there is also NO_2, SO_2 pollution due to use of fossil fuels in heavy industries, heating, warming in winter, with a high level.

AIR QUALITY DEVELOPMENTS IN HÀ NỘI DURING THE FIRST QUARTER OF 2019

In Hà Nội and some Northern cities and provinces, dust pollution during the winter and the beginning of spring is higher than other seasons of the year. This is also a common phenomenon in many years occurring in cycles; fine dust pollution increases highly in December, January, February and lasts until March.

In particular, this phenomenon has also occurred in recent years when dust concentration in the air environment in Hà Nội has significant changes, especially the increase of $PM_{2.5}$ concentrations. The monitoring results from the automatic air monitoring stations at Nguyễn Văn Cừ Street managed by the Vietnam Environment Administration (VEA), 10 stations managed by Department of Natural Resources and Environment, referring to data of automatic air monitoring stations at No. 8 Láng Hạ of the US Embassy in first quarter of 2019 show that the 24-hour average $PM_{2.5}$ concentration of several days has exceeded the permitted limit of QCVN 05: 2013/BTNMT - National Technical Regulation about ambient air quality. Fine dust concentration ($PM_{2.5}$) increases dramatically in January and March, especially on 11 - 13 January, 19 - 20 January, 23 - 26 January, 11 - 14 March, 20 - 22 March and 26 - 27 March.

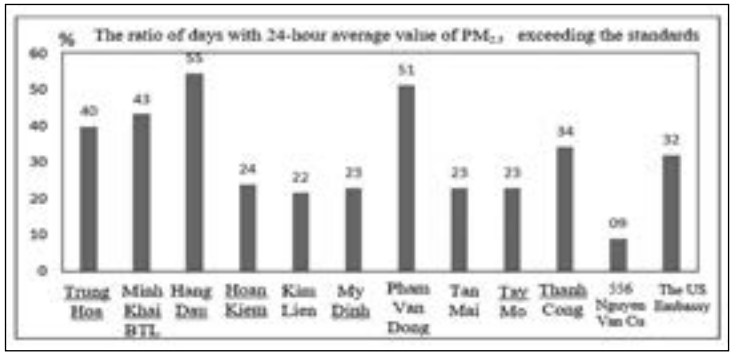


▲ *Figure 2. Developments of 24-hour average value of $PM_{2.5}$ at monitoring stations in Hanoi (January 1 - March 30, 2019)*

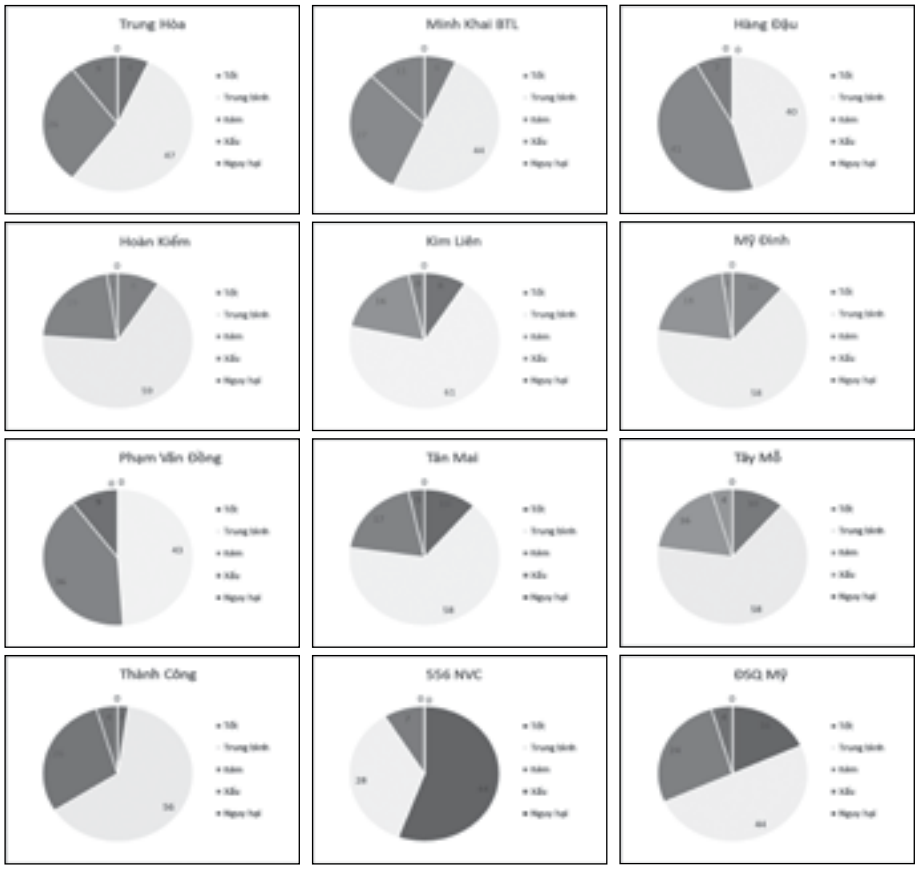
The observation shows that the ratio of days with $PM_{2.5}$ concentration exceeding QCVN 05: 2013/BTNMT at 12 automatic air monitoring stations in Hà Nội are different among areas. According to the results of data analysis in Figure 2, stations with a high ratio of days with $PM_{2.5}$ concentration exceeding the standards are mainly concentrated in areas with ongoing construction activities, or high traffic density such as Phạm Văn Đồng Street, Hàng Đậu Street, Minh Khai Ward (Bắc Từ Liêm District)...; in other areas, the ratio of days of $PM_{2.5}$ concentration exceeding the standards is low.

The Air Quality Index (AQI) shows that, in the first 3 months of 2019, air quality in areas with monitoring stations is at moderate level (the ratio of days with moderate air quality level at the stations in Hanoi ranges from 50% to 60%). In peripheral areas, or areas with open space and a lot of trees such as Nguyễn Văn Cừ, Mỹ Đình, Tân Mai and Tây Mỗ, the ratio of days with good and moderate air quality level is high. Some areas such as Phạm Văn Đồng, Hàng Đậu and Minh Khai, the number of days with poor and very poor air quality level are higher. These areas have high traffic density and on-going construction works, generating a large amount of dust into the environment (Figure 3).

Monitoring the developments of $PM_{2.5}$ concentrations over the hours in the day shows that $PM_{2.5}$ concentration ranges from 40 - 80 µg/m³, often increases highly in peak hours when traffic density is high. However, according to monitoring data, $PM_{2.5}$ concentrations also increases at other times, namely: from 23pm - 5am on 19 - 20 January, 23 - 27 January, 11 - 14



▲ *Figure 3. The ratio of days in January - March 2019 has a 24-hour average value of $PM_{2.5}$ exceeding the National Technical Regulation at monitoring stations in Hà Nội*



▲ *Figure 4. Pollution rate according to AQI value at monitoring stations in Hà Nội in January - March 2019*

March, 20 - 22 March and 26 - 27 March when Northeast monsoon comes to Hà Nội.

The phenomenon of fine dust pollution often increases in December, January and February and may last until March in Hà Nội because Hà Nội is strongly influenced by the Northeast monsoon. The high air temperature, together with the movement and fluctuations of the upper air masses have compressed the lower atmosphere, making the amount of fine dust impossible to be diffused. Besides, on days of high humidity, fog causes atmospheric circulation to be limited, thus, pollutants cannot be diffused up high for dilution and emission, but they are retained at the atmosphere near the ground, increasing air pollution.

According to weather forecasts, in the future, Hà Nội will continue to maintain an unusually changing weather, hot days alternating with the days that temperature drops significantly due to occurrence of cold spells. The humidity in the air also changes abnormally, causing $PM_{2.5}$ pollutions to continue as the past days. This phenomenon will gradually decrease as the weather gradually turns to summer.

SOME MEASURES TO CONTROL THE AIR POLLUTION IN HÀ NỘI

In order to improve air quality, the Ministry of Natural Resources and Environment (MONRE) and Ministries, sectors and localities have actively implemented solutions to reduce generated dust and emissions, such as enhancing emission control and upgrading quality of transport infrastructure, using clean fuel, monitoring and evaluating the current situation and warning areas with high level of pollution... Air quality in some areas has been improved compared to the previous time. However, air pollution in large urban areas today, especially in Hà Nội, is still a pressing issue, which is necessary to continue with implementing measures to improve the air quality, specifically:

First, with regards to the control of transportation-related air pollution: Managing quality of transport vehicles, enhancing use of clean fuels, developing sustainable urban transport infrastructure, rationally planning urban transport routes, increasing tree density and applying measures to reduce traffic congestion, etc.; Controlling emissions from construction activities: Strictly implementing regulations on environmental protection in construction; Controlling emissions from industrial activities: Emission monitoring by automatic air monitoring system for types of industrial production with high emission levels such as steel production, thermal power, cement, chemicals, etc.

Second, reviewing, completing and supplementing emissions standards for each specific industry; moving establishments causing serious environmental pollution out of inner city; Promoting activities of monitoring and taking inventory of waste sources; Encouraging the development of environmentally friendly industrial production and cleaner production.

Third, outreach activities and mobilization of community participation are necessary, including promotion of activities such as: Limitation of burning garbage and straws and using coal briquette stoves, prioritizing the use of public transport means, using clean and environmentally friendly fuels...; Collecting and treating garbage according to regulations; people not to burn garbage unorderly at their residence■

Some initial results in receiving and processing information through the Environment Hotlines

Hồ Kiên Trung, Đặng Quốc Thắng, Nguyễn Thành Trung
Vietnam Environment Administration

In order to promote the role of people and communities in environmental protection, creating a change in the response and handling of environmental pollution cases, the Ministry of Natural Resources and Environment (MONRE) has established and operated the Hotlines to receive and process information and petitions on environmental pollution from the Central to the local levels. After more than 1 year of implementation, the response and treatment of pollution has many positive changes, contributing to prevention and limitation of environmental pollution nationwide.

1. RESULTS OF RECEIVING AND PROCESSING INFORMATION AND RECOMMENDATIONS ON ENVIRONMENTAL POLLUTION THROUGH THE HOTLINES

In 2018, the Environment Hotlines system from the Central to local levels received 1,114 reporting calls from organizations and individuals on environmental pollution, receiving about 80 cases/month on average, taking place on 61/63 provinces. In particular, the Vietnam Environment Administration (VEA)'s Hotline received 926 calls; the hotlines of 20 local Departments of Natural Resources and Environment (DONREs) received 188 calls. Of the total 926 cases on environmental pollution through the Hotline of VEA, there are 74 cases of solid waste pollution (accounting for 8%); 177 cases of wastewater pollution (accounting for 19%); 675 cases of exhaust gases pollution (accounting for 73%). All information received from the Hotline has been referred by the VEA to the provincial and municipal DONREs' hotlines to request verification, processing, reporting to the VEA and feedback to the information providers.

The localities with lots of reported cases on environmental pollution through the hotlines are Hà Nội, Hồ Chí Minh City, Thanh Hóa, Bình Dương, Đồng Nai, Đà Nẵng, Hải Dương, Hải Phòng, Nghệ An, Quảng Ninh, Thái Nguyên... Particularly, Hà Nội and Hồ Chí Minh City have 301 reporting calls through the hotlines, accounting for 33% of the total number of cases across the country (Hà Nội has 104 cases, accounting for 11.4%); Hồ Chí Minh City has 197 cases, accounting for 21.6%).

For information processing, there are 398/926 cases handled and responded to the people (accounting for 43%). The number of cases under the Central authority that has been handled is 2/2 cases (100%). The total number of cases being verified by local authorities is 528 (accounting for 57%). Generally from October 31, 2017 (official operating time of the Hotlines) to the end of December 31, 2018, the VEA's Hotline has received a total of 1,151 reporting calls on environmental pollution.

Through the operation of the Hotlines, it is found that the information on the cases has been quickly and effectively verified in the localities (such as Bắc Ninh, Hải Dương, Hưng Yên,

▲ *Environmental pollution on gaseous emissions is one of the highest reported, accounting for 73%*

Quảng Ninh, Thanh Hóa, Bắc Giang, Vĩnh Phúc, Kiên Giang) and all the system of state management agencies on environmental management at all levels from the DONREs to the Divisions of Natural Resources and Environment and officials in charge of commune and ward environment are involved. In addition to establishing the Hotlines system to districts, communes and wards and referring reported information in the form of express courier, the localities also call directly to the establishments to verify and directly check the people's reporting.

However, there are still some localities slowly processing the information due to the limited workforce and there are many long-lasting complicated pollution cases, especially in big cities; the operation of the Hotlines in many localities has not really gone into good order, there is still a habit of processing reported information by paper-based method; The dissemination of information on the Hotlines on environmental pollution of the localities is still limited, so the people and organizations in the areas have not yet reached the local authorities' Hotlines.

2. ADVANTAGES AND DISADVANTAGES AND SOME SOLUTIONS TO IMPROVE THE EFFICIENCY OF THE HOTLINES

After more than 1 year of implementation, the operation and maintenance of the Hotlines has created a positive change in the awareness and responsibility of the localities for the reception and processing of information about environmental pollution in the localities in particular and in the focus on environmental protection in general. The local DONREs have directed the related units to verify, process information and provide verifying and processing results to the VEA to respond to or directly contact with the reporting organizations and individuals to resolve the cases. The 2-way reception and feedback between the state management agencies on environmental protection at the Central and local levels has become more and more stringent and effective.

Up to now, all 63/63 provinces have sent officers to monitor, receive and process information and petitions on environmental pollution through the Hotlines, receiving referred information from the Hotline of VEA or directly from the people and organizations in the areas. The 24/7 operation and maintenance of the Environment Hotlines system from the Central to local level has received the support and appreciation of organizations, agencies, mass media and the people, contributing to promoting people's role in environmental protection.

However, the implementation still faces some difficulties and problems. The situation of handling pollution cases in some localities is still slow; the monthly reporting on the results of receiving, verifying, processing and responding to reported information on environmental pollution is not in a timely and complete manner; the cadres and civil servants who directly work on local environmental protection are still limited, so the reception and verification of information face many difficulties; the allocation of funding sources to serve the processing of information provided through the Hotlines is still inadequate. In order to enhance the operational efficiency of the Environment Hotlines in the future, we would like propose some measures:

First, to review and revise the process of receiving, verifying and processing information and petitions on environmental pollution through the Hotlines from the central to local levels in accordance with the new organizational structure of the VEA and actual operation and deployment of the localities.

Second, to study the establishment of an Environment Hotlines system at the district, ward/commune levels to give feedback and process information and cases quickly and timely in order to better serve the people.

Third, to develop online software to receive and process information and petitions of organizations and individuals on violations of the Law on Natural Resources and Environment from the central to local levels, as well as to facilitate monthly reporting on the results of receiving, verifying, processing and responding to the information and petitions on environmental pollution.

Fourth, to promote the information provision and dissemination on the Hotlines system to receive information and petitions on environmental pollution; to well perform the assessment, emulation and commendation for the processing of information and petitions on environmental pollution in the areas; to put this activity into the evaluation criteria of the local annual environmental protection work in order to improve implementation efficiency■

Continue to closely monitor the process of remedying violations of Formosa Hà Tĩnh Company

▲ *FHS uses steel slag for construction work in the iron and steel production complex*

In 2018, Hưng Nghiệp Formosa Hà Tĩnh Iron and Steel Company Limited (FHS) used recycling steel slag for public service road construction in iron and steel production complex. Construction area is located in the south of the coking plant and thermal power plant, outside the flood discharge reservoirs TC2 and TC3. The project works as a dike with more than 2,000 m long, trapezoidal cross section of 4.5 - 10 m high and foot width of 12 - 30 m. The road surface is 1 m wide; the foundation is compacted with steel slag and covered around the surface by a 50 cm thick soil.

This project is a newly added item in area of iron and steel production complex project. However, according to the project planning, this item is not included in the approved planning. The item is the new additional construction but is not carried out in terms of the investment and construction procedures as prescribed. The project has been implemented 31% of the total volume but its construction permit is not available. The project is not mentioned in FHS's 2015 Environmental Impact Assessment (EIA) report and is implemented when EIA report has yet to be made. In particular, FHS has not clarified the suitability of the quality of steel slag used as leveling materials and road construction materials in accordance with the regulations of the Ministry of Construction.

On March 14, 2019, Hà Tĩnh Provincial Department of Construction issued Document No. 467, instructing FHS to use steel slag as construction materials in the project of green belt along service road such as: organizing the formulation, appraisal and approval of adjustment and supplementation of the project of green belt along the service road into the Planning on construction of iron and steel production complex and Sơn Dương deep-water port appraised and approved by the competent authorities; organizing the formulation, appraisal and approval of EIA of the project; organizing the formulation, appraisal and approval of adjustment of the project of iron and steel production complex and Sơn Dương deep-water port design and construction appraised and approved by the competent authorities, including item of adjustment and supplementation of green belt project along public service road. Steel slag used for construction must be certified in accordance with the standards in the technical guidelines for "Iron and steel slag used as construction materials" issued by the Ministry of Construction in Decision No. 430/QD-BXD dated May 16, 2017. Accordingly, Hà Tĩnh Department of Construction also requested that when FHS has not fully implemented the above procedures, it is not eligible to start construction of green belt project along the service road.

FHS STEEL SLAG TYPES MEET THE STANDARD

In response to concerns about environmental issues of using steel slag for construction works and ground leveling activities in the complex of FHS, on March 18, 2019, the Ministry of Natural Resources and Environment issued an official press release on this issue.

Under the provisions of the 2014 Law on Environmental Protection and Decree No. 38/2015/ND-CP dated April 24, 2015 of the Government on waste and scrap material management, the Ministry of Natural Resources and Environment (MONRE) has directed FHS to implement the identification and classification of types of generated waste and have appropriate management measures according to the regulations, including enhancing recycling and self-treatment of wastes. Accordingly, FHS has identified and classified the types of generated steel slag and concluded that all of them are ordinary industrial solid waste. Particularly, standardized solid wastes meeting the standards and technical regulations of construction materials are managed according to the regulations on products of the construction industry.

Implementation of the guidelines in Decision No. 430/QD-BXD on "Iron and

steel slag used as construction materials", in 2018, FHS collaborated with the Institute for Building Materials under the Ministry of Construction to research and assess and to be certified for the quality of steel slag materials of FHS (including: converter slag, casting slag and desulphurized slag) in accordance with JIS A 5015:2013 (Japan) to make Sub base layer of roads, in accordance with BS EN 13243:2013 (UK) as leveling materials for construction works and transportation works and in accordance with Việt Nam Standard 6882: 2016 as cement additives. The above-mentioned steel slag products have been issued a notice of receiving dossier of announcing the standard conformity according the regulations by the Department of Standards, Metrology and Quality under Hà Tĩnh Provincial Department of Science and Technology.

According to the content of the EIA report of the project "Formosa Hà Tĩnh iron and steel production complex and Sơn Dương Port in phase 1 - 1, Investment item of iron and steel mill complex with a capacity of 7.5 million tons/year in phase 1-1" approved in Decision No. 1315/QD-BTNMT dated June 30, 2008, FHS planned the tree planting area in the production area of 984,556 m^2, including planting area in the public service road in the south of the complex.

FHS has proposed to implement the project of green belt along the public service road in the south of the complex with a total length of 2,035 km. This project is optimally designed such as: compacting granulated blast furnace slag (which has been issued certificate of conformity to use as cement additive) at the bottom for waterproofing, designing clay layer to cover the two sides of the construction work and building a station to collect runoff to the observation wells and flood discharge reservoirs to assess the quality of runoff before discharged into the environment. The main objective of the project is to increase the area of green trees and vegetation in the complex to improve the ecological environment of the area (the area of green trees is about 50,898 m^2) and to enhance steel slag recycling and re-using activities of FHS.

On November 3, 2018, according to the Decision No. 1619/QD-BTNMT dated July 20, 2016 of the MONRE, the Inter-sectoral Council organized a meeting to review and evaluate FHS's remedy for violations, including the project of green belt along the service road. As a result, the Council agreed on the environmental aspect, allowing FHS Company to continue construction of the service road after completing the detailed report on evaluating environmental issues and solutions to monitor the construction process as well as design solutions to meet the technical requirements of construction; proposed the Hà Tĩnh Provincial People's Committee to direct the inspection and supervision of the implementation. At the same time, the FHS was requested to report to the Ministry of Construction for guidelines of implementation in accordance with the law on construction.

Following the requirements of the Council, FHS reported to the Ministry of Construction and received the guidelines in Official Letter No. 06/BXD-VLXD dated February 1, 2019. Accordingly, all types of steel slag of FHS in accordance with the standards stated in Decision No. 430/QD-BXD shall be used as prescribed by the standards, as well as must comply with the regulations of law on environmental protection.

In addition, FHS has collaborated with the Institute of Environmental Science and Engineering under National University of Civil Engineering to verify the construction design and EIA of the project. The evaluation results show that the construction of green belt along the public service road by standardized steel slag does not adversely affect the surrounding environment; The Vietnam Environment Administration (VEA) also organized the meeting with expert team about the above-mentioned evaluation results before submitting to the MONRE for consideration.

Currently, the VEA is reporting to the MONRE for approval of the principles of project implementation plan with the requirement that FHS must implement technology solutions for environmental protection, meeting environmental technical regulations as prescribed; ensuring the design and construction of the project to meet the standards and technical regulations on construction. In addition, the FHS must coordinate with an independent monitoring unit with sufficient capacity to monitor and supervise compliance with the law on construction and commitments on environmental protection during the implementation process. This ensures that in the case of FHS being allowed to implement the above-mentioned project again, there will be at least 3 agencies to monitor the implementation, including: The Monitoring Team of the MONRE, the Working Group of Hà Tĩnh Province and the independent monitoring unit with sufficient capacity for implementation.

In the coming time, the MONRE will continue to closely coordinate with the Ministries, sectors, Hà Tĩnh Provincial People's Committee, experts and scientists to closely monitor the process of remedying the violations of FHS; urging FHS to promptly complete the items of improvement and supplement of environmental protection works as committed with the Government of Việt Nam; at the same time, FHS is required to manage and handle all kinds of generated waste to meet the specified environmental technical requirements■

Nam Việt

The Transport Sector to focus on completing regulations on environmental protection and energy savings

In 2018, the Ministry of Transport (MOT) and the Ministry of Natural Resources and Environment (MONRE) signed a Coordination Program on Natural Resources Management, Environmental Protection and Climate Change Response in Transport Activities in the Period of 2018 - 2021. The purpose of the Program is to strengthen coordination between the two Ministries to effectively manage and use natural resources, pro-actively prevent and minimize environmental pollution, pro-actively respond to climate change in transport activities. The Vietnam Environment Administration Magazine (VEM) had an interview with Mr. Trần Ánh Dương - the Director of the Department of Environment, MOT on the results of the Coordination Program between the two Ministries in the past year.

✶***VEM: Could you please tell us some results of the Coordination Program between the two Ministries in 2018 and proposals in the coming years?***

Mr. Trần Ánh Dương: Based on the Coordination Program No. 01/CTPH-BTNMT-BGTVT dated March 8, 2018 between the Minister of Transport and the Minister of Natural Resources and Environment, the advisory bodies of the two Ministries agreed to the coordination plan in 2018 and organized and implemented with the following specific results:

Regarding the development and completion of institutions, the two Ministries have closely coordinated in drafting and formulating the Decree to manage waterway activities; the Decree regulating the management of river-bed sand and gravel; The Prime Minister's Decision prescribing the roadmap to raise the emission standards for in-use cars and imported second-hand motor vehicles; the Circular amending and supplementing the National Technical Regulation on marine pollution prevention systems for vessels (amended and supplemented QCVN 26:2016/BGTVT); the Circular issuing the National Technical Regulation on wastewater treatment system on board for vessels.

Regarding the formulation of strategies, planning and plans in the field of state management, the two sides have coordinated to adjust the Rural Transport Development Strategy; the Planning on standard gauge railway in Lào Cai - Hà Nội - Hải Phòng. For the implementation of policies and laws, programs and projects, the two Ministries have closely coordinated in appraising and approving environmental impact assessment reports and policy framework on land clearance and resettlement to ensure the progress of investment decisions of nationally- important projects (11 component projects of the North-South expressway in the East; the project on land acquisition, compensation, support and resettlement of Long Thành International Airport).

▲ *The signing ceremony of the Coordination Program between the MOT and MONRE in 2018*

On the basis of the work plan issued by the MOT, the contents of the proposed coordination of the MOT in 2019 are as follows: Amendment of Decree No. 114/2014/ND-CP dated November 26, 2014 of the Government stipulating subjects and conditions allowed for the import and dismantling of used ships; Evaluation and approval of strategic environmental assessment reports for 5 national sector plans submitted to the Prime Minister (the Road Network Planning in the period of 2021 - 2030, vision to 2050; the Railway Network Planning in the period of 2021 - 2030, vision to 2050, the Master Plan on Development of Vietnam's Seaport System in the period of 2021 - 2030, vision to 2050, the Planning of Inland Waterway Infra-

structure in the period of 2021 -2030, vision to 2015, the Master Plan for Developing the Airport System Nationwide in the period of 2021 - 2030, vision to 2050); Evaluation and approval of environmental impact assessment reports, policy framework for land clearance and resettlement of important and urgent railway and road projects using the provisional fund of the mid-term public investment plan in the period of 2016 - 2020; the environmental impact assessment report of the Long Thành International Airport project.

✶VEM: In the process of development of the transport sector, construction of transport infrastructure and means of transport have a significant impact on the environment, so how have the response to climate change, resource management and environmental protection during the development of legal documents, strategies, planning and plans of the transport sector been implemented over time?

Mr. Trần Ánh Dương: In the past time, the system of specialized transport laws (Vietnam Maritime Code, Law on Railway, Law on Road Transport, Law on Inland Waterway Navigation, Law on Civil Aviation) has been integrated with environmental protection regulations in accordance with State management requirements on environmental protection in transport and international treaties that Vietnam is a member.

Accordingly, the MOT has studied and proposed the President and the Government to participate in many international treaties on environmental protection in transport such as: Annex 16 of the Convention on International Civil Aviation (Chicago Convention); Annexes I, II, III, IV, V and VI of the International Convention for the Prevention of Pollution from Ships; the International Convention on the Control of Harmful Anti-fouling Systems in Ships; the 1992 Protocol of the International Convention on Civil Liability for Oil Pollution Damage; the International Convention on Civil Liability for Damages Caused by Fuel Oil Pollution. The MOT has developed and advised the Prime Minister to issue and promulgate according to its authority the system of legal documents under the Law, national technical regulations and the implementation to meet management requirements on environmental protection and energy efficiency in transport.

▲ *Consultation Workshop of the Transport sector for the contribution on GHG emission reduction commitment*

At the same time, the Ministry also directed related agencies and units to seriously implement strategic environmental assessment reports in the process of developing transport sector development strategies and plans.

✶VEM: As a sector focusing on roads, railways, inland waterways, maritime and aviation, how is the energy efficiency in transport activities regulated? What mechanisms and policies are needed to limit vehicles with low throughput capacity and high fuel consumption? And to promote the development of energy efficient modes of transport?

Mr. Trần Ánh Dương: Implementing the provisions of the Law on Energy Efficiency and Conservation in 2010, right after the Government issued Decree No. 21/2011/ND-CP dated March 29, 2011 detailing on the implementing measures of the Law, the MOT has developed and issued Circular No. 64/2011/TT-BGTVT dated December 26, 2011 to promptly guide agencies and enterprises on energy efficiency measures in planning, construction and renovation of traffic works in transport activities and in the management of fuel consumption of transport vehicles.

For motor vehicles, the MOT has developed and issued Joint Circular No. 43/2014/TTLT-BGTVT-BCT; Circular No. 40/2017/TT-BGTVT; Circular No. 59/2018/TT-BGTVT and deploying the energy labeling for cars of 9 seats or less, newly manufactured, assembled and imported motorcycles and mopeds to prove transparent information about vehicle fuel consumption.

Through energy labels to the vehicles, the consumers have grounds to choose the vehicles with appropriate fuel consumption; Manufacturers and car dealers also get their fuel consumption as one of the competitive tools in the market.

For ships, the MOT has implemented regulations on fuel efficiency of Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL). In 2018, the MOT issued Circular No. 40/2018/TT-BGTVT dated June 29, 2018 regulating on collecting and reporting fuel consumption of Vietnamese ships; Accordingly, from January 01, 2019, Vietnamese ships are required to report the annual oil consumption■

✶VEM: Thank you!

Phạm Tuyên
(Implemented)

Perfecting the market economy institution in natural resources management, environmental protection and climate change response

Since Việt Nam undertook the Reforms in 1986 up to now, through the National Congresses of the Party, the Party's awareness and viewpoints on the market economy and the socialist-oriented market economy institution have been built and perfected to meet the development requirements of the country through each period. In the 12th Party Congress, the Party insisted on the way of economic development based on the model of socialist-oriented market economy. In particular, one of the defined key tasks is "continuing to effectively implement three strategic breakthroughs, in which perfection of the socialist-oriented market economy institution is a critical target".

In order to match the general orientation and objectives of the Party on perfecting the market economy institution for the sectors of natural resources management (NRM), environmental protection (EP) and climate change response (CCR), it is necessary to continue to innovate management based on the application of rules, principles and measures of the market economy in these areas.

MARKET ECONOMY INSTITUTION IN NRM, EP AND CCR

Market economy institution in NRM, EP and CCR includes: The system of legal regulations, mechanisms and policies on natural resource management, environmental protection and climate change response issued by state competent agencies to create a legal framework for the formation and development of market factors, market and activities of market entities; regulating the behavior of entities on the basis of respecting the principles and rules of the market economy; System of organizational structure, human resources, coordination and enforcement mechanisms of the State for planning, managing and monitoring policies and Laws on NRM, EP and CCR; System of socio-political and socio-professional organizations working with the role of scrutinizing and monitoring enforcement of Laws, policies and protecting the legitimate rights and interests of the people and the entities of the market in related matters.

The roles of the State in NRM, EP and CCR include: Building, enforcing and perfecting the legal system, policy mechanisms to perform the function of state management of natural resources, environment and climate change; Orienting, creating environment, initiating and creating momentum to form and operate market factors, market types in the sectors of NRM, EP and CCR towards equality, transparency and soundness; Effectively allocating resources, orienting and regulating activities of finding, extracting and using natural resources in a sustainable manner; mobilizing the participation of the whole society in EP and CCR in the market economy; The State is both the management entity and the entity participating in market relationships, all regulating activities must comply with the principles and rules of the market economy; The market plays a key role in mobilizing, allocating and effectively using resources for NRM, EP and CCR in the economy.

The Vietnam Fatherland Front (VFF) and socio-political organizations play a role in protecting the legitimate rights and interests of the people; gathering and promoting the strength of the great national unity, implementing democracy, strengthening social solidarity and criticism in NRM, EP and CCR.

ACHIEVEMENTS, LIMITATIONS AND THEIR CAUSES IN THE CONTEXT DEVELOPMENT OF NRM, EP AND CCR IN VIỆT NAM

Achievements

Over the past time, with the application of the market economy institution in NRM, EP and CCR in Việt Nam, there are achievements as follows: Market access in NRM, EP and CCR becomes the main trend and has been increasingly improved; Types of market in the sectors of NRM, EP and CCR are initially formed, operated and developed; The state has promoted its role in NRM, EP and CCR in accordance with the requirements and practical development of the economy such as allocation and use of natural resources for economic development; starting to use market-based tools in NRM, EP and CCR; The system of organizational apparatus and human resources for state management of natural resources, environment and climate change is increasingly improved and in line with the requirements of the market economy institution; System

Promoting the role of socio-political organizations in NRM, EP and CCR

of information and data on natural resources, environment and climate change has been completed, a number of sectors are considering the trend of the industrial revolution 4.0 and the digital economy era; The role of the Vietnam Fatherland Front and socio-political organizations has been promoted and made certain contributions.

Limitations and their causes

Comparison of the practice of building and perfecting the socialist-oriented market economy institution with the requirements of the basic principles of market economy, the sectors of NRM, EP and CCR still exist limitations that need to be overcome, including:

First, the legal system and policy mechanisms on NRM, EP and CCR have not met the requirements of the modern market economy institution and international integration; yet to have breakthroughs in mobilizing resources, especially from non-state sectors.

Second, market factors and market relationships have not been established synchronously, in the sectors of NRM, EP and CCR, market competitiveness is weak, lack of transparency and low efficiency. The prices of land, resources and services on natural resources and environment have not yet met the principles of the market economy, most of which are still issued by administrative decisions, so the pricing in the sectors of natural resources and environment in the market has not yet reflected the real value, and are not in accordance with the rules of the market.

Third, the State's role in NRM, EP and CCR has not been fully promoted Method of allocating and using land and natural resources for socio-economic development still bears the imprint of the central planning mechanism. The role of the State in building, supporting the development, monitoring and regulating market levels, market types are still weak and lack of information, resulting in budget revenue loss and speculation in land and resources.

Fourth, the position, role and functions of the VFF and the socio-political organizations have not been fully promoted in scrutinizing and supervising the implementation of legal policies, mobilizing resources and protecting legitimate rights and interests of people and businesses in the issues of NRM, EP and CCR.

VIEWPOINTS, OBJECTIVES, TASKS AND SOLUTIONS TO PERFECT THE MARKET ECONOMY INSTITUTION IN NRM, EP AND CCR IN VIỆT NAM

Perfecting the market economy institution in NRM, EP and CCR in Việt Nam needs to be based on the following viewpoints, targets, tasks and solutions:

First, on the viewpoint of perfecting the market economy institution in NRM, EP and CCR: This is an objective requirement to create new driving forces for the country in a swift and sustainable manner; improving the effectiveness and efficiency of the NRM, EP and proactively responding to climate change; Barriers of the legal system, mechanisms and policies need to be reviewed and removed; capacity of organizational system, human resources of the natural resources and environment sector need to be improved; People and businesses are the focus of the process of perfecting the market economy institution in NRM, EP and CCR. The state plays a role in facilitating the development; Stability, sustainability of the country, solidarity, promotion of national synergy, maintaining the independence, security and territorial integrity need to be paid attention to.

Second, the overall objective must be "perfecting of the legal policy system, strengthening the capacity of organizational structure, innovating the direction and administration methods to improve the effectiveness and efficiency in NRM, EP and CCR in accordance with the Party's viewpoints and orientations, Việt Nam's practical conditions to perfect the socialist-oriented market economy institution, contributing to creating new driving forces for the country to develop in a swift and sustainable manner".

Third, the tasks and solutions need to focus to achieve the objectives and meet the viewpoints on perfection of the market economy institution in NRM, EP and CCR, including: To strengthen research, thoroughly grasp and unification of the awareness of perfecting the market economy institution in NRM, EP and CCR. To promote communications, advocacy to create consensus among levels, sectors and the whole society on the market economy institution and the need to perfect the market economy institution in NRM, EP and CCR; perfecting the legal system, mechanisms and policies to ensure synchronous development, transparency of market factors, market levels in the field of NRM, EP and CCR; Renovating the role of the State in the orientation and effective allocation of NRM, EP and CCR in the market economy; Strengthening the role of market-based tools, financial mechanisms to regulate, promote, reasonably extract and use natural resources, EP and CCR; addressing market imperfections. Consistently implementing market principles plays a key role and taking competition as a driving force, economic efficiency is the target; perfecting the organizational system, human resources in the natural resources and environmental sector, enforcement and monitoring mechanisms to meet the requirements of the market economy institution.

Fourth, promoting the role of the VFF and the socio-political organizations in NRM, EP and CCR in accordance with the market economy institution in Việt Nam.

General, perfecting the market economy institution in NRM, EP and CCR should be considered as one of the key tasks that need to be implemented synchronously for the natural resources and environmental sectors to contribute to the country's rapid and sustainable development in the new context■

Phương Anh

Needs of developing and issuing technical regulations to serve the management of sea dumping activities

Nguyễn Thanh Tùng - *Director*
Department of Policy and Legislation, Vietnam Administration of Sea and Islands

Implementing the Law on Resources and Environment of Sea and Islands in 2015, Decree No. 40/2016/ND-CP dated May 15, 2016 of the Government detailing the implementation of some Articles of the Law on Resources and Environment of Sea and Islands on the management of sea dumping activities, in recent years, the Ministry of Natural Resources and Environment, the People's Committees of provinces and centrally-run cities have issued a number of sea dumping permits within their competence (Thanh Hóa and Bình Định granting 2 permits; Nghệ An, Đà Nẵng, Quảng Ngãi, Khánh Hòa granting 1 permit).

However, the implementation shows that there are difficulties and problems in licensing and implementing sea dumping activities related to the evaluation of the physical matters subject to sea dumping; assessing, selecting, locating the sea areas for sea dumping; environmental monitoring and supervision in the sea dumping activities, etc. In order to help solve the difficulties and problems mentioned above, it is necessary to continue researching, developing and promulgating specific technical regulations to serve the management of sea dumping activities.

TECHNICAL REGULATIONS ON ASSESSING THE PHYSICAL MATTERS SUBJECT TO SEA DUMPING

The Law on Resources and Environment of Sea and Islands stipulates in Article 57 and Article 58 on requirements and conditions for the physical matters subject to sea dumping. Article 60 of Decree No. 40/2016/ND-CP has stipulated the List of physical matters subject to sea dumping. However, there is a lack of specific technical regulations on survey, investigation, observation, sampling, analysis, assessment of the physical matters subject to sea dumping to review and prove that the requirements and conditions are met according to regulations.

Therefore, it is necessary to study, develop and issue technical regulations to assess the physical matters subject to sea dumping. First of all, it is necessary to specify the assessment to select different treatment plans in addition to the sea dumping plan such as recycling, reusing, used as filling, storing and processing materials on land with quantitative criteria and there is a specific scale for evaluation, including assessments of socio-economic efficiency. The specific technical regulations on survey, observation, sampling, detailed description of chemical, physical and biological characteristics of the physical matters subject to sea dumping; the treatment to ensure that the physical matters subject to sea dumping no longer include components that affect human health, marine environment and ecosystem. In the immediate future, it is necessary to develop and issue documents on dredged materials as it is the main and most popular type of proposal for sea dumping today.

TECHNICAL REGULATIONS ON ASSESSMENT AND SELECTION OF THE SEA AREAS FOR SEA DUMPING

Under the guidance of the International Maritime Organization as well as the experience of some countries, it is necessary to assess, select and plan the sea areas to be used for sea dumping in order to actively prevent and control better the sea dumping activities.

Clause 3, Article 57 of the Law stipulates that: "The sea areas used for sea dumping must be in line with the sea use planning; the master planning for sustainable extraction and use of coastal resources". Up to now, these plans have not been developed and approved. In fact, in the management of sea dumping activities in the past time, especially difficulties and problems in the issuance of sea dumping permits, one of the problems arising for the management agencies as well as public interest is the location selection of the sea areas for sea dumping. One of the reasons is that there are no specific regulations on the determination criteria as well as the evaluation to select the sea dumping areas.

Basically, the sea dumping location must be far from

the area with high ecosystem and biodiversity; not a risk area for environmental pollution; when conducting sea dumping activities, it must ensure that there are no harmful impacts on the environment, ecosystems, aquatic resources in the sea areas for sea dumping as well as the sea areas (near) around the sea dumping areas and must not affect other legal marine resource extraction and use activities in those sea areas.

In order to determine the locations that meet the requirements, these conditions must be based on specific criteria for natural, socio-economic, security, defense, environmental, ecosystem and biodiversity conditions and must be analyzed and assessed in order to select the best option. Besides, in order for sea dumping activities to be economically suitable and feasible, the locations should be considered not too far from the areas generating the physical matters subject to sea dumping.

Therefore, it is necessary to fully investigate, collect and evaluate information and data on marine resources and environment in the sea areas for sea dumping, with data on physical, chemical and biological characteristics of water bodies and seabeds in the sea areas; the current status of ecosystems and marine biodiversity in the study areas; the value of location and use value of the sea areas as well as related plannings; to research and assess marine dynamics in the study areas; to forecast some unusual changes in large scale often due to climate change, typhoons, etc.; the economic and technical feasibility of construction when conducting sea dumping in the sea areas, etc.

The above requirements demand urgently research, develop and issue specific technical regulations on investigation, evaluation, identification and selection of sea dumping locations with specific criteria that can be used as a basis for organizations and individuals to make application dossiers for the issuance of sea dumping permits as well as a basis for competent state agencies to consider and appraise and decide to issue the sea dumping permits.

Besides, it is necessary to set up and submit the national Marine Spatial Planning to the competent authority for approval; to make a Master plan for sustainable extraction and use of coastal resources, including the sea area planning to be used for sea dumping.

▲ *Specific regulations are needed to ensure that the physical matters subject to sea dumping have no impacts on the marine environment and ecosystem*

TO DEVELOP AND ISSUE TECHNICAL REGULATIONS ON ASSESSING THE IMPACTS OF THE SEA DUMPING ACTIVITIES

The assessment of the impacts of the sea dumping activities on the marine environment and ecosystem is an important issue, as a scientific basis and a firm basis for the competent authority to decide whether or not to issue a sea dumping permit. This is also a concern of scientists, management agencies and social communities in recent years.

Therefore, there should be a specific document on assessing the impacts of the sea dumping activities according to the requirements and conditions set out before considering and issuing the permits. In the document, it is necessary to stipulate the assessment process including the basic steps (to require specific assessment of the impacts of the sea dumping activities on the environment, ecosystem and biodiversity; to assess the impacts of the sea dumping activities on the surrounding sea areas; to assess the impacts on other legal marine resource extraction and use activities in that sea areas). In the assessment, it is necessary to set a requirement for the expected area and depth of the sea dumping area to be wide and deep enough to contain the physical matters subject to sea dumping as well as to control the effects of the physical matters subject to sea dumping when proceed-

(Continued on page 38)

Use of tax policy tools for the economic regulation towards green growth and sustainable development in Việt Nam

Dr. Lê Quang Thuận
National Institute for Finance
Director Nguyễn Hoàng Anh
Central Institute for Economic Management

Since the 70s of the twentieth century, many countries in the world have implemented green growth and green economy development, towards sustainable development. In Việt Nam, the National Strategy on Green Growth and Sustainable Development for Việt Nam in the period of 2011 - 2020 has been approved by the Prime Minister, contributing to the sustainable economic development, the effective use of natural capital sources, the reduction of greenhouse gas emissions and the improvement of environmental quality. The article outlines the basic contents of green growth and sustainable development and the role of tax policies to regulate the economy towards green growth and sustainable development; analyzes and points out the limitations of existing tax policies related to the green growth target in Việt Nam. On that basis, it is recommended to complete the tax policies to regulate the economy and promote green growth and sustainable development in Việt Nam.

▲ *Sustainable infrastructure development is one of the main contents of green growth*

OVERVIEW OF GREEN GROWTH AND SUSTAINABLE DEVELOPMENT AND THE ROLE OF TAX POLICIES

According to the United Nations Environment Program, green economy is an economy that improves people's lives and social justice, while significantly reducing environmental risks and ecological deficiencies. Green development (also known as green growth) is an essential tool to aim for green economy. Accordingly, green growth is the process of restructuring economic activities and infrastructure to improve people's lives and social justice.

Developed countries are the leading countries in implementing green growth. The Organization for Economic Co-operation and Development (OECD) acknowledges that green growth is to foster economic growth and development while ensuring that the natural resources and natural capital sources continue to serve development needs. The World Bank (WB, 2012) affirmed that green growth is an effective and clean growth in the use of natural resources as it minimizes pollution and environmental impacts and promotes resilient growth. The World Summit on Sustainable Development held in Johannesburg (Republic of South Africa) in 2002 identified that sustainable development is the process of close, reasonable, harmonious combination of three aspects of development, including: Economic growth, improvement of social issues and environmental protection. Criteria for assessing sustainable development are stable economic growth; good social progress and justice implementation; rational operation, economical use of natural resources and protection and improvement of living environment quality".

Thus, the concepts of "green growth" and "sustainable development" have different connotations but are closely related to each other. According to the Organization for Economic Co-operation and Development (OECD) (2011), "green growth is to foster economic growth and development while ensuring that the natural resources and natural capital sources continue to serve development needs. Therefore, green growth promotion is the orientation of technological investment and innovation to create sustainable development and new opportunities". Green growth is the path towards green economy, in which "social welfare and social justice are improved while reducing environmental risks and the scarcity of ecological resources" (UNEP, 2015).

In the socio-economic life, economic activities often cause (both positive and negative) external effects. Therefore, the State plays an important role in promoting green growth through the application of mechanisms and policies, including tax policies to influence production and consumption activities. The State has implemented a tax incentive policy for eco-friendly economic activities, and at the same time levied taxes on the economic activities that cause environmental damage.

CURRENT SITUATION OF TAX POLICIES IN VIỆT NAM RELATED TO GREEN GROWTH AND SUSTAINABLE DEVELOPMENT TARGETS

The perception and views of the Government of Việt Nam on the importance of socio-economic development coupled with the protection and improvement of natural environment were early and clearly formed. Right from the early years of renovation, changing from a planned economy to a market economy, the Government of Việt Nam has determined that economic development must go together with environmental protection for sustainable development.

Việt Nam is implementing a number of tax and fee policies related to environmental protection, promoting green growth and sustainable development, including: Tax incentive policies (corporate income tax, special consumption tax, value-added tax, export tax, import tax, etc.), to encourage enterprises to produce environmentally friendly products using high technology, saving energy, causing less environmental pollution to implement socialization activities in the field of environment; Tax policies to limit production and consumption harmful to environment (environmental protection tax policy; some environmental protection fee policies; special consumption tax policy; natural resource tax policy). In general, tax and fee policies related to the green growth target in Việt Nam have approached the market mechanism and are consistent with international practices, accordingly, both restricting production and consumption activities contrary to the target of green growth and green economic development based on the principle of "polluter pays", "limiting negative externalities", and encouraging activities of environmentally friendly consumption and production, environmental protection for the targets of green growth and green economic development on the principle of "promoting positive externalities". However, the financial policies related to the green growth target in Việt Nam are still inadequate and limited, such as: The tax incentive policies are not strong enough to encourage green production and consumption; Tax policies to limit production and consumption of products causing harm to the environment are inadequate in the scope of taxable objects and collection rates; revenues from these taxes are not commensurate with the damages caused by the production and consumption activities.

CONCLUSION AND RECOMMENDATIONS

In the coming time, along with various measures, tools and policies, the use of tax policy tools to regulate the economy according to the strategic targets of green growth and sustainable development in Việt Nam is essential.

For tax incentive policies to encourage green consumption and production: Procedures and conditions for incentive treatment should be reviewed and simplified to enhance the attractiveness of Việt Nam in attracting selectively foreign direct investment in high technology development and environmentally friendly technology use with high added values; to encourage clean energy production and the development of public transport. On the other hand, it is necessary to apply a fast depreciation policy for the investment projects of high-tech application, environmentally friendly technology use and clean energy production; public transport; to prescribe the special consumption tax rate for bio-petrol equal to 50% of the tax rate for mineral petrol in order to create a significant difference between bio-petrol and mineral petrol to encourage the production and consumption of bio-fuel; to prescribe the 0% tax rate for services of maintaining zoos, flower gardens, parks and street greenery; to transport public passengers by buses and trams instead of regulating objects not subject to value added tax to encourage private sector participation in service provision.

For tax and fee policies to limit the production and consumption of products causing harm to the environment: It is necessary to increase the tariff and at the same time combine the absolute rate and the tax rate according to the percentage for products causing harm to the environment; to expand the scope of objects subject to environmental protection tax to cover all products causing environmental damage (chemical fertilizer products, etc.); to continue to maintain the special consumption tax policy for cars and fossil fuels in order to limit the consumption of these goods. However, it is necessary to tax according to the level of pollutant discharge (CO, CO_2, NOx, super fine dust emissions per km). The collection rates should be calculated to ensure the limited use of cars and fossil fuels. At the same time, it is necessary to perfect the natural resource tax policy (tax calculation output, tax calculation price, tax rate) and improve the effective and efficient management of the natural resource tax■

Focus the resources to solve inter-provincial and inter-sectoral environmental issues at Cầu river basin

The 14th Meeting of the Cầu River Basin Environmental Protection Committee (the Committee) has evaluated the achievements as well as the difficulties and shortcomings in the implementation of the Master Scheme on Sustainable Protection and Development of Ecological Environment and Landscape of Cầu river basin (the Scheme) for the 4th term (2016 - 2018), and at the same time, proposed the plan to implement the Scheme for the 5th term (2019 - 2020). In the framework of the meeting, the ceremony of transferring the position of Chairman of the Committee for the 5th term to the Chairman of Hải Dương Provincial People's Committee took place.

On this occasion, The Vietnam Environment Administration Magazine (VEM) has an interview with Vice Chairman of Hải Dương Provincial People's Committee Nguyễn Anh Cương about some solutions and key tasks in environmental protection of Cầu river basin in the coming time.

▲ *Vice Chairman of Hải Dương provincial People's Committee Nguyễn Anh Cương*

✶***VEM: Could you tell us some results of the Scheme implementation in the basin in general and in Hải Dương Province in particular in the period of 2016 - 2018?***

Mr. Nguyễn Anh Cương: Over the past time, with close attention paid by the Prime Minister and the fierce participation of the Ministry of Natural Resources and Environment (MONRE), the related ministries, branches and the provincial People's Committees of the Cầu river basin, the implementation of the Scheme have had positive results: Gradually to build and perfect policies and laws from the Central to local levels, creating a premise to promote environmental protection of the Cầu river basin. In particular, the MONRE has proposed and submitted to the Prime Minister for approval of a Target Program to thoroughly handle the establishments seriously causing environmental pollution in the 2016-2020 period; Decision No. 140/QD-TTg dated January 26, 2018 approving the "Investigation, evaluation, classification and development of a waste discharge source database"; Circular No. 76/2017/TT-BTNMT regulating the assessment of carrying capacity of rivers and lakes. Provinces on the Cầu river basin have also issued more than 40 legal documents focusing on wastewater and domestic waste treatment. At the same time, dozens of projects, infrastructure works, models of management and environmental protection have been deployed in the Cầu river basin: Project on dredging the Cầu river section flowing through Bắc Kạn City; Construction of waste incinerators with a capacity of 150 tons/day in Thái Nguyên; Project on Văn Hà craft village wastewater treatment in Bắc Giang Province; Pojects to support domestic waste and wastewater treatment in Bắc Ninh and Vĩnh Phúc provinces; Development of a mechanism for collection and treatment of domestic waste in rural areas of Bắc Giang and Vĩnh Phúc provinces...

The coordination to solve environmental issues has been implemented in a synchronous manner and markedly changed. Some localities have proactively proposed urgent environmental issues to be solved in the inter-regional, inter-provincial scale...

In general, during the period 2016-2018, water quality on the Cầu river basin has improved; the quality of river water in many places has been ensured and can be used for domestic purpose, typically in the upstream area that runs through Bắc Kan Province. However, local pollution still exists at some

points, such as the Cầu river section flowing through Thái Nguyên City, the Cầu river section bordering Bắc Ninh and Bắc Giang provinces, on Ngũ Huyện Khê river...

For Hải Dương Province, the Provincial People's Committee has issued 8 legal documents related to environmental protection such as: Registration of groundwater exploitation; regulations on management of drainage and wastewater treatment activities; environmental protection fee for mineral exploitation; service fees for domestic waste collection and transportation using state budget capital; Planning of solid waste management in the province...

From 2016 - 2018, the Provincial People's Committee assigned the Department of Natural Resources and Environment to guide and submit to the provincial People's Committee to appraise the Environmental Impact Assessment (EIA) report for 192 investment projects, 35 detailed environmental protection schemes; to confirm 33 Environmental Protection Plans for projects; the district authorities have confirmed 304 simple environmental protection plans and 92 simple environmental protection schemes. In addition, the Province also assigned the Department to inspect and check about 300 times at production and business establishments, applying sanctions for administrative violations for 28 enterprises, with a total fine of VND 2,950 billion. In 2016 and 2017, the provincial environmental police force handled 83 administrative violations, with a total fine of VND 1,786 million.

Hải Dương province has 14 establishments listed in the list of seriously polluting establishments (11 establishments according to Decision No. 64/2003/QD-TTg and 3 establishments according to Decision No. 1788/QD-TTg). Until now, the establishments have basically completed the requirements of thorough treatment of environmental pollution, only 3 out of 11 establishments in Decision No. 64/2003/QD - TTg have not been certified on completing the measures for environmental pollution treatment.

Besides, the activities of propaganda, education and awareness raising on environmental protection are concerned by the Provincial People's Committee through many practical activities of the World Environment Day on June 5, the National Week of Clean Water and Environment Hygiene (April 29 - May 6), the Campaign for a Cleaner World (September 20), International Day for Biological Diversity (May 22)… which form a wide movement, attracting a large number of people to participate in.

▲ *The Hải Dương Grinding Stone Join Stock Company has completed the requirement to thoroughly handle serious environmental pollution under Decision No. 64/2003/QD-TTg*

✶VEM: To prevent waste discharge sources from causing environmental pollution on the Cầu river basin, which solutions has Hải Dương Province implemented?

Mr. Nguyễn Anh Cương: In order to get the above results, in the past time, the Provincial People's Committee has implemented synchronous solutions such as: To thoroughly manage and widely disseminate the guidelines and policies of the Party, the legal policies of the State on environmental protection to cadres, party members and people in the Province; To propagate and disseminate knowledge, legal education and international treaties related to environmental protection, creating a strong change in all strata of environmental protection, responding to climate change.

At the same time, the Party committees and provincial authorities of all levels have paid attention to giving concrete and strong directions for environmental protection in the area; to issue specific provincial documents in accordance with the Law on Environmental Protection (LEP); to thoroughly handle the production establishments causing serious environmental pollution according to the Prime Minister's Decision No. 64/2003/QD-TTg; to direct management agencies and localities to strengthen coordination in management and environmental protection; To organize irregular inspections, periodical monitoring of environmental quality to detect and promptly handle the production and business establishments, industrial parks and industrial clusters causing pollution in the province. On the other hand, to step up the inspection, strictly handle cases of violating the LEP and the regulations of the Provincial People's Committee, resolutely suspend the operation of those establishments that cause serious and prolonged pollution and have no investment in treatment facilities to meet environmental standards.

In particular, the Province continues to improve the system of legal documents, mechanisms and policies on environmental protection, including mechanisms and policies to promote socialization of environmental protec-

tion; to gradually increase the proportion of recurrent expenditures from the state budget for environmental protection, striving to achieve 2% of the total budget expenditure; to promote the rational and effective use of environmental funding. We encourage production and business establishments to invest in and improve environmental-friendly production equipment, build systems for treating wastewater, emissions and solid waste, ensuring environmental standards; to formulate a preferential mechanism and encourage investment in high-tech and clean technology projects, not accepting outdated or environmentally-unfriendly projects such as recycling of discarded materials, mechanical plating, metallurgy and paper production, etc.

✶VEM: How do you assess the advantages and disadvantages in environmental protection of the Province during the past time?

Mr. Nguyễn Anh Cương: Over the past time, the implementation of the Scheme has achieved positive results. Besides the advantages such as the synchronous participation of the MONRE and the provinces on the river basin; the people's awareness on environmental protection has been raised… there are still some difficulties and shortcomings. The violation of the LEP on the river basin is still complicated. Production and business units violate the laws with increasingly sophisticated methods and tricks to deal with functional agencies; there is an increase in pollution in upstream and midstream areas. The handling of seriously environmental polluting establishments has been focused on implementation by the localities, but it has not achieved the goal of thoroughly handling 100% of seriously polluting establishments under Decision No. 64/2003/QD-TTg.

Meanwhile, the statistics of waste discharge sources into the river basin of the localities have not been prepared regularly. The role of the community in environmental protection is still limited, not yet strongly promoted in monitoring and reporting activities causing environmental pollution...

✶VEM: As the Chairman of the 5th term Committee, what suggestions do you have to improve the effectiveness and efficiency of environmental protection management in the Cầu river basin in the future?

Mr. Nguyễn Anh Cương: In order to improve the effectiveness and efficiency of the river basin environmental management and implement the Scheme, in the coming time, the Ministries, branches and localities should continue to perform well the following tasks:

For local People's Committees on the Cầu river basin: To direct to review the progress of the tasks and projects that have been approved by the Provincial People's Committee according to the plan, and at the same time, to evaluate the results of the Scheme implementation by 2020 and to provide proposals in the coming time. To conduct statistics of all wastewater sources in the area; to develop a database of wastewater sources on the river basin; to assess and delineate large wastewater sources and potential risks of environmental incidents and to apply strict control measures. To strengthen the inspection and examination, strictly handling violations of laws on environmental protection; to invest in automatic monitoring system; to require industrial parks and establishments with large waste discharge amount of 1.000 m^3 to install continuous automatic monitoring systems, to transmit data to state management agencies for supervision; to focus on thoroughly handling the establishments causing serious environmental pollution. To strengthen financial resources for environmental protection; to effectively manage and use state budget expenditure for environmental protection activities, etc.

For Ministries and branches: The MONRE shall strengthen the role of focal points and support the Ministries, branches and localities to implement the Scheme, ensuring to implement the Scheme's objectives under Decision No. 174/2006/QD-TTg by 2020. The Ministry of Construction shall promote the organization and evaluation of the implementation of the Planning of landfills for solid waste, drainage and wastewater treatment systems for residential areas and industrial parks in the Cầu river basin by 2030 approved by the Prime Minister. The Ministry of Agriculture and Rural Development shall continue to support watershed forest development; the planning on the development of concentrated livestock breeding corresponding to environmental protection planning; to control the use of plant protection products; to step by step bring environmental friendly biotechnology into agricultural production. The Ministry of Transport shall coordinate with the MONRE to direct and guide the implementation of Joint Circular No. 21/2013/TTLT-BGTVT-BTNMT on guidance on management and environmental protection in inland waterway traffic; to strengthen the management and supervision of sand mining projects to ensure traffic safety and environmental protection in the Cầu river basin...

Particularly, the Cầu River Basin Environmental Protection Committee members should strictly implement the Working Regulations of the Committee and attend the full Meeting of the Cầu River Basin Environmental Protection Committee; to report on the implementation of the overall Scheme on the Cầu river basin environmental protection; at the same time, to evaluate the results of the Scheme implementation by 2020 and provide proposals in the coming time.

✶VEM: Thank you!

Đức Anh
(Implemented)

Strengthening the management, collection and treatment of hazardous waste

Lê Hoàng Anh, Mạc Thị Minh Trà
Vietnam Environment Administration

Currently, the amount of hazardous waste is increasing, creating great pressure on environmental protection, affecting people's health. According to reports of the provincial Departments of Natural Resources and Environment (2017), the amount of hazardous waste generated nationwide is about 600 - 800 thousand tons/year (excluding hazardous waste generated by individuals and households).

CURRENT STATUS OF HAZARDOUS WASTE GENERATION

Most industrial hazardous waste arises mainly from light industries, chemicals, metallurgy, industrial parks, industrial clusters, craft villages, food facilities, plastic recycling, production and trading of construction materials, etc. Industrial hazardous waste is concentrated mainly in two key economic regions in the North and the South, in which, the amount of hazardous waste generated from industrial zones in the Southern region is about 82 - 134 thousand tons/year, higher than the other areas (3 times and 20 times more than the North and the Central, respectively); nearly half of the hazardous waste amount is generated in the South, mainly in localities such as: Hồ Chí Minh City, Đồng Nai, Bà Rịa - Vũng Tàu, Bình Dương. Besides, the amount of hazardous waste generated from craft villages nationwide accounts for about 2,800 tons/day. The cause of increasing industrial and craft hazardous waste amount is that it has not been properly classified and collected, many types of hazardous waste are collected together with domestic waste and dumped in public landfills. The small production facilities located outside the industrial zones is also the significant sources of hazardous waste, which makes the management of hazardous waste encounter many difficulties.

In the hazardous waste generation sources, the amount of hazardous medical waste generated from medical examination and treatment activities at health facilities is increasing. According to the Ministry of Health's statistics in 2017, the hospitals discharge about 47-50 tons of hazardous waste per day on average (7.6%/year). Hazardous waste accounts for about 20% of medical solid waste in the hospitals. This is an emission source that pollutes the water and soil environment and adversely affects public health. Therefore, hazardous waste from hospitals needs to be strictly controlled and treated to meet the environmental standards.

▲ *Need to strengthen the collection, classification and treatment of hazardous waste at source*

For hazardous domestic waste, there are no statistics on the amount of hazardous domestic waste generated; Most of hazardous domestic waste are discharged together with normal domestic solid waste and brought to landfills, mostly including electronics and household appliances waste , such as televisions, refrigerators, electric fans, computers... According to the Ha Noi Urban Environment Company Limited, by 2020, there will be about 4.8 million television sets, 1.4 million computers, 2.3 million refrigerators, 873 thousand air conditioners and 2.6 million washing machines… are discarded.

In addition, the agricultural production arises about 9,000 tons of hazardous waste every year such as the packaging and containers of fertilizers and pesticides products, in which many products have high toxicity. Besides, there are about 50 tons of pesticides products left in the country, and 37,000 tons of agricultural chemicals confiscated being kept pending for handling. Hazardous waste in agriculture is highly toxic, disperses quickly in water, and volatile and diffuse in the air, if there is no effective treatment, it will cause adverse impacts on the environment.

HAZARDOUS WASTE COLLECTION AND TREATMENT

As of October 2017, there are 108 hazardous waste treatment facilities licensed by the Ministry of Natural Resources and Environment

(MONRE). According to the Vietnam Environment Administration (VEA), the rate of hazardous waste properly collected and treated is about 75% and still 1/4 of the hazardous waste amount has not been collected and treated in accordance with regulations, specifically:

Industrial hazardous waste: Most of the major hazardous waste generation source owners have been annually registered and granted the hazardous waste source owner registration books. This amount of hazardous waste is collected and taken to licensed facilities for treatment. In particular, a part of the hazardous waste amount is treated by the waste source owners themselves or exported to foreign countries for treatment and recycling. Some special hazardous waste (containing PCB) due to lack of appropriate treatment technology is kept at the generating facilities. Currently, only the Holcim Vietnam Co., Ltd is licensed to treat waste containing Polychlorinated biphenyls (PCB).

In addition, the collection, transportation and treatment of hazardous waste from small waste sources, especially, with the sources of hazardous waste generation of smaller amount (< 0.6 tons/year), or in remote areas still face many difficulties. The reason is that the cost of hazardous waste treatment is high and the time limit for keeping hazardous waste is not more than 12 months, leading to not collecting enough quantities for treatment.

Urban hazardous domestic waste: Currently, domestic hazardous waste has not been collected and treated separately. The landfilling and general treatment will cause harm to those who come in direct contact with waste, affecting the process of disintegrating waste, dissolving hazardous substances into leachate. Therefore, the management agencies should have regulations requiring the Urban Environmental Companies to have separate hazardous waste collection plans in domestic solid waste.

Hazardous medical waste: According to the Ministry of Health, in 2016, the amount of hazardous waste treated is 20,801 tons/year. Compared to the previous period, the hazardous medical waste collection and treatment activities have increased significantly. However, the health facilities in the provinces and cities have not invested in a comprehensive system of hazardous medical waste treatment. By the end of 2015, there were 94.3% of Central hospitals, 91.9% of provincial hospitals and 82.4% of district hospitals meeting the requirements of hazardous medical waste treatment; 46.4% of provincial preventive health facilities and 26.5% of commune health stations performed hazardous waste treatment as regulated.

It is estimated that 33% of district and provincial hospitals do not have a specialized incinerator system and must treat hazardous medical waste by manual incinerators, landfill in the hospital premises, or discharge to the local landfills. This is the source of environmental pollution that has impacts on people's lives.

TECHNOLOGY OF HAZARDOUS WASTE TREATMENT AND RECYCLING

According to a survey by the MONRE, there are 3 groups of technology of hazardous waste treatment: Heat treatment; Landfilling for waste treatment; Waste recycling. Hazardous waste is usually treated by burning and landfill technology (with pre-treatment by physico-chemical and biological methods) and solidification. Particularly hazardous medical waste, due to containing many hazardous components, should be treated with disinfection (chemical reactions in special equipment, dry heat or moist heat, microwave), burning and landfill.

As of July 2015, there are 50 licensed hazardous waste treatment facilities applying two-level static incinerator and rotary incinerator technology. Currently, there are 69 two-level static incinerators, with a capacity of 100-2,000 kg/h. This technology has the advantage of simplicity, reasonable investment cost, easy operation, suitable for Vietnamese conditions. Static incinerators are commonly used in hazardous waste treatment facilities, however, the process of control and operation is still manual, not highly automated, so it is difficult to burn special hazardous wastes such as waste containing halogen (PCB, chlorinated pesticides). Currently, a number of incinerators have been invested by installing activated carbon systems to treat emissions in the recent period, while recovering and heating to generate electricity and there are automatic ash extraction systems, solving the condition of burning in batches, improving the productivity and efficiency of incinerators. Rotary incinerators have started to be applied in Việt Nam, with 2 hazardous waste treatment facilities licensed to use this technology. The application of rotary incinerators makes the process of mixing waste, especially burning sludge waste more effective. However, as the mixing creates dust during combustion, it is required to have measures to collect and control dust in emissions.

Particularly for hazardous medical waste treatment by incineration technology: Currently, there are about 400 medical waste incinerators with fragmented investments, mostly at medical facilities with small treatment capacity (from 20-50 kg/h) and most of them do not have the enclosed emission treatment systems. The hazardous medical waste incinerators are operated manually, in batches, and the waste burning mode has not been implemented as specified. With insufficient temperature, the process of chemical oxygen transforming waste by air oxygen will not occur completely and the emissions will have black smoke, the concentration of CO pollutants in emissions is

high. Recently, some medical waste incinerators have been invested and granted the hazardous waste treatment permits meeting the national technical standards on medical waste incinerators QCVN 02: 2012/BT-NMT. Therefore, in the coming time, it is necessary to limit investment in incinerators at medical facilities and switch to non-burning technology, except for special cases such as concentrated medical waste treatment facilities or medical waste treatment at facilities granted the hazardous waste treatment permits.

Co-processing technology in cement kilns: There are currently 2 cement production facilities in Kiên Giang and Hải Dương using this technology, with a capacity of 432 thousand tons of hazardous waste/year. With the cement kilns of all kinds, hazardous waste will be thoroughly treated, without secondary slag generation.

Hazardous waste landfill technology: The hazardous waste landfill technology has been applied in Hà Nội and Bình Dương, Đồng Nai, Quảng Ngãi, Thanh Hóa…, with a capacity of each landfill compartment of 10.000 - 15.000 m^3. The hazardous waste landfill technology has the advantages of isolating hazardous waste which are unable to be treated with other technologies, high capacity and lower treatment costs than many other treatment methods such as burning. Hazardous waste can be excavated to be treated if there is appropriate technology. As the hazardous waste landfill compartments all have closed roofs during the operation process, this method has the nature of cocoon closing rather than landfill and being unable to generate leachate, but still has a leachate collection system. However, this method is quite land-consuming, hazardous waste not being thoroughly treated, and the risk of leachate has high potential, so it should be monitored regularly after closing compartments.

Waste oil recycling technology: There are 36 treatment facilities nationwide licensed for oil recycling technology investment, including the following technologies: Oil cracking distillation (fractional distillation, also known as multi-stage distillation; simple distillation; single stage distillation); oil and water separation by (centrifugal) mechanical method and thermal technology. In fact, most facilities use simple distillation technology to recover oil (the principle is to use heat to evaporate and cut the circuit, then condense to recover oil, the solid sludge is separated and taken out at the bottom of the distillation pot). Currently, there are a number of facilities that are investing in technology for fractional distillation for oil recycling, which is a modern technology used to produce petroleum products from waste oil.

Technology of recycling waste lead batteries: Currently, there are 27 hazardous waste treatment facilities licensed to invest in this treatment technology, with an average capacity of 0.5 - 200 tons/day. Some units have invested and used modern technology to recycle batteries, the whole process is mechanized and automated to collect crude lead which continues to be refined into the refined process. Some units have invested more electrolysis systems to obtain lead products with higher content, increasing economic value.

Technology of electronic waste recycling: Currently, there are 26 hazardous waste treatment facilities licensed to invest in electronic waste treatment technology, with a capacity of 0.3-5 tons/day, including: Metal recycling and recovery technology by physico-mechanical method (about 15 units licensed by the Ministry of Natural Resources and Environment); Metal recycling and recovery technology by chemical method (about 5 units licensed by the Ministry of Natural Resources and Environment) and metal recovery technology by electrolysis method.

Technology of recycling zinc oxide powder from steel furnace dust: Currently, there are 3 enterprises licensed to use rotary kiln technology to recycle zinc oxide powder from steel furnace dust with a total licensing capacity of more than 120 thousand tons of steel furnace dust/year. The licensing of hazardous waste treatment for these technologies has contributed to solving the problem of steel furnace dust of steel mills in provinces and cities.

HAZARDOUS WASTE MANAGEMENT SOLUTION

In order to improve the management of hazardous waste, contributing to minimizing environmental pollution, strengthening hazardous waste management in enterprises and industrial parks is essential, especially strict management from waste source owners to collectors, transporters, storage and treatment, etc. At the same time, to build and develop hazardous waste treatment facilities in the direction of concentration and large-scale with modern technology, limiting the development of small-scale and dispersed treatment facilities at risk of causing environmental pollution. To invest and build intensive treatment and recycling facilities for specific hazardous waste types, in parallel with the development of treatment facilities capable of recycling and treatment of many types of hazardous waste, increasing the transfer of waste among waste treatment facilities to take advantage of each facility in the process.

In addition, recycling and reuse of hazardous waste should be strengthened; to limit the licensing of treatment by landfill and solidification measures for hazardous waste suitable for recycling or reusing; to promote the recovery and treatment of discarded products generated from households and individuals■

Finding solutions to the manual lime kiln elimination in 2020

Dr. Nghiêm Gia
Việt Nam Foundry and Metallurgy Science and Technology Association (VFMSTA)

According to the Decision No. 1469/QD-TTg of the Prime Minister dated August 22, 2014 approving the Master plan for development of construction materials in Vietnam to 2020 and orientation to 2030 and Decision No. 507/QD-BXD of the Ministry of Construction dated April 27, 2015 on the approval of the Planning of lime industry development to 2020 and orientation to 2030, the elimination of all (intermittent and continuous) manual lime kilns across the country must be implemented in 2020. Although the deadline has been determined, localities and enterprises are rushing to deploy, but the fact that the elimination of manual lime kiln is not easy because of many reasons.

Therefore, it is necessary to join hands with the Ministries/sectors, localities and enterprises to find out synchronous solutions to carry out the elimination of manual lime kilns in 2020 as directed by the Government.

CURRENT SITUATION OF LIME PRODUCTION AND DEMAND FOR LIME USE IN VIỆT NAM

In human life, lime is an important and indispensable commodity for the construction, agriculture, food, paper, metallurgy and environment… In construction field, lime is used to produce siliceous lime bricks and construction materials. In addition, lime is added to concrete and mortar to increase construction durability. For agriculture, lime is used as fertilizer. When soil becomes acidic, lime is used to raise soil pH, increasing calcium and magnesium content will cause microbiological activity, increasing organic matter and nutrition for soil. In paper manufacturing, lime is used to recover soda during pulp making and paper cleaning. In environment field, lime is used to treat and purify water at domestic water supply plants (softening water by removing bicarbonate hardness and disinfecting bacteria); Lime is used to treat industrial wastewater (neutralizing acid in industrial wastewater; to remove silicon, manganese, fluoride, iron and other impurities in the water before being discharged into the environment); Lime is used to absorb sulfur dioxide from exhaust gas in thermal power plants...

Therefore, lime production technology has been developed for a long time in the world and in Việt Nam. Việt Nam lime production technology is mostly based on manual lime burning and is very obsolete compared to many countries in the region. Currently in Việt Nam there are about 1.000 intermittent and continuous manual lime kilns (from 5-7 tons/batch or only 15 - 20 tons/day), concentrated in Hải Phòng and Thái Bình, Bắc Giang, Hải Dương, Ninh Bình, Hà Nam, Nam Định, Thanh Hóa, Thừa Thiên - Huế, Kiên Giang provinces..., total production capacity is about 2 million tons/year. Over the years in localities across the country, the situation of manual lime kilns causing environmental pollution (due to smoke, gas and dust emissions).., is present in a more and more serious way. Meanwhile, industrial lime production establishments are very few, only about 10 establishments, with each kiln's design capacity of 150 - 200 tons/day.

According to the results of the provincial statistical yearbook in 2010 - 2012 and the Decision No. 1469/QD-TTg of the Prime Minister dated August 22, 2014 approving the Master plan on development of Vietnam's construction materials up to 2020 and orientation to 2030) the lime

▲ *Some manual lime kilns in the localities*

production and consumption capacity is concentrated mainly in the Red River Delta, North Central and Central coastal regions. These are the areas with many limestone mines in Việt Nam; The average growth in demand in the 2010 - 2020 period is 20%/year on average and 10%/year on average in the 2021 - 2030 period; The amount of export lime in the period of 2010 - 2020 is on average from 0.5 million to 1.5 million tons/year and the export market is mainly Korea, Taiwan, India, Thailand and Myanmar. By 2030, the demand for lime is forecast at 10,8 million tons, of which domestic consumption is about 7.8 million tons and 3 million tons are exported.

DIFFICULTIES AND PROBLEMS WHEN ELIMINATING MANUAL LIME KILNS IN VIỆT NAM

The reportof the Vietnam Environment Administration (VEA) in 2017 shows that the manual lime kilns have emitted toxic dust (gas, dust and fine particle matters…) that directly affect workers in production areas and neighborhood communities. Dust index has exceeded 1.6 to 1.8 times and CO index 4.0 to 4.2 times compared to QCVN 19: 2009/BTNMT. The manual lime kilns not only pollute the environment but also cause many deadly labor accidents due to gas suffocation and kiln collapse. On January 1, 2016 in Hoàng Giang commune, Nông Cống district, Thanh Hóa province, there was a gas leak at the lime kiln that left 8 people dead and 1 seriously injured; On July 3, 2017 at the lime kiln of area 6 Văn Chánh, Phú Thứ town, Kinh Môn district, Hải Dương, 5 workers died due to kiln collapse, etc.

Implementing Decision No. 1469/QD-TTg dated August 22, 2014 of the Government and according to the roadmap in Decision No. 507/QD-BXD of the Ministry of Construction dated April 27, 2015: In 2015, not to grant investment permission to construct new kilns nationwide; In 2016, to eliminate at least 50% of the manual kilns and maintain around 500,000 tons/year of the intermittent manual lime kiln production and 1,000,000 tons/year of the continuous manual lime kiln production; By 2020, to eliminate all intermittent and continuous manual lime kilns nationwide. Despite the negative impacts of manual lime kiln production and the fact that the manual lime kiln elimination plan is judicious, the time left has only been over 20 months so the closing of lime kilns will be difficult to achieve the set target. According to the experts' assessment, the reason affecting the progress of manual lime kiln elimination is as follows: Awareness of environmental protection of some people and localities with lime kilns is limited. Therefore, many establishments have not focused on mobilizing funding and resources to develop implementation plans. Even when the local management officials came to encourage the task implementation, some lime kiln owners did not cooperate and were not interested in this policy of the Government. Meanwhile, the time limit for implementing the manual lime kiln elimination is short, only 5 years (2015 - 2020), causing waste due to the investment budget of billions of VND to build the kilns, but the capital not yet recovered; Thousands of workers lost their jobs and income from the manual lime kilns. There is a lack of support for human resource training and transfer of advanced and modern lime production technology to replace the manual lime kilns. Because the majority of workers in the manual lime kilns come from agriculture, their age is high and their education level is low, when the lime kilns stop operating, they do not have enough money to find new jobs for living.

Another important reason is that in recent years the licensing of mining of limestone mines with small scale is quite common in localities. Many owners of limestone mines have invested in the manual lime kilns to consume the limestone they exploit. The alliance of "limestone mines with manual lime kilns" makes the process of eliminating the manual lime kilns more difficult.

SYNCHRONOUS SOLUTIONS FOR MANUAL LIME KILN ELIMINATION ARE REQUIRED

Due to the necessity of lime for the development of Việt Nam's industries and the limitations of the manual lime kilns, industrial lime production is of great interest to investors. According to "Planning of Việt Nam lime industry development in 2020 and orientation to 2030", the demand for lime in 2015 is about 5.49 million tons, expected to be about 8.18 million tons and10.8 million tons by 2020 and 2030, respectively. Therefore, to ensure the goal of both the manual lime elimination and the demand for lime for Việt Nam's industries, the following synchronous solutions are required:

To continue to communicate and raise awareness for the enterprise community, workers and local managers about the need to implement the manual lime elimination. To request localities with manual lime kilns that they must develop a specific plan to implement; it is necessary to have the supervision of the authorities on construction, investment and environmental management; to attach the responsibilities of the heads in the localities when implementing the manual lime kiln elimination policy.

The technological innovation and capacity scale are in the direction of: Concen-

trating all resources (state budget, private enterprises in the form of socialization) to study technological innovation and develop lime production projects with advanced and modern technologies; Studying to usefuel to replacefossil fuels in lime production in order to save resources and reduce environmental pollution; Only approving new investment projects with the capacity of each lime production kiln of ≥ 200 tons/day (60,000 tons/year); The lime production establishments must choose advanced equipment and technology to ensure environmental hygiene, encouraging the use of green technology, mechanization and automation, to meet the main targets: Thermal energy consumption of < 900 Kcal/kg; Electricity consumption of < 30 Kwh/ton; Emissions and dust following the Việt Nam's Standards; Implementing investment projects to recover lime gas to produceliquid and solid CO_2 in association with the projects of industrial lime kiln production in some localities.

The limestone mining management and licensing need to be tightened; to restrict and proceed to not permit the exploitation of limestone mines with a capacity of less than 50,000 tons/year with outdated manual mining technology. To fund for manual lime production enterprises in changing jobs for workers and training to receive and transfer advanced and modern lime production technologies.

The Ministry of Construction should coordinate with the Ministry of Natural Resources and Environment and relevant localities to organize conferences (thematic seminars) in order to assess the results of implementing the roadmap for the complete closure of the manual lime kilns under the direction of the Government in the Decision No. 1469/QD-TTg dated August 22, 2014 and the Decision No. 507/QD-BXD of the Ministry of Construction.

The time limit for completely eliminating the manual lime kilns is not much, although localities and enterprises are rushing to implement, it is difficult to achieve the desired results.Therefore, it is necessary to synchronously implement the above solutions, especially the drastic direction of the Ministries/agencies and the cooperation of the localities and enterprises for sustainable development■

Needs of developing and issuing technical regulations to serve ...

(Continued from page 27)

ing. The extent of dispersal, propagation of the physical matters in the sea dumping areas as well as the surrounding areas must be calculated for a certain period of time, especially the ability to spread the physical matters subject to sea dumping to sensitive areas such as seagrass beds, coral reefs, conservation zones, major fishing grounds and aquatic resource protection areas. The regulation of impact assessment should also specify the application methods, time, frequency, input data, data sources, software used, conditions and capabilities of organizations and individuals performing the assessment, etc.

TECHNICAL REGULATIONS ON ENVIRONMENTAL MONITORING AND SUPERVISION IN THE SEA DUMPING ACTIVITIES

Article 62 of the Law on Resources and Environment of Sea and Islands regulates the control of the sea dumping activities, mainly related to transporting vehicles of the physical matters subject to sea dumping and the responsibilities of competent authorities. However, there is a lack of specific regulations on environmental monitoring and supervision in the sea dumping activities, including monitoring and supervision from the locations generating the physical matters subject to sea dumping, transport volumes on vehicles, routes, environmental parameters to be monitored, location and frequency of monitoring, etc.

Therefore, it is necessary to study, supplement and specify the formulation and implementation of the Program of environmental monitoring and supervision of the sea dumping activities, including requirements on areas, points, locations and frequency, basic parameters that must be monitored and supervised (such as parameters of pH, DO, TSS and turbidity of seawater); the responsibilities of organizations and individuals to be issued the sea dumping permits and organizations and individuals carrying out the sea dumping activities must ensure the strict monitoring and supervision of environmental quality and impacts in the sea dumping process as well as after completion of the sea dumping to ensure timely control of the impact sources and impacted objects in order to propose remedial measures■

A START-UP STORY:
The journey from "The one-straw revolution"

Inspired by the world's popular book "The one-straw revolution", Le Xuan Ha, born in Hon Mu Village, Tan Thanh Commune, Thuong Xuan District, Thanh Hoa Province, has not only been the first to live a "completely natural" life but also made many products from natural ingredients, which are user-friendly. After five years of working passionately, he is known as the co-founder of the Hon Mu Farm, Crafts Workshop and Essential Oil Shop.

▲ *Local workers are able to earn for living at the Hon Mu Farm*

BE RESPONSIBLE TO THE NATURE

Le Xuan Ha passed the entrance exam for Hong Duc and Customs universities. He was also the secretary of the school's Ho Chi Minh Communist Youth Union, but in 2014 he decided to drop out and return to his hometown for his own career. Disagreeing with local farmers for overusing plant protection chemicals, he studied the quality of plants and land and started growing different kinds of tree like bamboo to cover entire a 10-hectare area of forest managed by his family.

He then got married, gave birth to his kids and took his mother home. The forest has been the only lively world that his family members can get in touch with as his home lies distant from the town. He set up the Hon Mu Farm to encourage people live in the harmony with the nature. As the farm is not a tourist destination, visitors are only welcome on three conditions: They must understand the Hon Mu-style green way of living; they aren't allowed to bring money; and they are forbidden to bring food and cosmetics into the forest. Hon Mu Farm is like the "second version" of Fukuaka Farm, which is built by a Japanese farmer and philosopher – the author of "The one-straw revolution".

Hardly spending any money at Hon Mu Farm, visitors must self-serve to set up their basic needs like seeking a camping spot, cooking, planting and fishing. Most of their food and consumption are made on spot. They have to wash the hair and take a bath with natural leaves, and brush their teeth with toothpaste made of pan leaf, lemon and salt. Their money cannot be brought into the forest and is only used before they leave to buy souvenirs. During the trip, the host and visitors can do meditation exercises and discuss how to improve their health, how to grow trees and how to save land resource. Some visitors, who come from cities and urban areas, first visited here for curiosity. They quickly turned interested in the farm's green lifestyle and skill training, built their own houses and stayed. Some of them have stayed here for two and a half years, building four of total seven cottages at Hon Mu Village.

Ha's farm is always open to visitors and his family is willing to share land with those that have the same idea. Ha has been trying to persuade 30 local households in the village to live a responsible life and protect the forest and environment. Furthermore, he is seeking a solution to keep the craft village surviving and create jobs for local residents. Everyday he travels to the village and bring local-made products to the market with a strong desire of honouring handmade crafts and making sure local residents, especially highly-skilled ones, make money from their work.

ENVIRONMENTALLY-FRIENDLY CRAFT WORKSHOP AND BAMBOO STRAW

Surrounding Hon Mu Village are local ethnic minority wards and villages of the people of Thai and Muong. Therefore, Ha is able to learn from their experiences in growing bamboo-like trees and making bamboo crafts. Ha first made spoons out of overage bamboos in the forest. Then, he made 10 other products from those overage bamboos, including table, chair and swing, and built a craft workshop. His craft outputs have been introduced in the fairs organised by the province and district authorities and he has received positive comments for those products, especially for bamboo straw.

Ha came up quite accidentally with the idea of making bamboo straw. He

▲ *Le Xuan Ha's main concern is environmental impact and natural sustainability when expanding his production*

immediately felt urgent to make bamboo straw when hearing the stories of how harmful plastic straw is for the environment and human health at a farm community meeting. In September 2017, Ha began selling the first bamboo straws. At first, he could only sell dozens of them, but the demand rose to hundreds and thousands of straws after one or two months. A bamboo straw must go through 10 stages of production. The most complex stages are polishing the heads of the straw, cleaning the inside, putting the straw in the sterilizer, drying and packaging. At the beginning, customers often complained the straws were moldy. To resolve this problem, Ha added salt in the sterilizer to keep the straw from mold and termite.

Now the workshop produces 50,000-100,000 straws each month, earning about VND50 million in revenue. The product is mainly sold on Facebook and exported to foreign markets. Ha is enjoying his work, not only for selling the products and maintain jobs for the locals but also for customers having paid more attention to environmental protection. Thus, instead of expanding the production of the farm on rising demand, Ha made an environmental impact assessment to see whether the expansion would dampen the forest environment and natural sustainability or not. It took him one year to enlarge the bamboo workshop, creating jobs to 11 local residents with per-capita salary of VND4.5-6 million per month.

What Ha has been doing is only the beginning, but it means a lot and it is worth promoting. He is reasonably ambitious and his ambition is to call Vietnamese young generation to join hands and do something practical to protect the environment. Le Xuan Ha, thinking "what we want is limitless, the sooner we stop desiring the more comfortable we are", will further develop Hon Mu Farm into a non-profit community where people are able to experience a natural life, thus changing their awareness and action toward environmental protection■

Bích Phương

VIFARM:
An environmentally friendly high-tech agriculture farm model

The improvement of the legal system and advantages in natural conditions offer the province of Ba Ria-Vung Tau a lot of opportunities to develop its high-tech industry. A large number of the province's high-tech agriculture products have been becoming more dominant in the market on the use of high-technologies to make the production chain clean and safe. ViFarm is among leading farms in the province to integrate high technologies into production, become environmentally friendly and make many achievements.

In an area of 4,000 m^2, ViFarm is using top technologies such as the Israeli dripping technology for tomato plantation and hydroponic technology for vegetable plantation. All process is controlled by a computer system and Internet-of-Things (IoT) devices to make sure the plants are in best conditions. Of its top technologies, hydroponic vegetable plantation is carried out inside the greenhouse and separated from the outside with major vegetables, including Italian salad, purple salad and bok-choy. Hydroponic plantation is a breaking technology in agriculture as the plant is seeded in the container, not in the dirt. The plant container is then put into the water so that the root is able to absorb nutrients. Coconut wool is used to make the container as a growing medium, providing roots with a good balance of water and oxygen. The coconut wool must be processed and sterilized with ultraviolet so that all heavy metals are extracted and the coconut wool becomes a completely safe environment for vegetables to grow. All nutrients are mixed at controlled ratios and injected into the water so the roots can absorb them. The plantation system allows the company to cycle the water until the volume of leftover nutrients gets under a certain level, then the water is imported into the treatment system. As hydroponic vegetables are planted inside the greenhouse, all indicators of heat, moisture and light are controlled automatically to provide the best environment for vegetables to grow. When the environment outside the greenhouse changes, the computer is set to adjust the inside environment to the best condition. ViFarm now has 52 rows of hydroponic vegetable plantation

given its existing land area, which is quite area-saving compared to traditional farming method – which would cover a land are of about 1.2 hectares.

ViFarm is planting tomatoes based on the Israeli dripping technology, which calculates and distributes the accurate amount of water for the growth of tomatoes. Tomato plantation and dripping routine are also monitored automatically by the computer, which will activate the dripping system to ensure the plants get the accurate volume of water they need.

Obviously, ViFarm is using superior technologies as they are automated, energy- and land-saving, higher efficient, and environmentally friendly. Besides, close control of all plantation stages from container preparation, seeding, fostering to harvesting helps the products made by ViFarm be of good quality and food safety.

Consumers can easily trace the origin and information of ViFarm-made vegetable products via barcode that is taped on each output unit. The vegetable products are tested by the HCM City Centre of Analytical Services and Experimentation (CASE) and Ba Ria-Vung Tau Department of Agriculture and Rural Development, which decide whether the firm meet the safety standard with its products or not.

▲ *The representative of the Israeli high-tech agriculture firm Dagan visits ViFarm's hydroponic vegetable plantation system*

ViFarm has succeeded and risen to become the first and biggest hi-tech farm in the province. At the meeting to launch Ba Ria-Vung Tau Province's start-up and innovation programme, ViFarm was honourably selected to join the exhibition on high-tech farm models in agriculture. ViFarm has also signed a cooperation agreement with the Singaporean firm DL Edvance Pte Ltd to develop its brand and bring its products to the international market. In 2019, ViFarm plants to achieve three targets, which are (i) to become among top agriculture producers and suppliers; (ii) to receive technologies, methods and devices for hi-tech agriculture; and (iii) to establish itself Viet Nam's most efficient and practical high-tech agriculture institute. Hopefully, the company in the future will rise beyond the name of a pure agricultural producer, bring high-tech agriculture to many more local farmers and localities, change the Vietnamese farming ideology and bring "made in Vietnam" agriculture products to the international market■

Đặng Toàn

▲ *The photo shows ViFarm's hydroponic vegetable plantation system*

Siemens installs intelligent road solutions for Hanoi

In cooperation with Hanoi People's Committee, the Department of Transport and Department of Traffic Police of Hanoi, Itelco Technology JSC. and FPT Group, Siemens has equipped the Phạm Hùng - Mễ Trì intersection with its state-of-the-art traffic control technology.

The installation replaced the existing signal heads with Siemens Very-Low-Power signal heads. In comparison to the previously installed signal heads an exceptional overall power consumption reduction of roughly 70 % is achieved. In addition to the new traffic lights a compatible Siemens controller "sX" (Smart Crossing) was installed. A controller is always needed as a command platform for the signal heads. It ensures that the traffic lights are operating correctly, determines the length of the green and red times and takes care of the safe operation of the intersection. The sX controller is currently the most sophisticated controller the Siemens product portfolio offers. Various traffic detectors (e.g. induction loops, radar, video detection) can be connected to it that enable demand-based traffic control. Furthermore, it can be connected to other controllers at different intersection, which supports a holistic city traffic management system.

Siemens is currently running this intersection as a pilot project – VAST (Video Analytics for Smart Traffic). As a next step the integration of video-based traffic detection is planned, which enables the preparation and implementation of optimized signal plans. This new solution is intended to be rolled out to other parts of the city to improve the overall traffic conditions of the capital city.

▲ *Traffic signal system at the intersection of Pham Hung - Me Tri, Hanoi*

▲ *Traffic signal control cabinet is installed by Siemens Corporation*

Motorbike is the most popular mode of transport in Hanoi. Statistics show that more than 90% of the registered vehicles are motorbikes. During peak hours, the streets are congested by thousands of motorbikes per intersection. Siemens' developed traffic control via video-analytics offers a customized solution for these conditions. Traffic is detected and traffic light timings adjusted accordingly throughout the whole city to allow best possible traffic flow. For example, during peak-hour morning traffic a green wave can be enabled in the main travel direction, whereas in the evening peak-hour the opposite direction can be prioritized. This increases traffic throughput at intersections and allows the traffic to flow through the city, lowering overall travel time as well as noise and air congestion. Furthermore, these improvements in traffic conditions will foster better discipline, encourage road safety in road users, and ultimately improve thequality of life for city dwellers.

"Through close collaboration amongst Siemens and various parties, we are extremely proud to deliver such innovative and green traffic solutions to the city of Hanoi. This is the answer to the increasing demand of traffic management and environmental protection for the citizens." said Dr. Pham Thai Lai, President and CEO of Siemens Vietnam■

Phạm Tuyên

● Quảng Trị licences six renewable energy projects in two months

▲ *Illustrative photo*

The province of Quảng Trị has approved investment plans for four wind and two solar power projects, whose costs amount to more than 7.4 trillion VND (319.1 million USD). Among these projects are Gio Thanh Energy JSC's 50 MW Gio Thanh 1 solar electricity plant, which spans 65 ha in Gio Linh District's, Gio Thanh Commune. The investment is estimated to exceed 1.1 trillion VND (47.4 million USD).

Meanwhile, SECO JSC has been given approval to carry out the 50 MW Gio Thanh 2 solar power plant project. The plant, covering 60 ha in Gio Linh's Gio Thanh and Gio Hải communes, will be built at a cost of some 1.1 trillion VND.

Local authorities have also allowed the construction of the Hướng Phùng 3 wind power plant in Hướng Hóa District. The Hướng Phùng wind power limited company plans to build the 30 MW facility on 9 ha of land, with investment exceeding 1.58 trillion VND (68.12 million USD).

GELEX Quảng Trị Energy JSC was also permitted to invest nearly 3.66 trillion VND (157.38 million USD) into GELEX 1, 2 and 3 wind power plants, with capacity of 30 MW each. The projects will cover some 24 ha in Hướng Hóa and Đakrong Districts.

Energy development is a priority in Quảng Trị, with wind power projects mostly located in the Western mountainous area and solar power ones on coastal sand dunes. The Province has zoned off three key areas for wind power, which cover more than 6,700 ha. Its total wind electricity output is expected to reach 800 MW in the near future with the operation of four more plants. Three solar projects are underway in Quảng Trị at the moment, with the first solar power plant of the province expected to be fully operational by the end of June■

Phương Hạnh
(VNA source)

● Hồ Chí Minh City moves to become energy efficient

By taking various measures, Hồ Chí Minh (HCM) City aims to save 1.5 - 2 percent of commercial electricity output each year as from 2019. The municipal People's Committee said the City hopes to save at least 10 percent of the annual electricity cost at agencies and organisations while big power consuming businesses will save at least 1 percent of the electricity used for each product unit compared to last year.

Among the planned measures, HCM City will replace normal decorative and lighting lights with energy-efficient ones, carry out energy-saving solutions at all new public lighting facilities, and pilot replacing compact light bulbs with LED lamps.

It is also encouraging local households and service providers to save electricity by using energy-efficient devices, switching off unnecessary electrical devices, making use of natural light and ventilation, and reducing the use of electricity-intensive appliances during peak times.

The HCM City Power Corporation, a subsidiary of the Vietnam Electricity (EVN) group, has also worked with organisations and local authorities to conduct communications activities at residential areas. The Corporation said in 2018, more than 727,000 local households engaged in the power saving programme, saving nearly 400 million kWh of electricity worth some 800 billion VND (34.5 million USD) and cutting down the emission of 322,000 tonnes of CO_2.

As of the beginning of 2019, nearly 1,000 households, agencies and businesses in HCM City had installed solar panels on their roofs with the total capacity of 11,382kWp■

Phương Linh
(VNA Source)

FEMALE SCIENTISTS COLLECTIVELY WON THE KOVALEVSKAYA AWARD IN 2018:

Passionate about scientific research for the environment

With outstanding achievements in the field of scientific research, recently, a group of female scientists in the Department of Environmental Technology of the University of Science - Vietnam National University (VNU) has honored to collectively receive the Kovalevskaya Award in 2018 awarded by the Vietnam Women's Union (VWU). On this occasion, The Vietnam Environment Administration Magazine (VEM) has interviewed Assoc. Prof. Dr. Nguyễn Thị Hà, Head of the Department of Environmental Technology on the achievements in research and application of science of the staff members of the Environmental Technology Department.

✶***VEM: Congratulations to you and your colleagues for being honored to receivethe Kovalevskaya Award in 2018. Can you share your feelings when receiving this honourable award?***

Ms. Nguyễn Thị Hà: We are very lucky to work at the University of Science - the leading educational institution in the country on basic science research and education, and applied sciences. We have received the investment, support and priority to work in the best possible environment. Receiving the Kovalevskaya Award in 2018 is considered an important milestone in our scientific research career. It is the motivation for us to continue to try, to maintain our passion and enthusiasm for doing research and teaching, contributing to the development of the society.

The Kovalevskaya Award bears the name of the eminent Russian mathematician of the 19th Century Sophia Kovalevskaya (1850 - 1891). The Kovalevskaya Awards are held annually to honor teams of female scientists and individuals with outstanding achievements in research and application of science. This Award started in Việt Nam since 1985, with the participation of Vietnamese female scientists in the field of natural sciences. As of 2018, there were 19 teams and 48 individuals of female scientists who were awarded this award.

▲ *Assoc. Prof. Dr. Nguyễn Thị Hà (middle) shared and exchanged with the female students in the Kovalevskaya Awards Ceremony in 2018*

✶***VEM: Can you tell us the highlights of the research work cluster registering the Kovalevskaya Award and the application of the research in practice?***

Ms. Nguyễn Thị Hà: The work cluster that we registered to receive the Kovalevskaya Award in 2018 focus on two main research directions: Technical technology on waste treatment and utilization; Environmental quality analysis and assessment. With these two directions, in the past 10 years, we have chaired 33 topics and participated in 65 scientific research topics at all levels, from VNU level to international cooperation. Also during this period, 17 female staff of our department contributed 24 domestic books/textbooks; 3 international books; 30 articles published in International Scientific Journals... In particular, some of our female staff was also invited to provide reviews for specialized scientific journals and participate in seminars at home and abroad.

In Việt Nam today, wastes have increased in volume and types, while land for landfill is getting less. Therefore, the development orientation of environmental technology in particular and of technology in general does not only stop at the waste treatment to meet the discharge standards

▲ *The female scientists of the Department of Environmental Technology received the Kovalevskaya Award in 2018*

to the environment, but also research and offer technologies to reuse, utilize, recover and turn waste into useful products and resources. Over the years, we have been actively contributing products and useful solutions to utilize waste from various waste sources. Some typical topics can be mentioned as: Utilizing paper pulp as a base for growing mushrooms or making use of waste sludge in ceramic glaze production (World Bank's Việt Nam Innovation Day Award on Environment 2005); Researching and applying modeling techniques in technology for anaerobic organic wastewater treatment into practice in Việt Nam; Researching and developing a model of feasible pilot technology to handle heavy metal industrial sludge in the direction of recovering resources, saving energy... In addition, there are many topics that have been implemented, bringing practical effects to life.

Besides, the research direction on analyzing and assessing environmental quality is also very focused due to high applicability. Currently, analytical technologies, waste treatment technologies, etc., all need methods of analysis and assessment to see the effectiveness, or assess the characteristics of materials and products created from different sources of waste. The outstanding work of this research direction is the research topic of "The test kit and the method for fast determination of ammonium in the water sources for domestic use". The products of the project were granted the Exclusive Patent in 2015 by the National Office of Intellectual Property of Việt Nam, the Ministry of Science and Technology.

In the coming time, we will continue to develop the two research directions above and together with the Faculty of Environment to promote research on environmental toxicology and food toxicology to assess the impacts and effects of environmental pollution and food quality for human health and ecosystems. Some female staff of our department are the main members participating in the international cooperation project with Tokyo University in Japan on the "On-site Chemical Analysis Training Program" to increase resources for the assessment of environmental quality and food safety.

✶VEM: To inspire a passion for scientific research for students, what methods do you and your colleagues have to convey to young generations?

Ms. Nguyễn Thị Hà: We often tell our students: "If you are passionate about finding new things, discovering things that help society, then you start. You cannot become someone in your life immediately, but step by step, with the guidance of those who go ahead, you will achieve the results you expect."

With the educational philosophy: "Learn to apply, learn from practice", in the past years, we have been actively innovating teaching methods, facilitating and helping students to increase autonomy, creativity and spur their love for scientific research through learning about current environmental issues. This will inspire students to learn, explore and be passionate about scientific research.

In the coming time, we will actively participate in compiling the curriculum framework, subject syllabi, textbooks, lectures for all levels of study, and supporting other universities/institutes to develop the environmental training program, contributing to spreading and developing this field in the whole country to contribute highly qualified human resources to the national strategy on environmental protection■

✶VEM: Thank you!

Nguyễn Hằng
(Implemented)

THE NATURAL EDUCATION AND EXPERIENCE CENTRE: A dream comes true

The Natural Education and Experience Centre (NEEC) is a dream-come-true for the Centre of Biodiversity Conservation and GreenViet, which received the Environment Award 2017. After three months of development (from September 1 to December 25, 2018) with lots of determination and efforts as well as support of the local community, GreenViet on December 28, 2018 opened its NEEC. Deputy Director of GreenViet Lê Thị Trang speaks to the Vietnam Environment Administration Magazine (VEM) about the natural education centre.

✶***VEM: What was the original idea of the education Centre?***

Ms. Lê Thị Trang: The idea of a natural education and experience centre came into our mind the first time in late 2015. Since then, all preparations had been completed, and with the support of businesses, organizations and inviduals, the project was materialized. In 2018, GreenViet, in cooperation with Đà Nẵng's Department of Education and Training (DoET) and consultants, designed a number of experience and education activities, which included a survey on 69 students and 15 teachers at Lý Thường Kiệt and Lê Độ lower secondary schools; three officials of the Sơn Trà and Hải Châu Districts' bureaus of education and training; and one official of the City's DoET. Besides, the City's DoET also assigned a 10-member working group to help GreenViet build up its training programme and curriculum.

Based on the survey responses, GreenViet was able to develop the outlines and detailed lessons for the subjects with the help of the DoET's working group. To do so, GreenViet organised a field trip for the working group, in which they worked together to complete the curriculum with four subject outlines and four detailed lessons. The lessons then were tested on students from grade six to grade nine at the Lý Thường Kiệt and Hải Châu lower secondary schools on January 23 - 25, 2018. A total of 82 students and seven teachers joined the test and gave their feedback to improve the curriculum. The lessons were also used and multiplied in 103 other natural experience programmes conducted on the Sơn Trà Peninsula for nearly 1,000 students and tourists. In May 2018, GreenViet co-operated with the City's DoET to organise the natural experience programme for 240 handicapped students in the City. The duplication of the natural education has also created opportunities for the City to introduce its natural biodiversity to the community and raise public awareness of environmental protection and preservation.

✶***VEM: Can you share the details of how the Centre originates its activities and what are the purposes of those activities?***

Ms. Lê Thị Trang: The Centre covers an area of 100 square meters with five major components. The first component is the general section, which gives the introduction and general information about Sơn Trà Peninsula. The second component displays information, features and characteristics of animals and plants living on the peninsula. The third section provides the features, characteristics and behaviors of langurs. The fourth division displays the threats that could destroy the environment of the Sơn Trà Peninsula. And the fifth section shows the solutions about how the local community and authorities can work together to preserve the environment, nature and biodiversity of the Sơn Trà Pen-

▲ *Ms. Lê Thị Trang (Deputy Director of the Natural Education and Experience Centre) loves doing research and preserving langurs*

insula. Besides, the Centre is also facilitated with a 200 square metres of plants and playground for children.

The NEEC not only helps strengthen the role of the Sơn Trà Peninsula's natural conditions towards education but also encourage the local community to become more environmentally friendly and have efforts and contributions to better preservation of the nature and biodiversity on the Peninsula. Those efforts and contributions can be made in the form of many activities such as growing more plants to restore the living conditions for langurs, collecting wastes and trash to keep wild animals against diseases, cutting the number of inappropriate behaviors and actions that could damage the conditions of the peninsula, and preserving the natural ecology under pressure from socio-economic development activities.

Therefore, NEEC is developed to help local people and tourists become environmentally friendly through learning activities, explorations and natural experiences. The Centre is where local people and children learn Son Tar Peninsula's features of nature and biodiversity, raise their awareness of human impacts on the nature, and build up their environmentally friendly living style. To realize those targets, Green Viet and the local community have built the first natural education and experience Centre at 70 Lee to Ten, Son Tar District, and A Nan - very near the Son Tar Mountain. The Centre is expected to receive 3,000 students from all primary and lower secondary schools in A Nan to learn Son Tar Peninsula's natural conditions.

✶VEM: To make the dream come true, Green Viet has surely received support from organizations, businesses and individuals who has the love for nature. Can you reveal the plan to raise resources for the centre in the near future as well as its operation?

Ms. Lê Thị Trang: Fifty-eight organizations and individuals have donated and invested in the development of the Sơn Trà NEEC with total investment of more than VND 800 million. Among those investors, Hòa Bình Construction Group has made the biggest investment worth VND 600 million and it is followed by AA Interior Design Furniture Corporation with VND 100 million and the Community Fund for Conservation and Development of Sơn Trà Peninsula with VND 30 million. Beside those organizations, more than 100 volunteers have helped the local authorities clean the environment and make it better looking. Those effective efforts prove the local community, business and authorities of Đà Nẵng are very keen on the role of natural education and experience, especially when they see how important the Sơn Trà Natural Reserve is for the sustainable development of Đà Nẵng City. It is considered necessary to make further investment in natural education for new cities such as Đà Nẵng so that those cities are able to create their own highlights and realize long-term sustainable development values.

With the support of the local community, NEEC will become a useful and meaningful learning centre for all students in Đà Nẵng and neighbouring provinces as well as tourists. With appropriate awareness and understanding, environmentally and naturally-friendly actions will be spread and multiplied to make Việt Nam forever green. The Centre plans to organize a lot of activities and events in 2019 such as launching a free-of-charge training programme for 3,000 students with average of 100 students taking part in the programme every week; drawing promotional pictures on animals and plants once a month; growing plants once a year and taking care of plants twice a year; and collecting trash on the Sơn Trà Peninsula every quarter to protect the nature and environment■

✶VEM: Thank you!

Nguyễn Thị Hằng
(Implemented)

▲ *Tourists and children visit the first Natural Education and Experience Centre in Đà Nẵng*

Ensuring consistency and uniformity in management of endangered, precious and rare forest flora and fauna in Việt Nam

Nguyễn Thị Nga
Ministry of Agriculture and Rural Development

On January 22, 2019, the Việt Nam's Government issued Decree No. 06/2019/ND-CP on the management of endangered, precious and rare forest flora and fauna and the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Decree No. 06/2019/ND-CP). The Decree was issued to ensure the consistency and uniformity not only with Vietnamese Law on Forest and biodiversity protection and development, but also in accordance with the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) of which Việt Nam is a member.

Decree No. 06/2019/ND-CP provides the List of endangered, precious and rare forest flora and fauna species; the regime of management, protection, order and procedures for use of endangered, precious and rare forest flora and fauna species; raising common forest animals; enforcing the CITES in Việt Nam. The Decree applies to domestic agencies, organizations, households and individuals in the country; Vietnamese residing overseas and foreign organizations and individuals having activities related to endangered, precious and rare forest flora and fauna and endangered wild animals and plants belonging to the CITES Appendices; raising common forest animals in the Vietnamese territory.

THE LIST AND REGIME OF MANAGEMENT OF ENDANGERED, PRECIOUS AND RARE FOREST FLORA AND FAUNA; RAISING OF COMMON ANIMALS

▲ *Rescue workers at Bidoup - Núi Bà National Park (Lâm Đồng Province) release yellow-cheeked gibbons to the forest*

The Decree stipulating the list of endangered, precious and rare forest flora and fauna includes: Group I, consisting of endangered forest flora and fauna species that are threatened to become extinct, is strictly prohibited from exploitation and use for commercial purposes and species of CITES Appendix I with a natural distribution in Việt Nam (Group IA: Forest flora; Group IB: Forest fauna); Group II, consisting of forest flora and fauna species that are yet to be threatened of extinction, but are at risk of being threatened if not strictly managed, is restricted from commercial exploitation and use and species belonging to CITES Appendix II with a natural distribution in Việt Nam (Group IIA: Forest flora; Group IIB: Forest fauna).

For the protection of endangered, precious and rare forest flora and fauna, activities of hunting, shooting, catching, exploiting, rearing, trapping, killing, storing, processing, transporting and trading of endangered, precious and rare forest flora and fauna species must not negatively affect the existence, growth and development of those species in nature. All activities of hunting, shooting, catching, exploiting, raising, trapping, killing, storing, transporting, trading, processing, advertising, dis-

playing, exporting, importing, temporarily importing for re-export and temporarily exporting for re-import of endangered, precious and rare forest flora and fauna species must be managed to ensure lawful origin. The regular and concentrated habitat areas of endangered, precious and rare forest flora and fauna species are studied as a basis for establishment of special-use forests. Organizations, households and individuals participating in activities of production, work construction, investigation, exploration, research, sightseeing, tourism and other activities in forest areas with endangered, precious and rare forest flora and fauna species must comply with the provisions of the Decree and other relevant laws.

Activities of scientific research on conservation and sustainable development of endangered, precious and rare forest flora and fauna species must be carried out according to the approved schemes and projects and comply with the Regulation on forest management. Before conducting scientific research activities, they must report in writing to forest owners and provincial-level state management agencies in order to monitor the implementation process.

Organizations and individuals that raise common forest animals must satisfy the following conditions: To ensure the origin of legally raised forest animals according to law provisions; to ensure safety for people; to implement regulations on the environment and veterinary; to implement the recording of the legally raised animals monitoring book; Within a maximum of 3 working days from the date of bringing ordinary forest animals to raising establishments, organizations and individuals must send notices to local Forest Protection agencies for monitoring and management according to the provisions of Law.

In addition, the Decree also specifies the handling of cases of endangered, precious and rare forest animals that encroach upon or threaten human life and property. In cases where endangered, precious and rare forest animals threaten to seriously harm human properties or lives, organizations and individuals must apply measures to repel them, with minimizing hurting the animals, and immediately inform the Forest Protection agency or the nearest commune or district People's Committee. In case of endangered, precious and rare forest animals threatening to directly attack human life outside special-use forests and protection forests, after applying the repelling measures, but not effective, the Chairman of the district People's Committee should decide and direct the trapping, catching and shooting of those animals.

CITES IMPLEMENTATION IN VIỆT NAM

According to the Decree, the extracting of natural specimens of CITES Appendix I is carried out in the following cases: To serve scientific research projects and themes; to create original seed sources for breeding and artificial cultivation; to serve foreign affairs purposes under the Prime Minister's decisions. The extracting of natural specimens of CITES Appendix II is carried out in the following cases: To serve scientific research projects and schemes; to create original seed sources for breeding and artificial cultivation; to serve foreign affairs purposes under the Prime Minister's decisions; to serve sustainable trade in accordance with the law.

Extracting organizations and individuals must have extracting plans according to Form No. 01 and Form No. 02 in the Appendix promulgated together with the Decree. Before conducting extracting activities, it is necessary to notify the provincial state management agency on forestry or fisheries to supervise the implementation; to ensure that the extracting does not negatively affect conservation and sustainable development of the population; to strictly comply with the provisions of Vietnamese law and CITES on extracting of specimens of endangered wild animal and plant species.

The provincial state management agencies on forestry shall inspect and supervise the extracting activities and origin of specimens of wild forest animals and plants of Appendix I and II of CITES in the localities. The provincial state management agencies on fisheries shall inspect and supervise the extracting activities and origin of specimens of aquatic species of CITES Appendix I and II in the localities.

For the raising and planting of endangered wild animals and plants under CITES Appendices for non-commercial purposes, it is necessary to ensure the conditions: There are approved scientific research projects and schemes and raising plans, according to the following Forms: 04, 05, 06 and 07 in the Appendix issued with the Decree; raising and planting establishments are suitable to the growth characteristics of cultured species; ensuring safety for people and the cultured species, environmental sanitation, disease prevention; Ensuring lawful seed and breed sources (lawful extracting; specimens confiscated post-processing according to the provisions of law; lawful imports, or specimens from other lawful raising or planting establishments); In the process of raising and planting, it is necessary to make a raising and planting monitoring book according to Form No. 16 and Form No. 17 in the Appendix promulgated together with the Decree; and at the same time to periodically report and are subject to inspection and supervision by

the provincial state management agencies on fisheries and forestry.

For the raising and planting of endangered wild animals and plants under CITES Appendices for commercial purposes, it is necessary to ensure the conditions: For animals, to ensure lawful breed sources (lawful extracting; specimens confiscated post-processing according to the provisions of law; lawful imports, or specimens from other lawful raising establishments); Stables and farms are built in accordance with the characteristics of cultured species, ensuring safety conditions for people and the cultured species, environmental sanitation, disease prevention; The cultured species is announced by CITES Scientific Authority of Vietnam with successive reproductive abilities over many generations in a controlled environment; and is certified in writing that the breeding and growth does not affect the survival of the species and related species in nature; There are raising plans according to Form No. 04 and Form No. 06 in the Appendix issued together with the Decree.

For plants, to ensure lawful seed sources (lawful extracting; specimens confiscated post-processing according to the provisions of law; lawful imports, or specimens from other lawful planting establishments); the planting establishments are consistent with species characteristics; There are planting plans according to Form No. 05 and Form 07 in the Appendix issued together with the Decree. In the process of raising and planting, it is necessary to make a raising and planting monitoring book according to Form No. 16 and Form No. 17 in the Appendix promulgated together with the Decree; to periodically report and be subject to inspection and supervision by the provincial state management agencies on fisheries and forestry■

Luring social organisations to improve water management in the Cửu Long Delta Region

Nguyễn Thị Phú Hà
WWF Việt Nam

In recent years, the Cửu Long (Mekong) Delta Region has become key to Việt Nam's socio-economic development. Though it accounts for only 11% of the country's total area, the region contributes nearly one-fifth of the total gross domestic product (GDP), including key export products like rice (more than half of Việt Nam's total output), fishery products (65% of the country's total production) and fruits (70% of the country's total production). The Delta is also well-known for its abundance of biodiversity with more than 480 kinds of fish, 400 kinds of birds, 4 Ramsar wetland areas and two world-standard biosphere reserves that turn the region into one of key economic and biodiversity hubs in Việt Nam and the world. However, the Delta is facing some challenges.

Lower quality of water currents, water and aquaculture products as dampened by the construction of upstream hydropower plants and irrigation system: Countries in Mekong River's upstream region have been planning to build a large number of hydropower plants on the river's mainstream. This has reduced drastically the volume of alluvium, sand and mud flowing with the river to the Cửu Long Delta, leading to complete change of the hydrological mechanism in the downstream region and lessening the Delta region's adaptability to climate change.

Erosion of the Delta, river banks and coastal areas has increased due to over-exploitation of sand, rocks and underground water: Studies of the World Wildlife Fund (WWF) in 2013 - 2015, via more than 2,000 satellite photos of the Cửu Long Delta, showed that 48% of the Eastern coastal area - which belongs to Bến Tre and Trà Vinh provinces) - had been lost to the sea while only 22% of the area had encroached. In the western coastal area, which is the Cà Mau Peninsula, 70% of the total coastal area was claimed by the sea. Though it's hard to make an accurate measure, the whole Cửu Long Delta Region's land subsidence pace is estimated at 0.5 - 2.5 centimeters each year. The areas with the highest subsidence pace are Hồ Chí Minh City and the provinces of Cà Mau, Bạc Liêu, Sóc Trăng and Trà Vinh.

Water pollution caused by intensive farming and fishery, and by the development of industrial parks and riverbank cities: The use of two million tons of chemical fertilizers and nearly 500,000 tones of plant protection products (pesticides) may contaminate the water with the leftover of toxic chemicals. The deployment of different large-scale aquaculture projects has laid a huge amount of wastes to the Tiền and Hậu rivers, which

▲ *Climate change and sea level rise are causing salinisation and flood, which are listed among challenges the Cửu Long Delta Region is encountering*

raises the level of water contamination to a critical level, damages the quality of water and creates broad disease infection. The amount of waste water produced by 12.7000 enterprises is not processed completely before being disposed to rivers, channels and canals, leading to the lower quality of fresh water, causing diseases for aquaculture projects and health issues for local people.

Land salinisation and floods caused by climate change and sea level rise: At the moment, most of river mouths in the Cửu Long Deltra Region are salinised in a distance of 50 - 70 km, especially Vàm Cỏ River that is salinised by more than 90 km, and the problem has made life tougher for local residents. In the first five months of 2017, land salinisation caused VND 8 trillion worth of damages to local people. More specifically, 11 of the 13 provinces and cities in the Cửu Long Delta Region had to declare they were suffering from a natural disaster. Data showed that nearly 500,000 ha of total area growing rice, vegetables and fruits was damaged; more than 82,000 ha of total area of shrimp farms was either destroyed or affected; and around 390,000 households were in lack of surface water…

1. CHALLENGES FOR WATER MANAGEMENT IN THE CỬU LONG DELTA REGION

In 2017 and 2018, WWF, the Vietnam Rivers Network (VRN) and the People's Aid Co-coordinating Committee (PACCOM) under the Vietnam Union of Friendship Organizations (VUFO) with other stake-holding agencies did some research and launched a test project for the Cửu Long Delta Region to lure social organizations and enhance their efforts in water management. Based on actual experiences and activities of the project, the following are problems the delta region encounters:

Ineffective making of water management policies and regulations

Overlap of authorization between the Ministries of Natural Resources and Environment (MONRE), Agriculture and Rural Development (MARD), Construction (MOC), Industry and Trade (MOIT) and Health (MOH): MONRE is responsible for overall water management, issuing standards on management of waste water and on the quality of surface and underground water. However, supply of fresh water for the rural area, managing the irrigation system and natural disaster such as flood and drought are handled to the MARD. In the urban area, supply of water is managed by the MOC; operating and managing reservoirs are carried out by the MOIT; while safety and sanitation standards are issued by the MOH.

Ineffective law enforcement in the local areas: Unclear differentiation of duties among management agencies makes it difficult to license and manage the supply of surface and underground water, to tackle the disposal of waste water into the processing system, and to monitor water contamination. For example, irrigation stations in the rural area may license businesses and organisations to dispose waste water to the irrigation system, but they are incapable of evaluating the quality of waste water imported to the station. Some local authorities have been focusing on economic growth and paid less attention to environmental protection, especially water preservation. Therefore, many industrial parks and factories in the Cửu Long Delta Region have dodged the law by either developing inactive

waste water processing stations or running them in the lowest operation mode when inspected.

Meanwhile, the management and control of water contamination is in a lack of support, modern technology and co-operation between local authorities and community, which is worsening the condition of rivers and channels in the delta region.

Deficient engagement from social organizations and community and water management

There are very few specific regulations and policies to lure social organizations and communities in water management despite the efforts of the Party and the State. On the other hand, social organizations and communities have not been supported and encouraged to implement their ideas and activities in water preservation.

Social organizations are often successful with small-scale projects in the size of commune and district. Some projects can be named as the "Community participation in irrigation management" carried out in An Giang Province and "Self-management of the river stretch" implemented in the provinces of Thái Bình, Nam Định and Thanh Hóa. However, due to lack of financial and human resources, it is difficult for such activities to change the Central policy despite their good outcomes.

Meanwhile, social criticism has yet been mentioned in legal documents on environmental protection and natural resources management, therefore, social organizations are barely permitted to discuss policies, decisions and projects that are implemented by the Central and local Governments.

Unclear role of women and minority group in water management

Females contribute 30 per cent of workload in farming and 70 per cent of workload in husbandry in the Cửu Long Delta Region. They are often told to stay home and do chores like cleaning, cooking and babysitting, so they have little access to vocational training and society and community activities. In some ethnic minorities such as Khmer (accounting for 6 per cent of Việt Nam's total population) and Champ (2 per cent), women are more powerful in making decision for the whole family because of the matriarchy. However, they still rely on men to work on community development issues. Those minorities depend more on natural resources such as water and land because the infrastructure, facility and irrigation system are underdeveloped while agriculture production is short of financial support.

Therefore, the Water Management Network has been providing assistance for some minority groups like people with disabilities, HIV-positive people and poor households to get access to Central and local Governments' policies and to make changes to their living standards. The Network aims to make those groups involve more in water management.

2. POLICY-MAKING RECOMMENDATIONS

The rapid socio-economic development and climate change in recent years have brought challenges to the Cửu Long Delta Region. To resolve the problems mentioned above, social organizations must be empowered in managing water resources in the Delta Region, helping the region develop sustainably in the future.

The Water Management Network must keep operating with key members stationing in all provinces and connecting two contacts: the River Network in Hà Nội and the Mekong Net in the Southern city of Cần Thơ. The Network should attract more members, who are local individuals and groups, social organizations and non-government organizations to enhance efforts in sharing information, implementing ideas and projects on a larger scale on water management to help local people earn for living.

The network must cooperate closely with the Environment and Climate Change Network under the Vietnam Union of Science and Technology Associations (VUSTA) to connect agencies that focus on environmental and natural resource protection and management as well as encourage associations and unions in Cửu Long Delta provinces to improve their water management and social criticism.

Forums and talks should be held by provinces and districts so that social organizations and local communities are able to raise their ideas, concerns to Government agencies and international organizations in water management.

There should be a regulation on the role of the community, social organizations, local authorities and Government agencies when local people and social organizations join hands in environmental protection and water management.

Policies related to social organizations must be improved. The quality of government's administrative units must be better while woman organizations are able to make their own choice to improve the quality of life for local people■

Hồ Chí Minh City invites investment into waste-to-energy technology

▲ *The ceremony to begin the construction of a waste-to-energy plant of the Tasco JSC in Củ Chi District, Hồ Chí Minh City, on November 22, 2018*

Facing the huge pressure of waste treatment, Hồ Chí Minh City has been strongly inviting investment into waste-to-electricity technology so as to protect the environment and boost energy efficiency. Director of the municipal Department of Natural Resources and Environment Nguyễn Toàn Thắng said more than 9,000 tonnes of solid waste are released in HCM City each day. About 76 percent of the volume is buried, 14.7 percent is recycled, and 9.3 percent is burned. The City is calling for investment in waste treatment using advanced technologies, especially waste-to-electricity one, so as to reduce the rate of buried waste to 50 percent in 2020 and 20 percent in 2050. Local authorities have permitted a project using plasma gasification technology to convert waste into electricity. The project, invested by the Trisun Green Energy Corporation, is able to handle 2,000 tonnes of waste per day when operational.

In late 2016, the Hydraulic power - machinery Co. Ltd was licensed to pilot the Gò Cát waste-to-electricity factory. This plant was put into operation on March 30, 2017 and generated electricity to the national grid nearly one month later, on April 22.

This factory has compressed 500 tonnes of non-toxic industrial waste into fuel cubes and converted 35 tonnes of waste into 7 million kWh of electricity. Its treatment cost is estimated at 1.5 million VND (64.8 USD) per tonnes while the power selling price is about 10.5 US cent per kWh.

Director of the Company Nguyễn Gia Long said waste-to-energy factories can be built on small scale in communes and districts to help address local waste problems, thus reducing the transportation of waste from downtown areas to the outskirts for treatment.

After the success of the Gò Cát plant, his business is waiting for permission from the HCM City administration to take a step further in the direction. Accordingly, garbage will be compressed into cubes at the Phước Hiệp waste treatment complex in Củ Chi district and then delivered to the Gò Cát factory for power generation. The Company envisions the production of 20MW of electricity from every 1,000 tonnes of solid waste each day.

Meanwhile, on November 22, 2018, the Tasco JSC began the construction of a waste-to-electricity plant at the Tay Bac solid waste treatment complex in Củ Chi District. The factory, invested with nearly 1 trillion VND, is scheduled to become operational after 24 months and able to handle 500 tonnes of waste per day.

Mr. Châu Phước Minh, a representative of Tasco, said the factory will apply a highly efficiently technology that will not only convert waste into power but also make use of waste to produce organic fertilizer, as well as ash and cinder to make unbaked bricks■

Thanh Huyền
(VNA source)

Working together to address the issue of marine debris in the ASEAN region

The special ASEAN Ministerial Meeting on marine debris is the first ministerial-level event held in Bangkok, Thailand - as the Chair of ASEAN for 2019, with the goal of strengthening cooperation to address the marine debris issue in the ASEAN region, at the same time, jointly acting on a global scale to prevent and reduce marine pollution, promoting partnerships for sustainable development.

▲ *Deputy Minister of MONRE Trần Quý Kiên (5th from the left) takes photos with delegates of ASEAN countries attending the Conference*

ADOPTING IMPORTANT DOCUMENTS ON REGIONAL COOPERATION FOR COMBATING MARINE DEBRIS

The Conference was attended by representatives of 10 ASEAN member countries and the ASEAN Secretary-General. The meeting of ASEAN senior officials took place before the Conference. The meeting between the Ministers of ASEAN member countries and the partners was held after the Conference, specifically with representatives of the European Union (EU), Sweden, the United States, Japan, Korea, China, Norway, and international organizations: World Bank (WB), Global Environment Facility (GEF), United Nations Environment Programme (UNEP), International Union for Conservation of Nature (IUCN) and World Wildlife Fund (WWF).

At the ASEAN Ministerial Meeting, the Ministers and the heads of the delegations considered and agreed in principle two important documents on regional cooperation for combating marine debris, including: The Bangkok Declaration on Combating Marine Debris in the ASEAN Region and the ASEAN Framework of Action on Marine Debris. Ten member countries agreed to conduct appropriate domestic procedures to submit to the heads of state for approval at the 34th ASEAN Summit held in June 2019 in Thailand.

The Bangkok Declaration on Combating Marine Debris in the ASEAN Region had offered key contents such as: By 2025, strengthening collaboration between ASEAN member countries and the partners to prevent and reduce marine debris, especially from land-based waste sources; Encouraging an integrated approach from land to sea to prevent marine debris and strengthen national laws, regulations and regional and international cooperation, including policy dialogues and related information sharing; Promoting private sector participation and investment in marine debris prevention and reduction; Promoting the implementation of new solutions to strengthen plastic value chain and improve resource efficiency by prioritizing approaches such as circular economy, the 3R (reduce, reuse and recycle), encouraging support of external partners for capacity building of ASEAN member countries on this issue; Strengthening research capacity and applying scientific knowledge on marine debris prevention; Raising public awareness and education to change behavior towards preventing and reducing marine debris, etc.

The ASEAN Framework of Action on Marine Debris has declared four main groups of actions, namely: Policy support and planning; Research, innovation, and capacity building; Public awareness, education, and outreach; Private sector engagement and encouraging ASEAN member countries to implement this Framework of Action promptly.

In the meeting between the Ministers of ASEAN member countries and the partners, the Ministers announced the results of the Conference and received the attention and support of the partners on cooperation in the settlement of marine debris issues in the region. Việt Nam, the United States and organizations of World

Bank, UNEP, IUCN had actively cooperated with countries in the region on marine debris treatment. At the meeting, Japan announced the establishment of regional Knowledge Hub on Marine Debris located in Indonesia and a branch in Thailand.

ACTIVITIES OF VIETNAMESE DELEGATION AND PROPOSALS

Vietnamese delegation actively participated in activities in the framework of the Conference. In the discussion session of the Ministers, the delegation clearly stated Việt Nam's viewpoint on resolving marine environmental issues in the spirit of Resolution No. 36-NQ/TW dated October 22, 2018 of the 8th session of the 12th Party Central Committee on Strategy for Sustainable Development of Việt Nam's Marine Economy by 2030, with a vision to 2045. Accordingly, affirming that marine debris has become a global environmental issue, affecting the environment, ecosystem, health, as well as socio-economic development. This issue cannot be solved by only one country, but countries must cooperate closely to work together. Việt Nam has taken many concrete actions at various levels, actively participated in international cooperation frameworks such as approving international treaties on resource protection and marine environmental control, actively contributing at relevant regional and international for to promote efforts to address the marine plastic debris issue. In 2018, Việt Nam proposed to form a global cooperation mechanism for reducing plastic waste at the expanded G7 Summit in Canada, establish Partnership in Marine Plastic Debris Management for the Seas of East Asia at the 6th Assembly of Global Environment Facility (GEF) in Đà Nẵng, establish an International Research Center for Marine Plastic Debris at the World Economic Forum on ASEAN in Hà Nội; In early 2019, proposed to establish a global network to share ocean data at the World Economic Forum in Davos, Switzerland. Việt Nam is willing to cooperate with ASEAN countries and the partners to jointly solve the marine plastic debris issue.

Also in the framework of the Conference, the Vietnamese delegation actively met and discussed with several delegations and ASEAN Secretariat to promote the interest and support of ASEAN member countries, international organizations and partners to the contents of cooperation and initiatives of Vietnam in this area, towards the ASEAN 2020 when Vietnam is the Chair of ASEAN.

Through the Conference and the results of contacting with the partners, the Ministry of Natural Resources and Environment (MONRE) has proposed to the Prime Minister some following contents:

First, consider and agree to adopt the Bangkok Declaration on Combating Marine Debris in the ASEAN region and the ASEAN Framework of Action on Marine Debris, direct the Ministry of Foreign Affairs to assume the prime responsibility and coordinate with the Ministry of Natural Resources and Environment, the relevant Ministries and sectors to prepare documents for Vietnam to attend the 34th ASEAN Summit held in June 2019 in Thailand; including contents of the above adopted documents.

Second, the Ministry of Natural Resources and Environment is assigned to preside over the implementation of Vietnam's initiatives in international forums in the past on marine debris and marine ecology, specifically including the establishment of the global cooperation mechanism for reducing plastic waste, the Partnership in Marine Plastic Debris Management for the Seas of East Asia, the International Research Center for Marine Plastic Debris, and the global network to share ocean data.

The Ministry of Foreign Affairs actively cooperates with the Ministry of Natural Resources and Environment (MONRE) to promote and mobilize international partners and countries to support and fund Việt Nam's initiatives. The Ministry of Planning and Investment, the Ministry of Science and Technology and the Ministry of Finance allocate funds for research and implementation of the above-mentioned international cooperation initiatives.

Third, consider and assign the MONRE, the Ministry of Foreign Affairs, and relevant ministries, sectors and localities to research the possibility and propose to host the events in 2020 when Việt Nam is the Chair of ASEAN, including Special Ministers Meeting of ASEAN countries, East Asian countries and partners on marine plastic debris and ASEAN Forum to jointly act to solve the marine plastic debris issue to enhance Việt Nam's position in the field of seas and oceans. In these forums, Vietnam can propose to adopt documents such as the Declaration on Marine Plastic Debris, Regional Action Plan for Marine Plastic Debris, International Research Center for Marine Plastic Debris, establishment of ASEAN Working Group on Marine Plastic Debris, outreach activities to honor localities, models of initiatives to better reduce, process and manage plastic waste, exhibition of achievements of ASEAN countries on marine environmental protection, establishment of ASEAN Marine Scientists Network, and establishment of the ASEAN Network to sharing seas and oceans data■

Cẩm Uyên

• Japan and UN Environment announce new cooperation to boost knowledge on marine litter in Southeast Asia and India

Japan and the United Nations Environment Programme today announced they will join hands in effort to boost information and know-how to develop countermeasures against marine plastic litter in Southeast Asia and India.

The new initiative, Promotion of countermeasures against marine plastic litter in Southeast Asia and India, will develop a simulation model for plastic leakage and monitor to determine leakage hotspots along the Ganges and Mekong rivers. Additionally in India, provincial and local governments in Mumbai, Agra, and selected cities along the Ganges will receive support to stop plastic pollution. The Government of Japan has earmarked 123 million Japanese yen - over US$1,100,000 - to support the initiative starting March 2019, which be implemented by the UN Environment Programme Asia and the Pacific Office based in Bangkok, Thailand.

In recent years, global attention on marine litter and plastic pollution has surged. However, scientific knowledge on marine plastic litter and effective countermeasures remains insufficient. The Govenment of Japan stressed its determination to tackle marine litter issue with the international community. A spokesperson for the Government said, "Through this initiative, alongside employing Japanese knowledge and experience and collaboration between UN Environment Programme and JICA, we are working to solve the issue of marine plastic litter in Southeast Asia and India. Moreover, we will continue to exercise our leadership in promoting measures by the international community as a whole, including supporting emerging countries in combatting marine plastic litter, to realize a world without pollution".

"The scale of plastic pollution is a major problem affecting our oceans and our planet. With this initiative, we're taking important steps to tackle the problem at its source rather than downstream", said Mr. Dechen Tsering, Regional Director for UN Environment Programme in Asia and the Pacific. "This is an important opportunity for Asian countries to improve knowledge on marine plastic litter. By addressing the problem here, we can make great strides toward a planet free of plastic pollution. We are thrilled to have the support of the Government of Japan to confront this challenge"■

Vũ Nhung
(UN Environment)

• USAID-funded project helps Thừa Thiên - Huế reduce waste on rivers

A non-refundable assistance package provided by the US Agency for International Development (USAID) for the central province of Thừa Thiên - Huế to recycle urban waste has reaped positive results since its launch in August 2018.

The USAID-funded project, worth 53,858 USD, aims to improve the ecological environment and minimise pollution caused by plastic waste in Hue city, local rivers and coastal areas of the province. It is also hoped to contribute to raising public awareness of negative effects of plastic waste on the environment, as well as the importance of promoting efforts to protect the environment.

The project includes a workshop discussing measures to reduce waste on Huong River and waterways, campaigns to collect waste on local beaches, a waste classification programme, and contests to gather initiatives on protecting the environment.

The two-year project sets a target to reduce 5 percent of solid waste discharged into the environment by classifying waste at local schools and promoting the 4R model through extracurricular activities for students. After seven months, more than 1,630 kg of recyclable waste have been collected. To implement the project, the provincial Centre for Social Research and Development (CSRD) also set up trash traps in six locations along Hương river to collect waste, especially plastic garbage. The move has proved its effectiveness while saving costs and labour, said CSRD Director Phạm Thị Diệu Mỹ.

Mr. Nguyễn Trường Sơn, General Director of the Huế Urban Environment and Public Works Joint Stock Company, said local rivers have seen an increasing amount of waste over the years, especially at locations close to markets and trading areas■

Đức Trí
(VNS source)

● Agriculture ministry, IUCN work to protect saola

▲ *Saola discovered in 1999 in Việt Nam*

The Ministry of Agriculture and Rural Development (MARD) and the International Union for the Conservation of Nature and Natural Resources (IUCN) signed a cooperation agreement in Hà Nội on March 28, 2019 on the building of a protection and breeding programme for the saola, one of the rarest and most threatened mammals on the planet.

The signing ceremony took place at a seminar which also introduced a memorandum of understanding on cooperation in the programme.

Speaking at the event, Head of the Department of Protective Forests for Special Use Management Trần Thế Liên said Việt Nam is well known by the international community for its biodiversity with special ecological systems, especially various species located in special-use forests.

In 2006, the Government issued action plans to protect several species, including elephants. By 2012, efforts to develop the elephant population were proved effective, laying a foundation for the preservation of tigers, bears, turtles, and other reptiles until 2020 with a vision to 2030.

Mr. Trần Thế Liên also urged the issuing of urgent policies and action plans to protect the saola, which is now at high risk of extinction. IUCN Representative William Robichaud took the occasion to call for public involvement in the effort.

The saola, scientifically known as Pseudoryx nghetinhensis, is dubbed the Asian Unicorn because it is so rarely seen, looks like an antelope in appearance, and is recognised by its two parallel horns with sharp ends which can reach up to 50 cm in length.

The species was first discovered in May 1992 by a joint team from the MARD and the World Wide Fund for Nature during a trip surveying Vũ Quang National Park in the central province of Hà Tĩnh, near Việt Nam's border with Laos.

Scientists then went on to find an additional 20 creatures later that year. They were also discovered around Truong Son range in provinces of Nghệ An, Hà Tĩnh, Thừa Thiên -Huế, Quảng Nam and other Lao localities. At present, there are saola preservation areas in Quảng Bình, Quảng Trị, Thừa Thiên -Huế and Quảng Nam provinces■

Mai Hương
(VNS source)

● Hà Nội and Japan's Fukuoka cooperate on environmental protection

▲ *A corner of Ngự Hà river*

Hà Nội and Japan's Fukuoka prefecture will exchange experiences, research and apply the technology for rare-earth waste dumps in Fukuoka to small and medium-sized landfills in Hà Nội City.

Hà Nội always values cooperation in environmental protection with Japan's Fukuoka prefecture, Deputy Director of the municipal Department of Natural Resources and Environment Lê Tuấn Định said at a meeting with a deputy director of the Fukuoka Environment Department in Hanoi on April 4, 2019.

At the meeting, the two sides discussed cooperation on improving environmental quality and responding to climate change, with the priority given to better air quality and minimize plastic waste.

Before the meeting, the Hà Nội People's Committee and Fukuoka prefecture's authority on October 11, 2010 signed a memorandum of understanding (MoU), which promoted cooperation in environmental technology and technical staff training.

Under the MoU, Hà Nội and Fukuoka prefecture will work together in the fields of developing institutions and policies for the management of environmental protection, surface water quality (rivers, lakes, ponds, ditches) and river basin.

Hà Nội and Fukuoka will also enhance cooperation in waste water treatment and gas emission re-

duction; classification, recycling and disposal of hazardous, industrial and domestic garbage; clean energy and alternative energy; biodiversity and climate change; among others.

Especially, the two sides will exchange experiences, research and apply the technology for rare-earth waste dumps in Fukuoka to small and medium-sized landfills in Hanoi city.

On June 8, 2015, authorities of Hà Nội and Fukuoka prefecture inaugurated a waste treatment facility based on Fukuoka's aerobic burial technology at Xuân Sơn Waste Treatment Zone in Sơn Tây town of Hà Nội.

The project, kicked off on June 7, 2014, covered area of more than three hectares. It had an initial capacity to handle landfill of 100 tons of waste per day, projected to increase to 240 tons per day, with a total investment of VND47 billion (US$2.02 million).

At the reception for Fukuoka prefecture's delegation on January 29, 2018, Chairman of the Hà Nội People's Committee Nguyễn Đức Chung said that the City's Government has cooperated closely with the Japanese embassy to actively support Fukuoka's projects in particular and Japan's projects in general in Hà Nội.

The two sides have implemented many joint projects in the fields of environment, economy, society and culture, bringing advanced Japanese technologies to improve people's living standards in the capital■

Nguyệt Minh
(VNA source)

● French agency helps Huế in wastewater treatment project

The Service public de l'assainissement francilien (SIAAP) of France will support Huế city, the central province of Thừa Thiên - Huế, in a project to improve hydraulic system in Ngự Hà river and research on sludge treatment.

SIAAP and the local authority signed an agreement on the project, which is part of the initiative "health and safe city" piloted in Huế City. Over the last decade, SIAAP has supported Huế in treating wastewater and restoring the City's drainage system.

Projects funded by SIAAP have contributed to improving the living conditions for locals■

Vũ Hồng
(VNA source)

● Germany funds forest biodiversity project in Thừa Thiên - Huế

The Central province of Thừa Thiên - Huế recently issued Decision No.1038/QD-UBND on receiving and implementing the second phase of the carbon and biodiversity (Carbi) project funded by non-refundable aid of the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety. The project, which has a budget of more than 1.8 million EUR, will be carried out in the mountainous districts of Nam Đông and A Lưới from 2019 to 2024, with the aim of supporting biodiversity and forest ecosystem in the areas near the central area of Trường Sơn Mountain Range while promoting conservation work through improving local management of natural resources.

Along with supporting the tracking of illegal trade of products with wild animal origins, and the enforcement of laws on wildlife animal protection in border areas, the project also helps improve management of environmental fee payment.

Earlier, the German ministry gave Thừa Thiên - Huế province 2 million EUR (2.23 million USD) in financial aid to carry out the first phase of the Carbi project during 2011 - 2014 at Saola Nature Reserve and expanded area of Bạch Mã National Park, which are rich in carbon reserves and home to various kinds of animals. Besides bettering management work, the project paid heed to afforestation, reducing illegal logging and cross-border trade of timber, among others■

Bình Minh
(VNA source)

PHÚ QUỐC VINPEARL SAFARI:

"Natural house" for wildlife preservation and development

Since the end of 2015, the Phú Quốc Vinpearl Safari Animal Care and Conservation Park (Vinpearl Safari) has officially operated with a scale of 380 ha. Vinpearl Safari now has more than 3,000 individuals, of 150 species, collected and preserved from precious and rare local wildlife, and gathered from many typical biogeographic regions in the world such as South Africa and Europe, Australia, America… Recently, the introduction of the first baby rhino at Vinpearl Safari on April 3, 2019 proved that this place is not only an ideal environment for conservation, but also helps precious, rare and endangered wildlife species of Việt Nam and the world flourish and develop.

WELCOME THE FIRST BABY RHINO

The newborn rhino is the first baby of a pair of African white rhino parents. Rhino parents were brought to Vinpearl Safari at the same time and quickly coupled, bred and reproduced completely at Safari zoo. During pregnancy for more than 16 months, the mother rhino and other rhinos in the herd live in harmony, under the care of the zoo staff. The diet and sleep of the mother rhino are always closely monitored to ensure adequate nutrition and mental stability for the both mother and baby rhinos. In addition to the main food of fresh grass, the rhinos are provided with other foods such as: dry grass, corn, sweet potato leaves, bran, carrot, sweet potato and regularly supplemented with vitamins, mineral salts...

According to the zoo staff, this "playful" individual was quickly born after only 30 minutes of the mother rhino showing labor. This was an extremely favorable process of giving birth because commonly, the rhino's process of giving birth will last several hours. Although the mother rhino's process of giving birth was extremely smooth, the care workers and Vinpearl Safari doctors were very anxious to monitor the process of the mother and baby rhinos recovering after birth. When the baby rhino can stand up, walk and get breast milk independently, the delivery seems to be 80% successful. The reason is that the mother rhino after giving birth is very aggressive, people are almost inaccessible to support, so the fact that the baby rhino can get breastfed for 2 hours after birth is the most exciting progress.

▲ *Two hours after birth, the baby rhino can stand up and look for breast milk*

After waiting for breathless moments, the zoo staff finally broke out in joy as the baby rhino staggered to stand up to find the mother's breast milk. It only took a few dozen minutes to practice breathing the new atmosphere, the baby rhino was quickly "getting used to" and being fed by the mother. The newly born rhino member has an impressive black skin color, while both parents have white gray skin. It is known that, through the growth process of 2 - 3 years, rhino skin color will fade and return to the "hereditary" appearance of the herd.

"NATURAL HOUSE" OF WILDLIFE SPECIES

The African white rhino, which has just given birth at Vinpearl Safari, has relatively easy reproductive conditions in natural living conditions. Each adult female rhino has a gestation period of 16 - 18 months and reproduces at a density of 3 - 4 years/litter. At the zoo, the rate of rhino giving birth is not high, due to the probability of pairing and habitat conditions that do not meet the living habits of the whole herd.

In Việt Nam, although there have been many zoos raising those white rhinos for decades, Vinpearl Safari is a rare zoo with a success-

ful natural birth of the African white rhino. This is one of the two baby rhinos born in Việt Nam in about a decade. In this Vinpearl Safari park, there are more than 20 rhinos, having met the pairing and living conditions in 16 ha of natural forest, with animal welfare conditions rated as the best in the region and approach to world standards. Currently, in addition to the mother rhino giving birth, Vinpearl Safari also has a number of other individuals who are pregnant and are expected to give birth in 2019.

Over the past 3 years, Vinpearl Safari has become a location to be named in the "birth certificates" for hundreds of F1 generations of animals, especially endangered, precious and rare species, with caring staff and zoo doctors with more than 10 years of experiences of caring for wildlife. The experts also regularly study wildlife conservation models and are sent to many countries to learn and improve their professional skills.

Since 2018, Vinpearl Safari has welcomed 367 "young members" of wildlife species, including many endangered, precious and rare species. The newly born rhino individual is the 367th smallest member in Vinpearl Safari house. Many endangered and threatened animals in the natural environment have flourished into herds here, typically: Belgian tigers, African lions, Bongo antelopes, Arabian oryx, Scimitar-horned oryx, Blackbucks, giant sable antelopes, Indochinese silvered langurs, yellow-cheeked gibbons, and ring-tailed lemurs…

Currently, Vinpearl Safari is a member of the South East Asian Zoos Association (SEAZA), Vietnam Zoo Association (VZA) and International Species Information System, to ensure that the animals in the populations get the best welfare. Each year, with welcoming hundreds of new members, Vinpearl Safari affirms its leading role and gradually becomes a model for animal care, conservation and growth for many endangered and precious and rare animals. Vinpearl Safari has proven that Việt Nam is fully capable of creating a wild habitat and becoming a "natural house" for many rare and precious animals in the world■

Phú Hà

Rare Asian openbills spotted in Bạc Liêu Bird Sanctuary

▲ *The Asian openbill is a rare species listed in Vietnam's Red Book*

About 200 Asian openbills, an endangered species listed in Vietnam's Red Book, have resided in Bạc Liêu Bird Sanctuary, the Mekong Delta province of Bạc Liêu, since the beginning of 2019. In Việt Nam, the species is only found in small numbers in some places in the southwest. Habitat loss in recent years has forced Asian openbills to migrate to other areas.

The sanctuary's management board said patrols have been stepped up to prevent activities threatening birds' habitat and food seeking areas. Additionally, forest management and conservation efforts have helped create a safe environment for various bird species, including rare ones, to live and breed.

The management board has also worked with local authorities to encourage local residents to get involved in forest protection, it added. Bạc Liêu Bird Sanctuary covers 130ha in Nhà Mát ward of Bạc Liêu City. It habours more than 60,000 birds of more than 100 species, including many rare ones like spot-billed pelicans, painted storks, Oriental darters, black-headed ibises and great cormorants. It is also home to 150 other animal species and 109 plant species■

Nhật Minh
(VNA source)

Kiên Giang focuses on eco-tourism in U Minh Thượng National Park

The southern province of Kiên Giang is carrying out a project to develop eco-tourism in U Minh Thượng National Park for 2019 - 2020 with a vision to 2030, with a total investment of over 150 billion VND (6.46 million USD).

▲ *U Minh Thượng National Park became the eighth Ramsar site in Việt Nam and the 2,228th in the world in 2016*

Vice Chairman of the Provincial People's Committee Mai Anh Nhịn said that the project aims to preserve natural resources and bio-diversity, while making the most appropriate use of the forest's potential so as to develop eco-tourism and environmental education in U Minh Thượng National Park.

Through the project, the province will gradually complete the infrastructure system in the park and establish attractive tours to make U Minh Thượng one of the outstanding national parks in the Mekong Delta region and the world.

Located in An Minh Bắc and Minh Thuận communes of U Minh Thượng District, the park has a total area of 21,107 ha, including a 8,038-ha core zone; a 13,069-ha buffer zone; 365 ha of preventative forest and 2,728 ha of production forest and 9,976 ha of farming land, aquaculture area and land for other purposes.

The park, home to various rare flora and fauna species, is considered a large natural museum on the submerged ecosystem. In 1994, the U Minh Thượng cajuput forest became the U Minh Thượng Nature Reserve. Three years later, it was officially recognised as a national relic site. The U Minh Thượng National Park was established in 2002. It was recognised as the fifth ASEAN Heritage Park in Việt Nam and the first ASEAN Heritage Park located on peatland in the region in 2012, as well as the eighth Ramsar site in Việt Nam and the 2,228th in the world in 2016.

In recent years, the National Park has come to be known as an attractive eco-tourist destination in the Mekong Delta region. According to the national park's Deputy Director Nguyễn Văn Cường, it welcomed 63,180 visitors in 2018, up 5 percent year-on-year. In the first few months of 2019, over 15,000 tourists visited the park. The park has paid attention to diversifying and increasing the quality of its tourism products, with the aim of serving over 70,000 visitors this year■

Quỳnh Anh

(VNA source)

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