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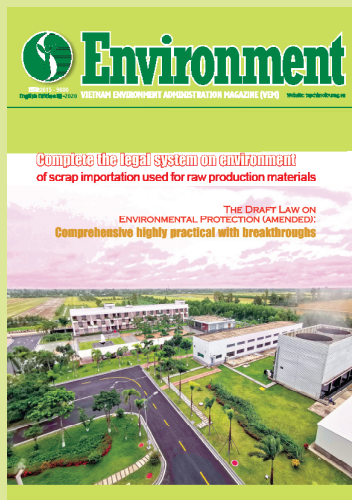
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**Complete the legal system on environment  
of scrap importation used for raw production materials**

THE DRAFT LAW ON  
ENVIRONMENTAL PROTECTION (AMENDED):  
**Comprehensive highly practical with breakthroughs**







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## 10<sup>th</sup> session of 14<sup>th</sup> National Assembly: Discussion on some important contents in the Draft Law on Environmental Protection (amended)

On 24<sup>th</sup> October 2020, continuing the agenda of the 10<sup>th</sup> session, the National Assembly (NA) discussed online some contents having different opinions in the Draft LEP (amended). NA Vice Chairman Phùng Quốc Hiển moderated the discussion.

At the session, Chairman of NA Committee on Science, Technology and Environment Phan Xuân Dũng stated that the NA Standing Committee issued Report No. 599/BC-UBTVQH14 explaining the receipt and revision of the Draft LEP (amended) to submit to the NA at the 10<sup>th</sup> session. Accordingly, major issues received and revised in the Draft Law are including: Environmental impact assessment (EIA), environmental license (EL); Environmental management in production, business, service activities, urban and rural; Management of domestic solid waste generated from households and individuals; Climate change response; Environmental incident prevention and response; Economic instruments, policies and resources for environmental protection ...

Regarding the classification of investment projects that have environmental impacts, the NA Standing Committee found that, basing on the size, nature and extent of environmental impacts to classify projects that must carry out environmental procedures is appropriate in general. Therefore, the NA Standing Committee has revised the Draft Law to report to the NA according to 2 options and the corresponding relevant provisions are also revised. Specifically, option 1 (Article 29a) stipulated the classification of investment projects into 4 groups: Investment projects must carry out EIA and must have EL; Investment projects must carry out EIA only and must not have EL; Investment projects must not carry out EIA but must have EL; Investment projects must not carry out EIA and must not have EL. With option 2 (Article 29b), this is the option received comments from NA delegates, accordingly,

clearly specifying the criteria for classifying projects according to the level of environmental impacts. Also, investment projects are classified into 4 groups including: High risk of adverse environmental impacts; risk; less risk and no risk of adverse environmental impacts. In this matter, the majority of the NA delegations (39/50) have suggested to implement option 2.

For EIA, the Draft Law has received comments and amended provisions on the objects that must carry out EIA in both options (Article 31a, Article 31b); revised requirements on human resources, physical facilities for organizations or project owners who by themselves carry out EIA; stipulated that project owners are allowed to submit the EIA report appraisal documents with the feasibility study report appraisal documents consistent with the Law on Construction (Clause 2, Article 35); supplemented conditions and qualifications of members of the EIA Appraisal Council (Point b, Clause 3, Article 35) and legal responsibilities of members of the Appraisal Council for their comments and assessment (Point d, Clause 3, Article 35).

Regarding the EIA report appraisal competence, the Draft LEP (amended) also submitted to NA delegates 2 options. Option 1: According to Report No. 252/TTr-CP of the Government, it is assigned to the ministry of specialized construction management to lead and coordinate with the provincial people's committees to organize the appraisal of EIA reports for projects under their jurisdiction to decide on their own investment policies and investment decisions in order to promote roles, capacities and resources of line ministries and facilitate the implementation of inter-connected administrative procedures. Option 2: In the opinion of many NA delegations, it is assigned to the provincial people's committees to coordinate with ministries, ministerial-level agencies to appraise projects under their authority of approving investment policies and investment decisions of Ministries, Ministerial-level agencies (Except for the Ministry of Natural Resources and Environment, Defense and Public Security). The assignment of the provincial people's committees to appraise projects will understand the impacts of the projects on the local environment, socio-economics and consistent with the authority and responsibility to manage throughout the locality from the EIA report appraisal results, EL issuance, investigation and inspection of environmental protection of projects, facilities. As a result of consultation, the majority of NA delegations (40/50) proposed to follow option 2.

With the content of environmental incident prevention and response, at present, there are many types of incidents that cause environmental incidents stipulated in the Law on Chemicals; Law on Fire prevention and fighting; Law on



▲ NA Vice Chairman Phùng Quốc Hiển speaking at the 10<sup>th</sup> session

Natural disaster prevention and control; Law on Atomic energy. By receiving and studying opinions of NA delegates, the Draft Law stipulated that environmental incidents include 4 levels (Grassroot, district, province and country) defined by the extent of influence in space, administrative boundaries as in Clause 2, Article 124. Also, it has amended contents related to the responsibilities of the Central and local responding agencies to direct the response, as well as the state management responsibilities of ministries, sectors, people's committees, relevant professional agencies at all levels and related organizations and individuals as defined in Articles 125, 126, 127 and 128 of the Draft Law.

Chairman of NA Committee on Science, Technology and Environment Phan Xuân Dũng also said that, in addition to above issues, the Draft Law has studied, received and revised many specific contents in articles, clauses that NA delegates are interested in such as definitions; prohibited acts; technical regulations on environment; state management responsibilities of the Government, Ministries, sectors and people's committees at all levels. Besides, contents of rights and responsibilities of the Vietnam Fatherland Front, socio-political organizations, social organizations and residential communities in environmental protection;

feasibility and consistency in the legal system; the style, layout, documentary techniques... have also been reviewed, amended and supplemented.

There were 20 delegates speaking and 4 delegates debating; in which, the majority of delegates' comments agreed with the Report on explanation, receipt and revision of the NA Standing Committee. In addition, delegates focused on discussing and commenting on a number of issues having many different opinions, such as the need to clarify the consistency of the Draft Law with other relevant laws (Law on Public Investment, Law on PPP, Law on Irrigation...); advantages and disadvantages of 2 options stipulating classification of investment projects carrying out EIA, competence to appraise EIA reports, to issue environmental licenses, including the content of integrating license for wastewater discharge into irrigation works ...

Speaking at the conclusion of the session, NA Vice Chairman Phùng Quốc Hiển emphasized that the Draft LEP is concerned by voters and the people because it has an impact on many subjects and fields. On the basis of synthesizing opinions of the NA delegates, the NA Standing Committee will direct the drafting agency, the verifying agency to continue to coordinate with relevant agencies to study, receive comments, revise and complete the Draft Law and submit it to the NA for consideration and approval at this session. In case there are still many issues that have not been clarified and have not ensured the consistency in the legal system, the NA Standing Committee will report to the NA for further study and completion of the Draft Law to submit to the NA for consideration and approval at the following session.

Before that, at the 49<sup>th</sup> session, the NA Standing Committee provided comments (2<sup>nd</sup> time) on a number of issues having different opinions in the Draft LEP (amended)■

**VŨ NHUNG**



## For a non-plastic waste marine environment in Việt Nam

According to the Vietnam Institute of Seas and Islands under the Ministry of Natural Resources and Environment (MONRE), plastic waste accounts for between 50% and 80% of marine waste. Currently, Việt Nam is ranked fourth among the five countries which have the biggest volume of plastic waste in their seas, with a volume of between 0.28 and 0.73 million tonnes per year (equivalent to around 6% of the world's total plastic waste discharged into the sea).

The main sources of pollution related to marine plastic waste in Việt Nam include land-based waste sources and marine-based waste sources from activities such as shipping, fishing, natural incidents, floating trash at sea and other activities. On the other hand, over recent years, the marine tourism industry has developed strongly, attracting hundreds of millions of domestic and foreign tourists each year. Thus, the volume of plastic waste discharged by tourists to Vietnam's marine tourism areas is forecasted to be more than 206,000 tonnes by the end of 2020, of which nearly 40% will be discharged into the sea. Many beautiful beaches such as Hạ Long Bay, or some islands such as Cát Bà, Phú Quốc, Côn Đảo and Cù Lao Chàm, are facing the risk of environmental pollution, especially an increasing amount of plastic waste. Worryingly, micro-sized (less than five millimeters) plastic waste formed during the manufacturing process, or fragmentation of plastic materials which exist as suspended matter and in seabed sediments do not decompose easily. They easily accumulate in the biological food chain causing a significant impact on marine ecosystems. Large plastic waste such as nets and floating fishing gear also cause serious harm to marine organisms when they become trapped, reducing fishing productivity and causing impacts on the other ocean ecosystems.

Facing this situation, at the end of 2019, the Prime Minister promulgated the National Action Plan on marine plastic waste management by 2030. The Plan hopes that by 2030 Việt Nam will have reduced 75% of plastic waste in the ocean, have collected 100% of lost or discarded fishing tools and have eradicated the direct discharge of fishing tools into the ocean.

Deputy Minister of Natural Resources and Environment Lê Minh Ngân said, the MONRE has actively implemented the National Action Plan on marine plastic waste management by 2030 in the whole industry, with the aim of focusing on communication, raising awareness and changing behaviour with plastic products and marine plastic waste. Meanwhile, the Ministry has proposed and coordinated with coastal localities to build and pilot a model of sorting waste and plastic waste at source in a number of economic zones, urban areas, industrial zones and coastal processing zones.

Currently, the MONRE is directing functional agencies to review, research and develop a waste management mechanism for plastic marine waste, in which the focus is on completing and building a new system of environmental technical regulations on plastic marine waste to national standards. The Ministry is developing policies to support and encourage organizations and enterprises to produce and use green, recyclable and environmentally friendly products. Meanwhile, the Ministry is maintaining cooperative relationships and closely coordinating with countries and international organizations in the field of controlling and managing marine waste and implementing Vietnam's initiatives with the international community on its management. The MONRE assigned the Vietnam Administra-



▲ Collecting plastic waste on beaches in Côn Đảo District (Bà Rịa - Vũng Tàu Province)





tion of Seas and Islands, the Vietnam Environment Administration to be the lead agency, coordinate with relevant agencies to synthesize, statistise, classify and assess the sources of plastic waste in coastal areas, islands and from sea activities in order to build a unified specialized database of marine plastic waste, comparable with the national database on waste sources; lead the implementation of in-depth scientific research on the impact of plastic marine waste, especially microplastics on natural resources, the environment, marine ecosystems and human health.

Experts have also suggested that the Government, Ministries and branches, especially local Governments in coastal localities should organize the effective implementation of movements and campaigns for waste collection and cleaning beaches at national and local level at least twice per year. In particular, it should be noted that the arrangement of storage facilities and waste and plastic waste centres is appropriate, safe and convenient, ensuring aesthetics and environmental sanitation. It is necessary to mobilize more active participation of local people in collection; at the same time, encourage and support organizations and individuals to collect, recycle and reuse plastic waste in river basins, coastal ecosystems areas, mangroves, beaches and coastal water areas. It is necessary to strengthen communication and advocacy to raise awareness, changing people of all class' behavior with regard to plastic products and the plastic marine waste■

**NGUYỆT MINH**

## Việt Nam to honour contributors to wildlife conservation during 2010 - 2020



The Ministry of Natural Resources and Environment (MONRE) on October 1<sup>st</sup> 2020 announced a program to honour organizations and individuals who have made contributions to the conservation of wildlife in the 2010 - 2020 period.

According to MONRE Deputy Minister Võ Tuấn Nhân, 2020 is an important milestone in implementing biological diversity-related targets in the Strategic Plan on Biodiversity for 2011 - 2020. To date, Vietnam's forest coverage reaches 41.89 percent, or over 13.8 million hectares. The country owns 173 conservation zones with a total area of over 2,500 hectares, including 33 national parks and 66 nature reserves, 18 species and habitat conservation areas and 56 landscape protection areas. Many nature reserves and areas have been internationally recognised such as 9 world biosphere reserves, 3 UNESCO world

heritage sites, 9 world Ramsar sites and 10 ASEAN heritage gardens.

From 2014 to September 2018, 344 new species were documented and published in prestigious scientific journals around the world and in the Biology Journal under the Vietnam Academy of Science and Technology. Biodiversity investigation and monitoring, on-site rescue and conservation have made important contributions to biodiversity conservation in general, contributing to reducing the risk of extinction of many endangered species. This is the result of the efforts and dedication of many ordinary people, scientific researchers, individuals and organizations working in the conservation field in addition to the efforts of all relevant sectors.

In order to recognise and honour these meaningful contributions, the MONRE is organizing a program to honour organizations and individuals who have made contributions to the conservation of wildlife in the 2010 - 2020 period. The program is aimed at all individuals and organizations that are active in biodiversity conservation in Việt Nam. Entries should be sent to the Organizing Board no later than December 31<sup>st</sup>, 2020.

As many as five individuals and ten organizations with the most outstanding achievements in wildlife conservation will be honoured. An awards presentation ceremony is scheduled to be held in the second quarter of 2021, in tandem with the International Day for Biological Diversity■

**PHƯƠNG LINH**

# Complete the legal system on environment of scrap importation used for raw production materials

NGUYỄN PHẠM HÀ - *Deputy Director*  
NGUYỄN THỊ HỒNG HÀ  
*Waste Management Department (VEA)*

Recycling and reusing scraps removed from production and consumption are inevitable trend to save resources and limit waste treatment costs. In the context of limited domestic scrap leading to production needs of some industries producing billets, cement, paper and plastic... are not meet, Việt Nam allows import of scrap used for raw production materials. However, in order to minimize negative impact on environment from the use of imported scrap as production materials, the Ministry of Natural Resources and Environment (MONRE) has developed and submitted legal documents managing importation and use of scrap as production materials.

In Article 76 of the Law on Environmental Protection (LEP) 2014, there are provisions on conditions for imported scrap used for production materials and for facilities who import scraps to use as production materials. Accordingly, imported scrap used for production materials must be on the List of scraps permitted for import issued by the Prime Minister and must meet technical regulations on environment issued by the MONRE. Facilities who import scrap to use as production material must meet regulations on warehouse conditions, handling impurities and other environmental protection conditions to minimize the risk of environmental pollution from the use of imported scrap.

Implementing the LEP 2014, the MONRE has submitted to the Prime Minister for promulgating Decision No. 73/2014/QĐ-TTg dated December 19, 2014 on the List of scraps that are allowed to be imported to be used for production materials. In which, the List includes 36 types of scrap together with

HS code that are allowed to be imported as production materials, divided into groups of scrap: Paper scrap; iron and steel scrap; plastic scrap; granulated slag (slag sand) from the manufacture of iron or steel, gypsum scrap, non-ferrous metals...

In order to manage and strictly control the importation of scrap used for production materials, avoid being used by businesses to bring waste into Việt Nam, in 2015, the MONRE submitted to the Government for promulgating Decree No. 38/2015/ND-CP dated April 24<sup>th</sup>, 2015 on waste and scrap management. Chapter 8 of the Decree has specific provisions on the management of imported scrap used for production material which clearly state who are allowed to import scrap, environmental protection conditions for facilities who import and use scrap, depositing for imported scrap and to ensure responsibilities of relevant agencies and organizations. In order to have specific guidelines to ensure the effective implementation of Decree No. 38/2015/ND-CP, dated 9/9/2015, the MONRE issued Circular No. 41/2015/TT-BTNMT on environmental protection in importing scrap as raw production material. The Circular has clearly stated the consideration and issuance of certificates of eligibility for environmental protection in importing scrap as raw production material; inspection and clearance of imported scrap. With the above provisions, the management of importing scrap as raw production material has basically been managed effectively.

However, in the context that some countries such as China, Malaysia, Korea... have restricted or even banned the import of some types of scrap, creating a large shift of scraps to be imported into Southeast Asian countries including Việt Nam, which has led to a large backlog of scrap shipments at Vietnamese seaports, requiring Việt Nam to make changes in its policy on managing importation of scrap towards a more rigorous and effective manner. Therefore, on 17<sup>th</sup> September 2018, the Prime Minister issued Directive No.27/CT-TTg on urgent solutions to manage imported scrap to be used for production materials. In particular, the Ministry of Finance was requested to direct the General Department of Customs to apply measures to early prevent importation of scrap shipments that do not meet legal regulations. After the Prime Minister issued Directive No. 27/CT-TTg, imported scrap consignments did not have information about





the owner, or the owner was not on the List of organizations and individuals that were granted the Certification of eligibility for environmental protection in import of scrap for use as raw production materials will not be allowed to import into the territory of Việt Nam. In case imported scrap shipments of eligible facilities were unloaded at port and then determined not to meet national technical regulations (QCVN), the importer shall be responsible for re-exporting the shipments. With this provision, since 17<sup>th</sup> September 2018, basically, backlogged shipments without owners have been reduced.

Immediately after the Prime Minister's Directive No. 27/CT-TTg was issued, the MONRE developed and issued Circular No. 08/2018/TT-BTNMT and Circular No. 09/2018/TT-BTNMT on national standard in the field of environment for 6 groups of imported scraps which are commonly used in the production process and are on the List of scrap allowed to be imported for use as raw production materials (according to Decision No. 73/2014/QĐ-TTg dated 19/12/2014 of the Prime Minister), including: QCVN 31:2018/ BTNMT - National technical regulation on environment for iron and steel scrap imported for use as production mate-

rial; QCVN 32:2018/BTNMT - National technical regulation on the environment for plastic scrap imported for use as production materials; QCVN 33: 2018/BTNMT - National technical regulation on environment for paper scrap imported for use as production materials; QCVN 65: 2018/BTNMT - National technical regulation on the environment for glass scrap imported for use as production material. The standards are issued to strictly control the quality of imported scraps entering Việt Nam through technical regulations, methods of testing, quality inspection and management to regulate behaviors of relevant organizations and individuals, including: Organizations and individuals importing and using scrap for use as production materials; state management agency on importation and use of scraps; organization who assess quality of imported scraps.

In order to institutionalize the Prime Minister's requirements in the management of imported scraps, the MONRE has submitted to the Government for promulgation of Decree No. 40/2019/ND-CP dated May 13<sup>th</sup>, 2019 on amendments and supplements a number of articles of decrees detailing and guiding the implementation of the LEP, in which, the content on management of imported scraps has been regulated more closely. Specifically, regarding the conditions of environmental protection for facilities who import scraps for production materials, Decree No. 40/2019/ND-CP clearly specifies authority to approve environmental impact assessment (EIA) reports for the project using imported scraps as production materials and the authority to grant Certification of eligibility for environmental protection in using imported scraps used for production materials is assigned to the MONRE, not decentralized to local environmental management agen-



▲ Organizations, individuals are not allowed to import scraps for the purpose of preliminary processing and resale of scraps



cies. At the same time, the Decree also provides for order and procedures for evaluating and granting certification; order and procedures for inspection and customs clearance of imported scraps and specific responsibilities of relevant agencies, including: Organizations and individuals who import scraps to use as production material, relevant state management agencies (MONRE, Ministry of Finance, General Department of Customs, people's committees of provinces, cities...). The Decree stipulates specific conditions on environmental protection for organizations and individuals who import scraps to use as production materials such as warehouses, storage yards for imported scraps; technology, equipment for recycling and reuse of scrap must meet technical requirements and management processes as prescribed; have written commitment on re-export, or disposal of scrap in case of the scrap does not meet environmental protection requirements...

In particular, Decree No. 40/2019/ND-CP clearly stipulates that organizations and individuals are only allowed to import scraps for their production in accordance with the designed capacity to produce products and goods; are not allowed to import scraps for the purpose of preliminary processing and resale of scraps. From 1/1/2025, facilities using imported scraps as production materials can only import scraps at maximum 80% of design capacity; the remaining scrap must be purchased domestically to be used as production materials... Along with that, the Decree has specified specific provisions related to post a bond on imported scrap, method, amount, process, the management and use of the bond posted on imported scrap.

For more specific instructions, in 2019, the MONRE issued Circular No. 25/2019/TT-BTNMT detailing forms and monitoring of waste during the appraisal and issuance of Certification of eligibility for environmental protection in using imported scraps as production materials. Basically, the regulations on the management of im-

ported scraps for production materials have been fully issued, strictly ensuring and minimizing negative impacts on the environment, but also creating conditions for businesses on using scrap for production materials operate effectively.

In order to ensure that management requirements of imported scraps are met, the MONRE is submitting to the Prime Minister for consideration and issuance of a Decision to replace Decision No. 73/2014/QĐ-TTg on the List of scraps permitted to be imported to be used as production materials. At the same time, in 2020, the MONRE has a plan to amend the national technical regulations on environment for the imported scraps to ensure efficient management of imported scraps and compliance with Decree No. 40/2019/ND-CP. In particular, in the Draft LEP (amended), which was submitted by the MONRE to the 9<sup>th</sup> session of the 14<sup>th</sup> National Assembly for review and comments, the content of management of imported scraps is developed to strictly and early management of imported scraps' quality and minimize import scraps that does not meet the requirements of environmental protection. Specifically: imported scraps must meet technical regulations on the environment and be on the list of scrap allowed to be imported for use as raw materials; Organizations and individuals are only allowed to import scraps for use as production materials for their own facilities and must meet the requirements of environmental protection such as: having production facilities with recycling and reused technology and equipment, warehouses and storage yards specifically for scrap gathering that meet environmental protection requirements; a plan to treat impurities accompanying scrap in suitable to imported scraps; Decision of the MONRE approving the appraisal result of EIA report, or having the EIA report approved by the MONRE, having environmental permits in accordance with the Law; post a bond on imported scraps before unloading scraps at the port in case of import via seaport, or import into Vietnamese territory for other cases, in which, organizations and individuals who import scraps must deposit an amount of money, or precious metals, gems and valuable papers in regulated financial and credit institutions to ensure the mitigation and recovery of environmental risks caused by imported scraps. At the same time, organizations and individuals must submit a written commitment on re-export, or disposal of scrap in case imported scraps does not meet environmental protection requirements.

Obviously, with a series of legal documents on environmental protection on imported scraps for use as production materials issued by the MONRE in recent years, it has created a complete legal corridor, in order to minimize importation of scraps does not meet the conditions and requirements on environmental protection, so that Việt Nam does not become a waste storage place of other countries■





# Strengthen measures to control and conserve endangered, precious and rare wild animals

NGUYỄN THỊ NGÀ

*Ministry of Agriculture and Rural Development (MARD)*

On July 24<sup>th</sup>, 2020, the Prime Minister issued Directive No. 29/CT-TTg on a number of urgent measures for wildlife management to tackle the illegal wildlife trade and consumption (Directive No. 29/CT-TTg). This is one of the major efforts of the Government to reduce threats to public health and ensure the future of many wild species in danger of extinction by illegal trade and consumption in Việt Nam and other countries in the region.

## NECESSITY TO ISSUE DIRECTIVE NO. 29/CT-TTg

Over the past years, implementing the policies of the Party, the Government has gradually perfected the legal system of wildlife management, conservation and sustainable development. The Law on Forestry 2017 stipulates: "It is strictly forbidden to hunt, capture, raise, confine, kill, store, transport and trade forest animals and collect specimens of forest flora and fauna species in contravention of the Law". The Prime Minister also issued Directive No. 03/CT-TTg dated 20/2/2014 on strengthening the direction and implementation of

measures to control and conserve endangered, precious and rare wildlife and the Directive. No. 28/CT-TTg dated September 17<sup>th</sup>, 2016 on a number of urgent solutions to prevent and fight against illegal wildlife abuse. The Government issued Decree No. 06/2019/ND-CP dated January 22<sup>th</sup>, 2019 on management of endangered, precious and rare species of forest fauna and flora and observation of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Thus, it can be seen that strengthening the enforcement of national laws, CITES and relevant international treaties is Vietnam's consistent directing and implementing viewpoint in practice in order to responsibly implement relevant international commitments.

In general, Vietnam's legal framework on wildlife management is fundamentally complete, meeting the requirements of adjusting chain social relations and ranked group A by the CITES Secretariat (the country with the best legal system). All levels and branches have had more drastic and comprehensive solutions to put the Law into practice, especially to fight and destroy the illegal transportation, trade and consumption of wildlife species, creating the positive and clear change in many aspects. However, illegal wildlife trade, transportation and consumption, especially organized violations involving both domestic and international subjects, are still complicated. Many wildlife species continue to decline in numbers, being in danger of extinction which leads to adversely affect on ecological balance; Along with that, there is also a potential risk of transmitting diseases to humans, cattle and poultry, threatening public health and economic development of the country.



▲ Rangers forces the number of wildlife detected on bus from Đắk Lắk to Bình Dương Province

Currently, in the context of countries around the world fighting the COVID-19 pandemic, wildlife trade and consumption has been identified as one of the biggest environmental causes of zoonosis. Therefore, Directive No. 29/CT-TTg was issued, expressing Vietnam's determination to improve regulations on wildlife trade and consumption, and at the same time showing the Government's drastic will in disposing of exhibits storage of wildlife on CITES list, including ivory and rhino horn. This can be seen as a major step forward for Việt Nam in reducing threats to public health as well as securing the future of many wild species in danger of extinction by illegal trade and consumption in Việt Nam and other countries in the region.

### THE HIGHLIGHTS OF DIRECTIVE NO. 29/CT-TTg

In order to ensure strict enforcement of the wildlife management laws, the Prime Minister has instructed to stop the import of living or dead wildlife, eggs, larvae, organs and derivatives of wildlife species (except for aquatic species serving the production and processing of food and animal feed that have been announced in accordance with the law; parts of wildlife that have been processed as medicinal herbs, used as raw materials for production or

finished products) until there is a new direction from the Prime Minister or in special cases permitted by the Prime Minister. All cases of wildlife import in contradiction to this Directive must be strictly dealt as illegal activities in accordance with the Law on Wildlife; for wildlife, which has been granted export permit by a foreign CITES management agency to Việt Nam, the border-gate customs office will request the commodity owner to return it to the place of export. In case the goods owner fails to do so or the goods owner cannot be identified, it shall be handled in accordance with Vietnamese Law as illegal wildlife.

### RESOLUTELY ELIMINATE THE ILLEGAL WILDLIFE MARKETS AND PLACES

According to respectively assigned functions and powers, relevant Ministries review the legal system and propose to respective authorities to amend and supplement the sanctions against illegal wildlife consumption; Resolutely eliminate illegal wildlife markets and places; Strictly control and handle acts of hunting, catching, buying, selling, transporting, slaughtering, consuming, storing, advertising, and violating wildlife, especially which of mammal, avian and reptile class in the wild. All citizens, especially officials, civil servants, public employees and their relatives are not involved in illegal hunting, catching, buying, selling, transporting, slaughtering, consuming, storing and advertising wildlife.

Accordingly, the MARD presides over and coordinates with relevant Ministries, agencies and the people's committees of provinces and Central cities to seriously implement solutions to manage wildlife. Strengthen the direction of inspection, examination and supervision of wildlife breeding activities. Wildlife breeding and export must ensure legal origin, food safety and hygiene. Organizing inspection and examination on a wide range of



▲ Organizing wildlife release after rescuing at Hoàng Liên National Park (Lào Cai Province)





wildlife farms, ensuring the legal origin of animals, safety conditions for animals and humans, environmental sanitation and disease safety. Timely detect and strictly handle violations in accordance with the provisions of Law, especially the violations of the origin of the wild animals in breeding facilities. Establishing a database of commercial breeding facilities of wildlife species on the list of endangered, precious and rare forest animals issued together with Decree No. 06/2019/ND-CP January 22<sup>nd</sup>, 2019 by the Government and species listed in CITES' Appendices I and II; publicize on the website of the Ministry for the whole society to monitor and supervise. Strengthen direction of disease surveillance and veterinary hygiene measures in wildlife breeding and trading facilities. Continuing to summarize the practice, amending, supplementing and completing a comprehensive and fully legal system on wildlife management, submitting to the Government for promulgation criteria and list of domesticated wild animals to manage according to the provisions of the Law on Livestock Production and CITES.

The Ministry of Natural Resources and Environment is responsible for state management of biodiversity; review current legal regulations, propose, develop and submit to respective authorities to amend and supplement regulations on management of endangered, precious and rare species prioritized for protection in accordance with regulations of Law on Biodiversity.

### **STRENGTHEN SANCTIONS FOR ILLEGAL CONSUMPTION OF WILDLIFE**

One of the emphasized contents in Directive No. 29/CT-TTg is to strictly handle violations related to wildlife. Accordingly, the Ministry of Public Security has directed functional forces to strengthen prevention, combat, timely detect and strictly handle violations related to wildlife; especially focusing on destroying transnational organized crime lines in illegal purchase, storage, transportation, export, import, temporary import for re-export and transit of wildlife's specimens; coordinate with

related units to inspect and handle illegally advertising, buying and selling wildlife's specimens on websites. The Ministry of Defense shall direct the Border Guards and Coast Guard to coordinate with functional forces to intensify patrols and strictly control at border gates, border trails and in the sea; promptly detect, arrest and handle cases of illegal purchase, transportation, export, import, temporary import for re-export of wildlife in accordance with law; promote propaganda and awareness raising of people in border areas to not illegally hunt, catch, raise, sell and transport wildlife. The Ministry of Industry and Trade instructs market surveillance forces to strengthen market inspection and control, prevent and promptly handle acts of trading, transporting and trading of endangered, rare and precious wildlife species; products and derivatives thereof according to the functions, tasks and powers assigned.

The Supreme People's Procuracy and the Supreme People's Court coordinate closely with investigation agencies to promote the investigation and prosecution of illegal entities on hunting, catching, buying and selling, transportation, slaughter and possession of wildlife; improve the quality of judgement of cases related to endangered, rare and precious wildlife; increase mobile courts to serve the propaganda and education on wildlife protection; impose severe penalties on instigators and leaders who abuse positions and powers to commit crimes and professional offenders related to the protection of endangered, rare and precious wildlife.

The people's committees of the provinces and Central cities shall direct agencies and units in the locality to implement measures to protect natural wildlife; strengthen control of wildlife exploitation, hunting, catching, transporting, storing, trading, consuming and consuming; completely organized the destruction of illegal wildlife trade lines; Strengthening management and inspection of wildlife facilities on compliance with legal requirements on origin, veterinary hygiene, environment protection and food safety. Organize and deploy for businesses in the area to sign commitments not to buy, sell, use, consume, display and advertise wildlife specimens that do not guarantee the legal origin and strictly handle of violations.

Thus, it can be seen that a number of highlights in Directive No. 29/CT-TTg are resolutely eliminating illegal wildlife shopping and selling markets; plans to destroy ivory and rhino horn exhibits currently in storage; more strictly control and management of captive wildlife, including tigers; suspend import of wildlife; review the system of legal documents to strengthen sanctions for illegal wildlife consumption and prohibit people, especially Government officials and their relatives, from consuming wildlife products. It is hoped that with the determination of the Government, the participation of authorities, the consensus of the people, Directive No. 29/CT-TTg can create a major turning point in wildlife conservation in Việt Nam ■

## The Prime Minister's Directive on urgent measures to tighten the management of wildlife

On July 23<sup>rd</sup>, 2020, Prime Minister (PM) Nguyễn Xuân Phúc issued Directive No. 29/CT-TTg on urgent measures to tighten the management of wildlife. The PM's Directive stresses Việt Nam's consistent view on tightening enforcement of national and international laws on wildlife in order to realize its international commitments.

To strengthen the enforcement of the Law on wildlife management, the PM directed the suspension of imports of wildlife, dead or alive, their eggs, larvae, parts, derivatives (except aquatic animals used for the production and processing of food and animal feed as specified in legal regulations, parts of wild animals already processed to be used as materials for drug production or final products) until new instructions are made.

For wildlife already licensed by foreign CITES authorities to export to Việt Nam, the customs agency at the border gate must require the wildlife be returned to the place of export.

According to the Directive, Ministries, agencies and organizations in and out the country have made efforts to exercise laws, tackling wildlife trafficking, trade and consumption, but illegal activities relating to wildlife are still complex in some areas. The



▲ Việt Nam has vowed to "eliminate" illegal markets across the country

PM also orders Ministry of Agriculture and Rural Development to work with localities to review and oversee operations of licensed wildlife farms to identify the wildlife's origins; The Ministry of Natural Resources and Environment to study and submit recommendations to the Government to better manage endangered and rare animals; The Ministry of Public Security to keep alert for wildlife law violations, especially transnational crimes... Localities are required to abolish wildlife markets or trading sites, keep tight management of and strictly handle those illegally poaching, buying, selling, transporting, slaughtering, consuming, storing, advertising and abusing wildlife■

SƠN TÙNG

## Government aims to minimize, recycle plastic waste

Prime Minister Nguyễn Xuân Phúc has recently issued Directive No. 33/CT-TTg on management, recycling, treatment and reduction of plastic waste as plastic pollution has become one of the biggest challenges in our world today.

Accordingly, the Prime Minister tasked Ministers, Ministerial-level leaders and local leaders to issue directives and plans with a view to minimizing classifying, recycling plastic waste, prior to October 30, 2020.

Specifically, state agencies, public non-business units will take the lead in minimizing plastic wastes and disposable plastics including plastic bags, plastic bottles, straws, foam food containers. The Ministry of Natural Resources and Environment (MONRE)

was assigned to perfect legislation on solid waste management in the Direction of considering waste and plastic waste as resources; beef up the development of circular economic models; and build technical environmental barriers against products and goods containing micro-plastic particles, plastic nanoparticles and plastic bags.

The MONRE works with the Ministry of Industry and Trade to build national database on plastic usage and plastic waste and to propose a project on establishment of industrial parks for centralized plastics recycling. Import of plastic scrap must be seriously implemented in line with regulations on environmental protection.

The Ministry of Finance was asked to put forward amendments to the Law on Environmental Protection Tax towards expanding coverage of levies on plastic bags and other plastic products■

CHÂU LONG





# The Draft Law on Environmental Protection (amended): Overcoming inadequacies and difficulties in air quality management

LÊ HOÀI NAM

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In recent years, the process of socio-economic development on the one hand has created a new impetus for Việt Nam's renovation and integration process, raising the income of the people and also making an important contribution to raising the position and power for Việt Nam in the international arena. However, on the other hand, Việt Nam is also facing many challenges, environmental pollution, including aerial environment pollution in the integration and development stage.

Air pollution is not only a problem of developed urban areas, industrial parks and clusters... but has become a concern of the whole society. Air pollution is considered to be one of the threats that seriously affect the quality of environment and public health. With a view to ensuring people's right to live in a clean environment, the Law on Environmental Protection (LEP) is being amended and supplemented with provisions aiming at overcoming the current inadequacies in the management and protection of environment components, including air quality.

## STATE OF AIR POLLUTION IN VIỆT NAM

The issue of air pollution, especially total suspended particles (TSP), fine dust ( $PM_{10}$ ;  $PM_{2.5}$ ) is becoming a big challenge for the environmental management of urban Governments, particularly in big cities like Hà Nội and Hồ Chí Minh City. This is a general trend of developing countries and Việt Nam is not out of it. With recent rapid growth, sources of exhaust gas from transportation activities, industrial parks and craft villages, urban, rural development and outdoor burning activities on the rise require the consistent attention and management of all levels, sectors and especially local Governments.

According to the monitoring results of 13 automatic and continuous monitoring

stations in Hà Nội City (1 station of the Vietnam Environment Administration at 556 Nguyễn Văn Cừ street, 10 stations of Hà Nội City, 1 station of the Embassy of France and 1 station of the US Embassy), sometimes at the end of the year, air quality was assessed following the fluctuation trend of  $PM_{10}$  and  $PM_{2.5}$ , leading to fluctuations in air quality index (AQI), AQI increases sharply and locally in some areas. Monitoring results of Department of Natural Resources and Environment (DONRE) and automatic monitoring station of US Consulate in Hồ Chí Minh City showed that the  $PM_{2.5}$  dust concentration in the air has increased sharply due to the temperature inversion, photochemical smog. However, for most of the time, the value of  $PM_{2.5}$  dust concentration in the City is still within the permitted limits of QCVN No 05:2013/BTNMT.

Through comparison of data of 15 automatic monitoring stations installed by US Embassies/Consulates in cities of some Asian countries in the period 2016 - 2018, it showed that the air quality in Hà Nội City in 2016, 2017 ranked 10<sup>th</sup> out of 15 Asian cities (of which No. 1 is the highest air pollution level); In 2018, the air quality in Hà Nội City improved by 1 rank, standing at 11/15. Meanwhile, the air quality in Hồ Chí Minh City in all 3 years from 2016 to 2018 was ranked 15/15, the best among the 15 cities where the US Embassies placed monitoring equipment. In the first 4 months of 2020, Hà Nội had 47,3% the number of days having 24-hour average  $PM_{2.5}$  value exceeded the permitted limits; including days of high pollution levels (14 January, 2 February, 20 February and 16 March), the 24-hour average  $PM_{2.5}$  value exceeded 2 - 3.4 times the permitted limits of QCVN 05:2013/BTNMT. In the period from 20 March to the present, including the social distancing period, the air quality in Hà Nội City tends to be better than the previous time, however, due to the weather, there are some fluctuations in some days. Through monitoring, the number of road vehicles in the inner city after the social distancing period increased more than in the previous days, the  $PM_{2.5}$  value also started to increase.

As such, it is possible to identify the air pollution problem in Hà Nội and Hồ Chí Minh City in particular and urban centers in general throughout the country mainly focuses on dust pollution, especially  $PM_{2.5}$  fine dust. Other parameters ( $NO_2$ ,  $O_3$ ,  $CO$ ,  $SO_2$ ) are still within the permitted threshold of QCVN No 05:2013/BTNMT.  $PM_{2.5}$  dust and AQI are worse at night and early in the morning, when the weather and climate conditions (temperature inversion phenomenon) are disadvantageous combined with the pollution sources inherent in the activities of people, industrial, agricultural production,



transportation, urban and rural development and straw burning activities in the harvest season... The rest of the day when there is a change in weather conditions, air pollution problem due to these parameters will decrease. The main sources causing air pollution include exhaust gas from a large number of motorized vehicles, including many old vehicles, especially motorcycles and motorbikes, which do not meet gas emission standards; gas emissions generated from industrial production establishments which have fired fossil fuels have not yet been treated satisfying QCVN; activities of constructing new works, renovating and repairing roads due to not seriously implementing dust shielding; vehicles transporting building materials and wastes, not washing vehicles before leaving the construction sites; outdoor burning of straw, burning of wastes, including wastes not in compliance with regulations in some localities; using large quantities of coal and honeycomb charcoal stoves for cooking in daily life as well as for business. In addition, the aerial environment is strongly influenced by objective causes due to the weather and climate during the time of season change, when there is temperature inversion phenomenon.

### ASSIGN AND SPECIFY RESPONSIBILITIES FOR AERIAL ENVIRONMENT QUALITY MANAGEMENT IN THE DRAFT LEP (AMENDED)

Facing the state of air pollution, in recent time, the Ministry of Natural Resources and Environment (MONRE) has issued many documents to request the people's committees of the provinces, cities and Ministries, sectors concerned to actively implement measures to prevent and reduce air pollution in urban areas, including Hà Nội and Hồ Chí Minh City to improve urban air quality.

In particular, MONRE is also urgently reviewing, supplementing and finalizing provisions on aerial environment protection in the Draft LEP (amended). Accordingly, the contents of aerial environment protection are specified in a separate section in Chapter 2 of the Draft, in which, focusing on prevention and control of environmental pollution; setting up environmental technical barriers, technical regulations and standards, close to the standards of advanced countries in the world, detailing the contents of aerial environment protection, such as: Air quality must be monitored, supervised, alerted in time and published periodically according to regulations; also, the sources of exhaust gas emissions that adversely affect the environment must be minimized and reduced by concerned organizations and individuals, meeting environmental technical regulations; Transboundary, inter-provincial sources polluting the aerial environment, large exhaust gas emission sources and exhaust gas emissions from the use of fossil fuels must be monitored, assessed and controlled; The aerial environment quality management shall comply with legal provisions and air quality management plans promulgated by competent state agen-



▲ *The issue of air pollution is becoming a big challenge for the environmental management of urban, particularly in Hà Nội and Hồ Chí Minh City*





cies. The air quality management plan is the basis for the provincial people's committee to evaluate the aerial environment management and quality.

The Draft LEP (amended) supplements some new provisions, such as: Stating "The aerial environment quality management is implemented in accordance with legal provisions and air quality management plans are promulgated by competent state agencies"; Stipulating that people's committees of provinces and cities formulate and implement "Local air quality management plans" with specific contents on the basis of "Technical guidance on air quality management planning" of MONRE. Specifically, the localities must perform the following tasks: Assess air quality; Identify air quality management viewpoints and objectives; Assess the state of air quality management including monitoring air quality, identifying and assessing major gas emission sources, inventorying emissions, modeling air quality, organizing personnel, resources, inspection and investigation; Assess the impact of air pollution on public health; Analyze and identify the causes of existing air pollution problem; Consider, evaluate and analyze the cost-benefit of air quality management measures, thereby, identify the preferred implementation measures.

Along with that, the Draft LEP (amended) also stipulates and clearly assigns responsibilities of the Prime Minister to issue the National Action Plan on aerial environment quality management and to direct organization for implementation; to direct the implementation of emergency measures in case the aerial environment quality is seriously polluted in the inter-provincial and inter-regional areas.

MONRE is the focal point for overall management of environmental protection, management of waste sources polluting the environment nationwide; assumes the prime responsibility for organizing the implementation of the National Action Plan on aerial environment quality management; assumes the prime responsibility for formulating and promulgating environmental technical regulations on waste sources, including exhaust gas emission sources polluting the environment.

Ministries, Ministerial-level agencies and Government-attached agencies shall organize activities of preventing, inspecting, supervising and reducing sources of

dust and exhaust gases causing air pollution and managing aerial environment quality in the fields under their management (detailed in the guiding documents and resolutions, directives of the Government and the Prime Minister).

Provincial people's committees formulate and implement local aerial environment quality management plans and organize for implementation; direct the implementation of emergency measures in case the aerial environment quality is seriously polluted in the area of management.

Organizations and individuals that pollute aerial environment are responsible for reduction and remediation, ensuring the aerial environment quality in accordance with regulations.

In addition to legal instruments, national environmental technical regulations are the main instruments for managing aerial environment quality, controlling air pollution due to emissions generated from socio-economic development activities. The Law on Standards and Technical Regulations defines the responsibilities of MONRE as the leading agency in formulating and promulgating environmental technical regulations for waste sources (wastewater, exhaust gas, solid waste). Also, Point b, Clause 2, Article 113 of the LEP 2014 stipulates that "Group of technical regulations on exhaust gas from mobile and fixed sources" under the system of environmental technical regulations which the MONRE is assigned to formulate and promulgate according to the provisions of Clause 2, Article 118 of this Law. As such, MONRE is currently responsible for formulating and promulgating a system of technical regulations on aerial environment quality, exhaust gas from industrial production, waste incinerators as well as environmental technical regulations for emission sources from transportation vehicles to ensure the assignment of a leading agency, which is primarily responsible for the control of exhaust gas sources and management, improvement of the aerial environment quality.

In order to further improve the system of legal policies and the system of environmental technical regulations on air pollution control, the Draft LEP (amended) more clearly defines the responsibilities of the MONRE in formulating and promulgating environmental technical regulations on exhaust gas from mobile and fixed sources, belonging to the group of environmental technical regulations on emission sources to achieve effective management.

It can be said that the Draft LEP (amended) has been supplemented and completed in the direction of timely institutionalizing many new guidelines of the Party and the State related to environmental protection, harmonizing the approach to international laws, proposing to amend many contents on environmental quality management in accordance with the practical situation, aiming to protect people's health. In particular, regarding the issue of air pollution, the Draft LEP (amended) also introduces new provisions to deal with inadequacies and difficulties in aerial environment quality management, emergency measures in case of serious air pollution. These are provisions that promise to bring about positive changes in environmental management in general and aerial environment quality management in particular, contributing to the sustainable development of the country. ■



# Some new points about compensation for damages under the Draft Law on Environmental Protection (amended)

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In the Constitution of the Socialist Republic of Việt Nam (2013), Article 63 stipulates that “Organizations and individuals that pollute the environment, deplete natural resources and weaken biodiversity shall be strictly dealt with and must be responsible for remedy and compensation for damages”. On the basis of the Constitution 2013, many other legal documents also stipulate the responsibility for remedy and compensation for damages caused by the acts which pollute the environment.

According to current legal provisions in Việt Nam, compensation for damages caused by violation of the Law on Environmental Protection (LEP) is in the field of compensation for non-contractual damages. Therefore, the legal basis for settling claims for compensation for damages caused by violation of the LEP is firstly implemented in accordance with the Civil Code 2015’s provisions on compensation for non-contractual damages. Specifically, in the Civil Code 2015, Article 172 stipulates: “When exercising ownership rights and/or other property-related rights, the owner or the holder must comply with the provisions of LEP; if he/she pollutes the environment, the owner shall terminate the acts which pollute the environment, to take measures to remedy the consequences and to compensate for damages”. Article 602 stipulates: “Any entity polluting the environment, thereby causing damages, must compensate in accordance with the Law, including when the entity polluting the environment was not at fault”. Thus, the responsibility for compensation for environmental damages to individuals and organizations that pollute and degrade the environment has been stipulated by the Civil Code. According to these provisions, the entity that has the acts which pollute the environment while cause damages to others,

must compensate for damages, including when the entity polluting the environment was not at fault.

The LEP 2014 continues to affirm the legal basis of prosecution for compensation for damages caused by acts which pollute and degrade the environment in Clause 8, Article 4: “Any organization, family household or individual, who causes environmental pollution, incidents and degradation, is responsible for remedy, compensation for damages and assumes other responsibilities in accordance with legal provisions” and provides in details the compensation for damages in the field of environmental protection. The LEP stipulates damages caused by environmental pollution and degradation (Article 163); Principles of handling responsibilities of organizations, individuals polluting the environment (Article 164); Determination of damages caused by environmental pollution, degradation (Article 165); Determination of damages caused by deterioration in environmental function and productivity (Article 166); Liability insurance for compensation for environmental damages (Article 167).

In addition to the above provisions, the responsibility for compensation for damages caused by violations of the LEP is also stipulated by a number of other relevant laws: Law on Land, Law on Minerals...

After 6 years of implementation, besides the advantages, the provisions on compensation for damages have revealed a number of obstacles and shortcomings that need to be amended, supplemented and improved in the coming time. The provisions on compensation for environmental damages in the Draft LEP (amended) in Item 2 from Article 136 to 141 include the following new points:

Adding the principle for determining responsibility for compensation for environmental damages such as: Each subject’s responsibility for compensation for environmental damages is determined according to the type of pollutants, the amount of emissions and other factors; The responsibility for payment of the costs of determining the damages and carrying out the procedures for claiming compensation for damages of each subject is determined corresponding to the rate of damages in the total damages to the environment; In case the damage rate of each subject cannot be determined, the costs of compensation for environmental damages must be equally divided among the subjects.

Identification of the subject responsible for determining the damages and claiming compensation for damages caused by deterioration in environmental function and productivity.





Responsibility for determining damages and claiming compensation for damages caused by deterioration in environmental function and productivity is stipulated as follows: Commune-level people's committees are responsible for claiming compensation for environmental damages in the localities under their respective management. In this case, commune-level people's committees are responsible for requesting the district-level people's committees to collect and verify data and evidence to determine environmental damages; district-level people's committees are responsible for determining damages and claiming compensation for environmental damages caused in the area from two or more communes, wards and townships; provincial-level people's committees are responsible for determining damages and claiming compensation for environmental damages caused in two or more districts, towns and provincial cities; the Ministry of Natural Resources and Environment (MONRE) is responsible for determining damages and claiming compensation for environmental damages caused in two or more provinces or centrally-run cities.

Organizations and individuals suffering damages to human life, property, health, legitimate property and interests caused by deterioration in environmental function and productivity, on its own or may authorize state agencies; social and political organizations to determine the damages and claim compensation for environmental damages in accordance with this Law and other relevant laws.

#### **Provisions on order and procedures for claiming compensation for environmental damages**

To effectively implement compensation work, the Draft LEP (amended) stipulates that the National Assembly authorizes the Government to specifically guide the order and procedures for claiming compensation for environmental damages. Accordingly, the procedures for compensation for damages



▲ Consultation workshop on the Draft LEP (amended) organized by MONRE in Hồ Chí Minh City, 8th January 2020

are expected to include as follows: Notice of environmental damages; Procedures for receiving notifications of environmental damages; Select a service provider to collect data and evidence, calculate damages and determine responsibility for compensation for damages; Determine the types of data and evidence necessary to calculate environmental damages; Methods of calculating damages; Determine the costs of compensation and claim compensation. In addition to the processes and procedures, the Government will provide guidance for implementation with attached forms and documents.

Determination of damages caused by environmental pollution, degradation includes the following contents: Determining the scope, area and location of the polluted or degraded environment; Determining the number of environmental components degraded, types of ecosystems and species damaged; Determining the level of damages to each environmental component, ecosystem and species.

Forms of settlement of compensation for environmental damages: Compensation for environmental damages is settled through the following forms: Agreement between the parties; Reconciliation; Request to arbitration for settlement; Lawsuit in court. The lawsuit in court shall comply with the Civil Procedure Code's provisions on compensation for non-contractual civil damages, except proving the causal relationship between the acts of violating the LEP and the damages occurred under the responsibility of the violating organizations or individuals, polluting the environment.

Costs of compensation for environmental damages: Costs for determination of damages; Costs for organization to respond to environmental incidents. Costs of compensation for damages are directly paid by organizations or individuals or paid to the Environment Protection Fund for payment.

Determination of damages caused by deterioration in environmental function and productivity: Adding a new article is that the costs for determination of damages shall be paid by the compensation party. ■



# Policies should be developed in accordance with the actual situation of each region and each locality in waste management



▲ Mr. Shon Dong Yeoub - Chief Representative of KEITI in Việt Nam

**Recently, the Ministry of Natural Resources and Environment (MONRE) submitted to the National Assembly the Draft Law on Environmental Protection (LEP) (amended), which proposed a plan to collect waste fees by volume, instead of the current average household collection plan. The proposal has received many multidimensional opinions showing the interest of the whole society for the work of environmental protection. In order to better understand this proposal, the Vietnam Environment Administration Magazine (VEM) has made an interview with Mr. Shon Dong Yeoub - Chief Representative of the Korea Environmental Industry and Technology Institute (KEITI) in Việt Nam on Korea's experience in charging waste by volume (and by type of waste) which has been applied for a decade.**

**VEM:** Could you tell us the situation of the collection, transportation and waste treatment in Korea?

**Mr. Shon Dong Yeoub:** Waste treatment in Korea is basically carried out through the volume-based waste fee system (VBWFS). In addition, with the tool of extended producer responsibility, which requires manufacturers to reduce waste, promote recycling and reuse, we are working hard to build up a socio-economic institution with a model of resource circulation.

Like many developing countries, Korea's waste disposal is largely dependent on the landfilling before the implementation of the VBWFS. In 2017, the rate of the landfill of household and business came to 8.3%, 6.1% were incinerated, 85.4% were reused and 0.2% were discharged to the sea.

In 1994, before the implementation of the VBWFS, the level of emissions per capita in Korea was 1.3 kg/person/day, after applying this policy, the emission level dropped sharply. Since 1997, the average discharge per capita is from 0.94 kg - 1.05 kg/person/day and this level of emissions has been maintained. Compared to the average emissions of the Organization for Economic Co-operation and Development (OECD) countries (1.425 kg/person/day in 2015), the emission level of Korea is relatively low.

**VEM:** How the application of economic instruments in waste management policy is implemented in Korea?

**Mr. Shon Dong Yeoub:** Before collecting waste fee by volume, in Korea, waste fee was collected by area, partly by weight and volume. For example, in Seoul, the waste bags in districts are divided by bags for households and businesses and also divided into volumes of 2 liters, 3 liters, 5 liters, 10 liters, 20 liters, 30 liters, 50 liters, 75 liters, 100 liters. Citizens can buy all kinds of garbage bags by size at designated locations such as convenience stores, large supermarkets, laundry shops..., put garbage in the prescribed places and it will be collected.

For large-sized waste items, such as household appliances, people can buy a waste label/stamp at the district committee, paste it on the waste and then discard it or use large-scale waste collection facilities.

**VEM:** What are the advantages as well as challenges when applying the Korean's VBWFS?

**Mr. Shon Dong Yeoub:** The VBWFS is an effective tool that was designed to collect waste fee from people according to the waste proportion which they generate. Therefore, the advantage of this method is to encourage people to voluntarily reduce the amount of waste.

For recyclable waste, it will be classified and people don't have to pay any fee, so it helps encourage waste separation and reuse in the community. Reducing the amount of waste and sorting recyclable waste not only decreases the fee for the citizens but also helps waste management agencies reduce their reliance on incineration facilities or landfills.

The effort to change the way people dispose of their waste through a public awareness campaign are methods that do not pressure people but it is difficult to achieve the desired effect





and take a lot of time. While the use of Government-sanctioned measures require a workforce to control and large investments in both funding and manpower. In addition to the achieved results, the VBWFS in Korea has encountered the following difficulties:

Most garbage bags are full of food waste, so there are many environmental problems such as odors or the appearance of flies and bugs at the incineration or landfill sites. This caused discontent for the surrounding people.

Moreover, the VBWFS has put localities to face a rapid increase in recycling resources. Recycled products are classified but there is no market, so backlog often happens.

In addition, localities have also challenges in expanding their facilities and for treating food waste by incineration and landfill. Meanwhile, the use of incineration and landfill services built by private is costly.

**VEM:** *Currently, the MONRE is collecting opinions to complete the Draft LEP (amended), which has proposed a plan to collect waste fees by volume, instead of the current plan of collecting average fee per household... So, could you share your experience to implement this policy in Việt Nam?*

**Mr. Shon Dong Yeoub:** In order to effectively implement the VBWFS, it is necessary to list the problems that may occur during the implementation process and prepare in advance plans to deal with those problems.

Việt Nam, depending on the specific local situation, should develop scenarios and plans to handle the consumption of reusable products to be collected, processed food waste and its smell, preventing illegal littering and calling for cooperation of the people and society while implementing this mechanism.

As far as I know, in 2012, Việt Nam issued the National Strategy on Environmental Protection toward 2020, vision to 2030 (NSEP), which mention on researching, testing and gradually applying on a large scale the waste fee collection by volume and by type of waste, solid waste. In addition, the Strategy also identifies step by step raising the fee levels, which is sufficient to cover the costs of solid waste collection, transportation and landfill; form a recyclable and reusable waste market.

Dr. Shon Dong Yeoub has started his mission of as Chief Representative of the KEITI in Việt Nam since January 2020. KEITI is an Institute under the Ministry of Environment of Korea specializing in assisting enterprises in developing and introducing Korea's advanced and environmentally friendly technologies and sharing policy information on waste treatment, developing standards on air quality, water quality..., those issues are very interested in Việt Nam. At the same time, it is a bridge to help develop the cooperative relationship between Việt Nam and Korea, connecting businesses of the two countries in the field of environment.



▲ In Korea, people can easily buy waste bags at the supermarkets

Along with that, the Draft LEP (amended) was built at the right time to evaluate the achieved results of the NSEP and base on that, raising appropriate amendments and supplements to complete the LEP as well as develop a Strategy on Environmental Protection for the next period. With such a good preparation, I believe that Việt Nam will overcome the above-mentioned difficulties and achieve the desired results when implementing VBWFS.

**VEM:** *In your opinion, in order to apply this policy, what conditions does Việt Nam need to effectively handle waste both economically and environmentally?*

**Mr. Shon Dong Yeoub:** According to the statistics in South Korea, after starting to apply the VBWFS in two years, the proportion of waste generated was reduced by 11%, the waste reuse was increased by 9% compared with the absence of this tool.

The VBWFS is an incentive method to help reduce the waste volume as well as the burden on the environment. To effectively implement this mechanism in Việt Nam, it is crucial to develop suitable policies to apply efficiently to each region and each locality, considering specific feature of them.

In addition, promoting propaganda and encouraging the active implementation of civil society are also necessary.

**VEM:** *Sincerely, thank you!*

**PHẠM ĐÌNH** (Implemented)



# The Draft Law on Environmental Protection (amended): Comprehensive, highly practical with breakthroughs



▲ Dr. Văn Ngọc Thịnh - the Country Director of WWF-Viet Nam

**WWF - Việt Nam has been working in the environmental and natural resources sector for years in the fields of environmental protection, biodiversity conservation (biodiversity), sustainable use of natural resources, adaptation and minimization of the impacts of climate change. In particular, WWF - Việt Nam has contributed comments to the Draft Law on Environmental Protection (LEP) (amended) in order to improve legal system on environmental protection. The Vietnam Environment Administration Magazine (VEM) had an interview with Dr. Văn Ngọc Thịnh - the Country Director of WWF - Việt Nam to understand the organization's opinions on the Law and its works in Việt Nam.**

**VEM:** Currently, the Ministry of Natural Resources and Environment (MONRE) has submitted to the National Assembly the Draft LEP (amended) and is continuing to complete it, according to the comments from the National Assembly delegates. As an international nature conservation organization in Việt Nam, what do think about this Draft LEP?

**Dr. Văn Ngọc Thịnh:** Having a comprehensive legal system, ready to amend, inherit and contextualize the global context is key for a sustainable and environmentally friendly developed economy. The rapid development of Việt Nam's economy and society in the recent years requires timely supplementation of regulations on environmental protection in general and biodiversity in particular with criteria to conserve natural resources, satisfy and integrate extensively with the world's sustainable development criteria. The Draft LEP (amended) has made comprehensive and highly practical breakthroughs, integrating uniformly from other related laws by new methods taken from national experiences and lessons on environmental protection and biodiversity in recent years.

Working with a mission "to stop the degradation of the Earth's natural environment and to build a future in which humans live in harmony with nature", WWF - Việt Nam has obtained the urgent need to

complete Việt Nam's legal system related to environment protection and biodiversity. In the past time, along with effective cooperation activities with MONRE and related agencies in improving the capacity, effective communication, sharing of international experiences, WWF - Việt Nam has actively participated in policy support activities, such as organizing consultation workshops on the revision of the LEP hosted by the MONRE; gathering a network of international WWF experts to contribute and share international experiences and lessons for the revision of the Law. Many lesson learnt, experience, recommendation and imitative were taken into the new Law such as environmental impact assessment, solid and marine waste treatment, business responsibility, landscape planning and management, climate change, natural resource management and biodiversity.

Recently, WWF - Việt Nam participated as a member of the EPR Working Group established under the Decision No. 641/QĐ-BTNMT dated March 16<sup>th</sup>, 2020 by the Minister of Natural Resources and Environment with the task of "promoting implementation of the manufacturer's expanded responsibility for discarded plastic products". WWF - Việt Nam hopes that our close cooperation and contributions could contribute positively to the implementation of the relevant Law terms and wishes to continue to support the Vietnam's Government to complete the Draft Law, the legal documents, guidelines, as well as implementing activities to protect the environment and natural resources in the future.

**VEM:** Could you please tell us some outstanding activities having been implemented by WWF - Việt Nam after the Memorandum of Understanding (MOU) was signed?

**Dr. Văn Ngọc Thịnh:** The MONRE has been a strategic partner of WWF for years. WWF always appreciates the cooperation and support of the MONRE in environmental





protection works in Việt Nam. The MOU signing for long-term cooperation has taken this partnership into a new level to realize a new global commitment to nature and people. As soon as the MOU was signed, WWF - Việt Nam worked with the Ministry to carry out many activities as agreed.

The first level of cooperation is to amend the new LEP 2014 which is under review by the National Assembly. WWF has provided international information and experience, experts, supported seminars and contributed specific comments on each chapter and section of the LEP. Many new initiatives and experiences have been acknowledged and integrated in the Draft LEP (amended) such as an environmental impact assessment, treatment of solid waste, domestic waste and marine plastic waste, corporate responsibility, landscape management and planning, climate change, natural resource management and biodiversity.

For cooperation in minimizing plastic waste pollution, WWF - Việt Nam has worked closely with the MONRE to develop the Mitigating Ocean Plastic Debris in Việt Nam project. The project is to partly support the implementation of the National Plan of Action on managing the marine plastic waste up to 2030, developed by MONRE and issued by the Prime Minister under the Decision No. 1746/QĐ-TTg dated December 4<sup>th</sup>, 2019. The project aims to minimize the impact of plastic waste on marine ecosystems; conserve marine biodiversity; improve the knowledge of the community and society on discharge of plastic waste and negative consequences on the environment and health; improve the capacity of officials in managing and implementing activities related to waste and ocean plastic waste management.

For cooperation in responding to climate change, WWF - Việt Nam works with the MONRE to organize annual workshops with civil society organizations, independent experts, academics and universities to review process, and update the National Determined Contributions (NDC). The workshops are usually held before the Vietnam Delegation attends the United Nations Climate Change Conference (COP). As a partner of the MONRE in sharing issues and solutions to the international communities, WWF - Việt Nam has worked closely with the Vietnam Delegation at COP to orga-



▲ The leader of Phú Yên Province signed the commitment with the MONRE and WWF - Việt Nam to join in the Urban Plastic Reduction Program

nize side events on the issues of climate change, energy and gender equality at COP.

As the Chair organization of the Climate Change Working Group (CCWG), WWF - Việt Nam hosted coordination activities and called for contributions from NGOs in updating and implementing NDC, focusing on issues related to society and vulnerable communities. An outstanding activity is to develop a technical report integrating gender equality into the implementation of the NDC and the National Adaptation Plan (NAP). Additionally, WWF - Việt Nam, together with the MONRE, has implemented some projects related to climate change as a technical assistant to ensure effective activities. The most recent project which is funded by the UK Embassy in Việt Nam, is to raise awareness of 4 primary schools in Hà Nội City on energy and plastic waste issues.

For cooperation in the conservation of biodiversity and sustainable development, WWF - Việt Nam and the MONRE have worked to implement a series of initiatives and projects aimed at protecting biodiversity and ecosystems. The New Deal for Nature and People project was implemented to respond to and realize the Prime Minister's support for a New Deal for Nature and People at an event in the annual meeting of the 74<sup>th</sup> UN General Assembly organized by WWF and partners. Activities focused on assessing the overall impact of Việt Nam's biodiversity loss and the impacts caused by economic sectors; promoting private economic sectors to sign voluntary commitments toward biodiversity. In addition, the Raise Voice to Protect Ecosystems for Nature and People initiative is aimed at reducing the loss and degradation of biodiversity in Việt Nam through support to complete and implement effectively legal policies on fighting against wildlife trade and consumption with active participation and consensus from the community and local people. Through extensive communication and awareness raising activities, the project is expected to launch the "Say no to wildlife trade and consumption" Movement throughout the country.



**VEM:** *To manage effectively environment in general and biodiversity in particular in Việt Nam and orient to sustainable development, what solutions do we need in the future?*

**Dr. Văn Ngọc Thịnh:** Việt Nam still has valuable diverse ecosystems. We now have understood better than ever what we must do to restore the nature. Việt Nam has many things to do to preserve these valuable natural resources.

*Firstly*, we need to set new goals of sustainability. It is an action effort to stabilize climate and restore nature to achieve the goal of sustainable development and reduce the risk of disease outbreaks in the future when the connection between nature and man is unbalanced. We must have serious actions to radically solve ongoing biodiversity loss at an unprecedented pace globally. This can be done by stopping the conversion of natural habitats to other development purposes and significantly reducing the impact of production and consumption on nature in agriculture, fisheries, forestry, mining industry and infrastructure construction by 2030.

*Secondly*, set new goals of financial investment for biodiversity. In the economic and financial reforms, especially to restore the economy after the COVID-19, financial investments in the public and private sectors need to be mobilized to conserve and restore biodiversity. This includes long-term management and local management for protected areas. This goal should be supported by economic decisions considering biodiversity, transforming important industries and production activities that negatively impact the environment and stop investing in activities causing serious consequences to the nature.

Last but not least, there should be coherence between conventions, commitments and accountability to achieve the desired outcome. To achieve the goals set for 2030, there must be commitment at the highest political level and by society. There should be a transparent enforcement and accountability process to monitor actions, outputs and to ensure the achievement of global goals. This process must also allow increased ambition and action over time, promote the integration of natural elements into important national and economic development strategies.

**VEM:** *Sincerely, thank you!*

NGUYỄN HẰNG (*Impemented*)

Currently, the Ministry of Natural Resources and Environment (MONRE) is in the process of completing the Draft Law on Environmental Protection (LEP) (amended). One of the new contents in the Draft Law, in Article 111 is the application of best available technology (BAT). This is a new approach to technology-based pollution prevention and control policy. This is also the first time BAT is included in the LEP, so many opinions are raised in the process of discussing BAT concepts/contents, BAT approach options, roadmap and implementation steps, difficulties and challenges in implementation. A thematic study on BAT was conducted by MONRE and Hanns Seidel Foundation (HSF) in Việt Nam. Hopefully, these shares will contribute to partially answering the questions posed and informing the decision-making process.

According to the Draft LEP (amended), BAT is defined as follows: “The best available techniques are the techniques and methods of effective and advanced management, consistent with reality to prevent and control pollution in each stage of the production process, minimizing the impact on the environment”. However, some domestic production sectors have known BAT early and used BAT since the 90s of the last century. The textile and garment and footwear sectors are the two sectors with the earliest and deepest integration, as well as the first two sectors approaching BAT. BAT helps businesses access the market and meet the rigorous requirements of customers. Many other businesses, through recent surveys, are applying best techniques in their sectors to use resources efficiently and reduce emissions but not call BAT. According to Vietnamese experts, BAT essentially means “effective technical/technological solutions to help solve production problems, including environmental problems”. BAT being used in Việt Nam is mostly from abroad, or refers to foreign documents, not originating in Việt Nam. Currently, Việt Nam does not have its own BAT list.

## FUNCTIONS OF BAT

BAT is a technology with a number of key functions such as setting emission values and licensing conditions, tools for pollution prevention and control and market functions. Therefore, BAT becomes an important policy instrument in many countries.

### *Policy instrument for setting emission limit values and licensing conditions*

In fact, BAT often comes from large businesses, researching and piloting to solve production problems. When successful, BAT becomes “model” to learn, especially for small and medium businesses without conditions to pilot. BAT reflects the technological capabilities at a time with the outstanding technical specifications identified by managers as emission limit values (ELVs). ELV is defined as the highest value allowed to be discharged into water, soil and air environments for certain pollutants, corresponding to the production sectors, that are legally bound or regulated for industrial deployments. ELV is created by BAT, BAT has the function of creating the policy regulations while ELVs are legally bound in all countries, BAT is for reference only. Technologists





# Apply BAT in the pollution prevention and control policy

LÊ MINH ĐỨC

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NGUYỄN THỊ HỒNG LAM

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are free to choose different approaches to technologies/technical solutions as long as ELVs are achieved. BAT in that case acts as a technical guideline, assisting operators in the design, operation, maintenance and disposal of facilities for ELV compliance.

## ***BAT in pollution prevention and control***

BAT is a technology-based approach to industrial pollution prevention and control. BAT carries a technological function in solving problems of prevention. These are techniques applied before recycling, treatment and land-fill processes, or before an end-to-end treatment process. Production is divided into three main stages: Input, processing and end-to-end treatment. BAT mainly affects the first two processes of production, preventing or minimizing emissions before treatment. Key techniques include: Equipment or technology transformation, process or process transformation, changes in formula or product design, changes in input materials, improvement in corporate governance, maintenance, training and inven-

tory. A production technology can integrate multiple BATs. Not all BATs produce ELV and a single BAT does not replace environmental impact assessment reports. ELVs are established by one or more BATs, including the balanced end-to-end technologies.

## ***Market means and production efficiency improvement***

In fact, many markets and importers of Việt Nam require businesses to perform BAT, or meet BAT conditions. For the textile garment sector, the European Union (EU) market provides a list of restricted substances in textile and garment products to export to this market. To solve that problem, experts and businesses must refer to relevant BAT guidelines, apply BAT to eliminate restricted substances. Many large textile and garment customers ask to associate BATs with exports, even assign one or more specific BATs to each product lot. The practical benefits lead businesses to BAT, applying BAT more and more popular.

Thus, BAT is a mean for businesses to achieve product quality goals, reduce costs and increase competitiveness. From a technological point of view, environmental issues such as emissions are often associated with resource efficiency. Energy efficiency and saving techniques are both economical and reduce emissions at the same time (gas emissions, solid wastes). Some other techniques allow to improve product quality, along with the elimination of toxic chemicals and restricted substances in the products. BAT contributes to the creation of outstanding technical specifications that benefit the businesses and environment.



▲ BAT helps prevent and control environmental pollution



### **BAT determination**

In principle, BAT is determined based on multi - dimensional data sources: Economy; Environment; technique/technology (some guidelines also consider social factors). In addition, the database also includes environmental monitoring statistics and data, a balance between preventive and end-to-end treatment technologies. The steps taken, the time and resources needed to mobilize depend on the goal of completing the BAT reference document. There are many parties involved in collecting information and assessing/selecting BAT. BAT reference documents (BREFs) are the most important documents, the result of communication between many partners: Government representatives, industry/business representatives, non-governmental organizations (NGOs), research institutes...

The EU has a standardized method for selecting and assessing techniques for BAT determination, called the Seville Process. Accordingly, there are 3 basic steps to determine BAT: Survey information, Assess technology and Develop BAT selection criteria. In practice, each country takes different steps, although still relying on the EU framework guidelines. The selection of sector/field is the first step. All countries' laws on environmental protection are concerned with the source of pollution, the level of pollution by region and by production sector/field. These are also the priority subjects to apply BAT. Russia divides production sectors into 4 groups: I, II, III and IV according to the level of adverse environmental impacts (Group I is the largest emitter group) while Korea pointed out 17 most polluting sectors/fields based on environmental statistic and monitoring results. The United States Clean Air Act points to air pollutants, with about 8 sectors at high risk in this direction.

The division of the sector/field by the level of environmental impact also means that operators will be bound by BAT-related integration licenses, mandatory requirements for installation of

automatic monitoring equipment with data transmission to the national monitoring center. Before collecting information on the economic, environmental and technical aspects of pollution prevention and control technologies, the technical working group will decide on the contents and scope of the survey. Data will be collected based on sector-oriented survey questionnaires.

In the list of remaining BATs (after eliminating according to the criteria), the reference document must contain information on technical aspects, financial costs, including equipment prices available. In the list of techniques separated as BAT, the operators are not required to adopt the lowest cost of them. In some sectors, such as food processing, a given list may have several options (BATs) for one objective, some BATs are only applicable to sub-sectors.

### **BAT REFERENCE DOCUMENTS (BREFS)**

BREFs are the final result of the BAT assessment and selection process. Technical Working Groups (TWGs) make the final decision on BAT selection and BAT document preparation. Draft BREFs also have to go through public consultation process before they can be approved. Country environmental laws stipulate that technological parameters (ELVs and BAT-AELs accompanying emission levels and technology parameters) will be submitted to the Government for official approval. No later than 6 months after the BAT reference document is accepted/approved, the BAT-AEL becomes mandatory and enforced.

In the EU, BREFs are developed under the Industrial Emissions Directive (IED) and administered by the European IPPC Bureau, based at the EU's Joint Research Centre (JRC) in Seville. BAT conclusions are published in the Official Journal of the EU, and translated into all 23 official EU languages. There is currently a total of 32 sectoral BREFs being developed during the period 1997 - 2018. Decisions have been made public for 13 industrial fields and over 19 fields that benefit from BREFs. The BAT Guidelines (BREFs) can take 39 months to develop and 12 months for consultation and decision making. Therefore, the formulation and issuance of BREF can theoretically take about 4 years.

The world economy is shifting towards green growth, climate change adaptation, a BAT-based approach while achieving resource efficiency and reducing emissions is the right approach consistent with the general trend. Countries are moving towards the goal of industrialization and modernization, in fact, towards the high-tech industry. Businesses wishing to solve environmental problems such as emissions and pollution control must be associated with economic efficiency in resource use. BAT contributes to improving technology efficiency, eliminating toxic chemicals/materials, promoting the realization of green chemistry. Obviously, the BAT approach is the





# Volume-based waste fee: international experience and recommendations for Việt Nam

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Article 79 of the Draft Law on Environmental Protection (LEP) (amended) stipulates “Households and individuals shall be responsible for paying part of the costs for collection, transportation and treatment of domestic solid wastes according to the generated volume”, instead of the current fee per capita or household. However, many opinions were concerned about the feasibility of the Volume-based Waste Fee (VBWF). Experience of implementing the VBWF in the world, especially the experience of the US and South Korea is one of the “good examples” of successful implementation of the VBWF with some lessons for the process of policy development and implementation in Việt Nam.

## GENERAL EXPERIENCE IN TERMS OF VBWF

The VBWF is an economic instrument in environmental management - a policy that stipulates people, households and agencies/organizations that generate wastes similar to household wastes must pay a fee according to the type of wastes and the volume of wastes they actually discharge.

Domestic solid wastes (also called wastes) generated from the above sources are classified into categories such as: recyclable solid wastes; food wastes; bulky wastes; conventional domestic solid wastes. Households, individuals and organizations that generate domestic solid wastes must carry out the classification according to regulations and buy specialized bags and packages designed by the management agencies to store each type of wastes.

Specialized bags and packages have different sizes from small to large, suitable for the needs of more or less wastes to be discharged of each household,

individual or organization. Bulky wastes (such as; wooden furniture, dining tables, kitchen pots...), which cannot be stored in specialized bags, must be stamped for collection - also stipulated by the management agencies.

Waste collection and transportation units and organizations have the right to refuse to collect and transport for households, individuals and organizations that do not classify wastes, and do not put wastes into the correct packages as regulations or bulky wastes are not properly stamped for collection. Such waste discharge violations are even sanctioned in accordance with the legal provisions.

The fee for waste discharge is included in the selling price for collection bags or stamps. Households, individuals or organizations that discharge a lot of wastes will have to pay more because they have to buy more bags, buy bigger bags or more expensive stamps. Therefore, they will consider reducing wastes and classifying wastes for reuse, so that they have to pay the least.

Such volume and type-based waste fee applied in many countries such as Australia, the US, South Korea, Japan, the Netherlands, Germany and Europe, China, Taiwan... created an economic incentive to encourage the reduction of the volume of wastes, thereby, reducing the negative impacts on society due to waste landfilling or incineration activities, contributing to promoting the recycling and reuse of wastes. On the other hand, the purchase of waste packages or waste collection stamps is to pay part or all of the costs for domestic solid waste collection, transportation and treatment, in accordance with the “polluter pays” principle, contributing to reducing the burden and reliance on the state budget for waste management.

## EXPERIENCE IN THE UNITED STATES

The VBWF has been implemented since 1973 in Grand Rapids, Michigan's second largest city. By the period 1998 - 2008, the number of localities in the US implementing the VBWF increased by 70%. In 2011, about 30 out of the 100 largest cities with about 25% of the population in the US implemented the VBWF policy. Thanks to the economic incentive of the VBWF program, the volume of wastes to be treated has decreased by an average of 17%, the recycling and compost production rate increased accordingly. The newly applied fee rate usually offsets about 30 - 40% of the costs of collecting, transporting and treating wastes and will increase gradually in the following years. VBWF policy is also adjusted to suit the collection infrastructure and specific conditions of cities.

**Table 1: VBWF implementation in some US cities**

Place	Starting year	Bag /trash type and fee rate	Benefit	
			Wastes reduced	Recycling rate increased
Grand Rapids, state of Michigan	1973	3 USD/ 32-gallon bag	28%, from 32,197 to 23,052 tons (2006 - 2013)	76%, from 5,958 to 10,508 tons (2006 - 2013)
Sandwich, state of Massachusetts	2012	0.25 USD/ 8-gallon bag 0.60 USD / 15-gallon bag 1.20 USD/ 30-gallon bag	42% (2012 - 2013)	From 29% to 54% (recycled cans, plastic products, glass bottles increased 74%; paper and carton packages increased by 20%)
San Jose, state of California	1993	29 USD/ 20-gallon barrel 31 USD/ 32-gallon barrel 62 USD/ 64-gallon barrel 93 USD/ 96-gallon barrel	21% (1993 - 2014); aiming to reduce landfill area by 50% by 2020	From 33% to 45% (1993 - 2014)
Binghamton, New York	1991	1.35 USD/ 30-gallon bag 0.75 USD/ 20-gallon bag 0.5 USD/ 10-gallon bag	42.8% (1990 - 2008) Landfill costs reduced by 34.6%	41.2% (1990 - 2008)

Source: Compiled from John Abrashkin (2015), Columbia University

New York is the most populous City in the US with about 9 million people, generating about 14 million tons of solid wastes/year. Applying VBWF since 2015, waste bags are priced at 2 USD/30-gallon bag, 3 USD/45-gallon bag that can be purchased online and at retail locations in the city. Building owners can sign up for the VBWF program online through an account linked to a database maintained by the Department of Design and Construction that keeps track of information about each order and bag consumption of the building. Registered building owners will receive a 10% discount on all bags, posters and communication materials for the residents of the VBWF program. Through an

application on a tablet mounted in a collection vehicle, the Municipal Department of Public Works can extract information about any violation and send a warning letter/email to building owners. Progressive fines apply as: 25 USD for the first violation, 50 USD for the second time and 100 USD for the third time and 500 USD for the fourth time within 6 months. The VBWF program has helped the City reduce 10 - 13% of the wastes, increase the recycling rate by 5 - 6% and save about 145 million USD/year for waste collection and treatment. Across the City, waste bag sales also generate new revenue of up to 550 million USD/year, meeting about 43% of the annual budget of the Environmental Sanitation Agency, offsetting for the waste collection and treatment costs previously had to come from property taxes. Thus, political responses to new fees are also reduced.





## EXPERIENCE IN SOUTH KOREA

South Korea used to encounter many serious problems of waste collection and treatment, the volume of wastes generated was quite large and not classified at source for reuse and recycling. In the late 1980s and early 1990s, the country made a lot of communication efforts to guide people to classify wastes at source, facilitating recycling and reducing the need for treatment and disposal. However, over the course of about 5 years, this has been almost ineffective because people did not see any benefits, especially economic benefits due to the policy of collecting fixed average fee per household regardless of the volume of wastes.

### Preparation

South Korea officially applied VBWF on a nationwide scale for domestic wastes since 1995. Previously, the country had more than 3 years of preparation, feasibility study and piloting in major cities and regions and densely populated areas in rural areas. The preparation work has been done fairly methodically. The Government endeavored to solve the problems that arise during the pilot phase, required local authorities to take effective measures to respond to the rapidly increasing demand for waste recycling. South Korea has also extended the time limit for the collection of wastes for landfill, allocated human resources to cope with the volume of land-filled wastes increased dramatically right before the implementation of the new VBWF policy. Through the media and advertising programs, the Government has provided a detailed list of the waste types and where those can be disposed.

### Implementation methods

The payment method is done through the sales of waste collection bags and stamps, with prices depending on the conditions of each locality, district but not much difference. At first, there were only two types of

**Table 2: Sizes of waste bags in South Korea**

	Bag type	Bag volume (liters)	Bag materials
1	Regular bag	3, 5, 10, 20, 30, 50, 75, 100	HDPE, LLPE, Calcium Carbonate, biodegradable bag (AP + starch/HDPE or AP + starch/LLPE)
2	Reusable bag	3, 5, 10, 20, 30	
3	Bag in public places	30, 50, 100	
4	Food waste bag	1, 2, 3, 5	

*Source: South Korea Ministry of Environment (2016), VBWF Implementation Guide*

bags, recyclable and non-recyclable. After 15 years, non-recyclable bags are separated into regular bags and food waste bags. There are many different sizes of bags to meet the more or less waste needs of households, individuals and organizations.

The price of waste bags in 1995 was about 6 cents/5-liter bag; 11 Cents/10-liter bag; 21 Cents/20-liter bag; 51 Cents/50-liter bag, offsetting about 40% of the total costs of collecting, transporting and treating wastes, the State compensated for the remaining 60%. The price is adjusted over time, up to now about twice as high as the price issued in 1995, meeting 60 - 70% of the total costs of collection, transportation and treatment, depending on each locality. Household items and bulky items such as tables, chairs, wardrobes, floor mats... are stamped to be collected with a fee ranging from 10 to 20 USD/unit.

Since 2013, food wastes are charged by weight to encourage people to limit the volume of water in the wastes, making the process of collecting and transporting these wastes more hygienic. Food waste weighing tools are also being equipped more and more, especially in densely populated apartments.

### Results and efficiency

In terms of environment, the VBWF program in South Korea reduced the total volume of domestic wastes by about 14%, from 58,118 tons /day in 1994 to 49,915 tons /day in 2014. The volume of wastes per capita decreased by 29%, from 1.33kg /day in 1994 to 0.95kg /day in 2014. The volume of food wastes mixed with other types of wastes was 31.6% in 1994, it fell to only 2.1% in 2014.

The volume of wastes recycled in 2004 was 2.8 times higher than that of 1995 (increased from 8,927 tons/day to 24,588 tons/day). The proportion of wastes recycled increased from 15.4% in 1994 to 59% in 2014, while the proportion of wastes landfilled decreased from 81.2% to 15.7%. The reduced volume of wastes

**Table 3: Volume of domestic wastes in South Korea over the years**

	1994	1995	1996	2000	2005	2010	2014
Average volume of wastes (kg/person/day)	1.33	1.07	1.11	0.98	0.99	0.97	0.95
Total volume (tons/day)	58,118	47,774	49,925	46,438	48,398	49,159	49,195

Source: South Korea Environmental Policy Bulletin (2016)

also helped minimize pollution problem caused by leachate from landfill sites, by incineration of wastes and reduce land resource consumption for the purpose of building new landfill sites.

In terms of economy, the benefits from saving on waste treatment costs and from selling recycled products increased from 19.6 trillion won (17.8 billion USD) in 1995 to 21.4 trillion won (19.5 billion USD) in 2013. In 1995, a total of 1.59 billion waste bags were sold nationwide. This number decreased rapidly by 43% in the next 4 years, to 913.34 million bags in 1998. Currently, the number of bags sold remains at an average of 939.18 million bags/year.

In terms of society, efficient and sustainable use of resources, waste classification for reuse, recycling has gradually become a habit, a cultural feature of most Korean people. Nearly 90% of respondents said that they feel comfortable and not bothered with the sorting of wastes.

#### **Existing problems**

The biggest problem in the VBWF program in South Korea is not disposing wastes in the correct types and illegal burning. Many families did not use specialized collection bags, but use other types of bags, evade surveillance cameras at collection points, or dump trash on unattended vacant land. To overcome this situation, local Governments requested not to collect trash bags of the wrong types, so that these waste disposal areas became dirty. Therefore, communities there must have a self-monitoring mechanism to prevent illegal discharge of wastes. Although the number of violations has decreased significantly from 1,091,849 cases in 1995 to 287,404 cases in 2014, this is still a problem that needs to be resolved.

## **LESSONS LEARNT AND RECOMMENDATIONS**

Reducing, classifying for reuse and recycling (3R) of wastes is a common trend of a civilized, environmentally friendly and sustainable development society. The Draft LEP (amended) stipulates the VBWF which is appropriate and necessary for Việt Nam. From the experience of other countries, in order for VBWF to receive the support of the people and come into practice soon, we need:

*First*, to have a careful preparation of policies, infrastructure, feasibility studies and pilot activities before they can be officially implemented.

*Second*, to create consensus between the authorities and people on the basis of good multi-dimensional communication. The way to collect and to use the fee, the way to classify wastes... should be fully guided for people and households.

*Third*, to study to stipulate the appropriate fee rates. The fee rates should be high enough to encourage waste reduction, but not too high that may create a financial burden on households. The fee rates applied abroad are often adjusted to match inflation and socio-economic conditions.

*Fourth*, to apply appropriate sanctions and penalties for non-compliance. In South Korea, offenders can be fined up to 900 USD if they do not dispose wastes with waste bags in accordance with regulations. Cameras are installed at waste collection points and elsewhere to control violations.

*Fifth*, to set up a consistent system of collection, transportation and treatment. People will lose their belief in the system if their wastes are sorted at home but then thrown together in waste collection trucks.

*Sixth*, to adjust the provisions in the Draft LEP (amended), only stated as “according to the volume generated” but not “weight” in order to avoid the misunderstanding that many people have to weigh their wastes, causing unnecessary controversy. Also explain more specifically as the fee is calculated by volume or unit of wastes ■





# Plastic pollution flowing into oceans to triple by 2040



▲ *Plastic pollution affects everyone*

A study on the Science Journal estimated, the amount of plastic produced annually has been climbing fast since 1950, when global production totaled 2 million tons. In 2017, that number was 348 million tons and is expected to double again by 2040. The amount of plastic waste flowing into the ocean and killing marine life could triple in the next 20 years, unless companies and Governments can drastically reduce plastic production.

According to the International Solid Waste Association, single-use plastic consumption has increased during the coronavirus pandemic. Face masks and latex gloves are washing up daily on Asia's remote beaches. Landfills worldwide are piled high with record amounts of takeaway food containers and online delivery packaging. If no action is taken, however, the amount of plastic going into the sea every year will rise from 11 million tons to 29 million tons, leaving a cumulative 600 million tons swilling in the ocean by 2040, the equivalent weight of 3 million blue whales. Plastic pollution is something that affects everyone. It's not one country's problem. It's everyone's problem.

The plastic industry has lobbied against Government bans on single-use plastic. Some of the biggest buyers of plastic are consumer goods companies like Coca-Cola, PepsiCo, Nestle and Unilever. They have all made commitments to use a greater amount of recycled content in products in the future. But current Government and corporate commitments will only reduce the amount of plastic flowing into the ocean by 7% by the year 2040.

The research offers solutions that could cut the projected volume of plastic entering the ocean by more than 80%. The roadmap for stemming the runaway ocean plastic waste crisis is among the most detailed ever offered in a study. The strategy includes implementing new laws to discourage new plastic production and provide subsidies for reusable alternatives, redirecting hundreds of billions of dollars in plastic production investment into alternative materials, recycling facilities and waste collection expansion in developing countries.

To cut the flow of ocean plastic by 80%, paper or compostable alternatives to single-use plastic would be needed and packaging should be redesigned to more than double the share of recyclable material. This would also require a u-turn by the energy industry, which is rapidly building new chemical plants around the world to boost plastic output as its traditional fuel business is eroded by a rise in cleaner energy sources■

AN BÌNH



# Actions for addressing plastic waste under the Basel Convention

**P**lastics are extremely durable, making the ubiquitous transboundary movement of plastic waste a major concern. The majority of polymers manufactured today is likely to persist for decades and probably for centuries, if not millennia.

## PLASTIC WASTE COMES IN MANY FORMS

In addition to polymers, additives such as flame retardants and plasticizers are mixed into synthetic materials to increase their flexibility, transparency, durability and longevity. Some of these substances are persistent organic pollutants (POPs). A variety of international and regional instruments and approaches exist to protect biodiversity, manage hazardous chemicals and wastes and prevent pollution of the marine environment from ocean-based and land-based sources of pollution. The cooperation among those initiatives and activities is key to effectively addressing this global environmental challenge.

## STRENGTHENING WASTE MANAGEMENT SYSTEMS AND TACKLING PLASTIC WASTE AT SOURCE

Plastic pollution can arise at all stages of the life-cycle, from production, to use and final disposal. The greatest burden of plastic waste entering the sea is likely to arise where waste collection and management systems are ineffective. Developing countries in particular may face challenges in managing the rapidly growing volume of plastic wastes for instance if they have insufficient capacity to dispose of them in an environmentally sound manner. This may lead to the dumping of plastic wastes on land or in waters and to the need to rely on the continued availability of recycling or other disposal capacity in other states.

Meanwhile, the plastic waste challenge also needs to be tackled at source. Steps promoting the prevention and minimization of the generation of plastic waste, where technically and economically feasible, are critical.

## ACTIONS FROM THE BASEL CONVENTION

The Basel Convention on the control of transboundary movements of hazardous wastes and their disposal was adopted on 22<sup>nd</sup> March 1989 by the Conference of Plenipotentiaries in Basel, Switzerland. The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as “hazardous wastes” based on their origin and/or composition and their characteristics, as well as household waste and incinerator ash. Since its establishment, many guidances, guidelines, manuals, methodologies and strategies have been developed to assist parties and others to implement the Basel Convention. In line with the mandate set out in paragraph 1 of Article 16 of the Convention and Decision BC-14/18 on technical assistance, technical assistance and capacity-building activities to implement the Basel Convention including for plastic waste are carried out.

In May 2019, the Conference of the Parties to the Basel Convention adopted Decision BC-14/12 by which it amended Annexes II, VIII and IX to the Convention in relation to plastic waste. In addition, the Conference of the Parties adopted Decision BC-14/13 on further actions to address plastic waste under the Basel Convention. The Decision includes in its sections I, II, III and VII a set of actions for preventing and minimizing the generation of plastic waste, improving its environmentally sound management and controlling its transboundary movement; reducing the risk review of Annexes I, III and IV and related aspects of Annexes VIII and IX to consider, as part of its mandate, whether any additional constituents or characteristics in relation to plastic waste should be added to Annex I or III, respectively, to the Convention.

In section V of the Decision (Technical guidelines), the Conference of the Parties decided to update the 2002 technical guidelines for the identification and environmentally sound management of plastic wastes and for their disposal. In section VI of the Decision (Basel Convention partnership on plastic waste), the Conference of the Parties welcomed the proposal to establish a Basel Convention partnership on plastic waste and decided to establish a working group of the Partnership. The goal of the Partnership is to improve and promote the environmentally sound management of plastic wastes at the global, regional and national levels and prevent and minimize their generation so as to, among other things, reduce significantly and in the long-term eliminate the discharge of plastic waste and microplastics into the environment, in particular the marine environment. In section VIII (Further consideration), the Conference of the parties decided to include in the work program of the Open-ended Working Group for 2020 - 2021 the consideration of whether, how and when the Conference of the parties should assess the effectiveness of the measures taken under the Convention to address the plastic waste contributing to marine plastic litter and





microplastics and which further activities could possibly be conducted under the Convention in response to developments in scientific knowledge and environmental information related to plastic waste as a source of land pollution, marine plastic litter and microplastics. The Conference of the parties also invited parties and others to submit information on plastic waste almost exclusively consisting of one cured resin or condensation product and plastic waste almost exclusively consisting of one of the listed fluorinated polymer wastes, for consideration at its fifteenth meeting.

Furthermore, the Conference of the Parties adopted other decisions specifically addressing plastic wastes: Decisions BC-14/9 on cooperation with the World Customs Organization on the harmonized commodity description and coding system, BC-14/10 on national reporting, BC-14/18 on technical assistance, BC-14/19 on the Basel Convention Partnership Program, BC-14/21 on international cooperation and coordination and BC-14/23 on the clearing house mechanism for information exchange.

## COOPERATION WITH OTHERS

The rapidly increasing levels of plastic waste pose a serious global environmental problem that cuts across all aspects of sustainable development and impacts virtually every sector of society. Advancing the environmentally sound management (ESM) of plastic waste and controlling its transboundary movement (TBM) in line with the provisions of the Basel Convention therefore requires close cooperation and coordination among international organizations and other stakeholders.

In 2019, at its fourteenth meeting, the Conference of the Parties (COP) to the Basel Convention adopted two important decisions to address plastic waste: Decision BC-14/12 by which the COP amended Annexes II, VIII and IX to the Convention in relation to plastic waste, and decision BC-14/13 on further actions to address plastic waste. The COP requested the Secretariat through Decision BC-14/21 among others to continue to work closely with other international organizations on activities related marine plastic litter and microplastics.

### *Synergies with the Stockholm Convention on POPs*

Plastic waste may contain various POPs, such as some brominated flame retardants and short-chain chlorinated paraffins. The leaching out of POPs from plastic particles may have significant adverse effect on the health of both terrestrial and marine wildlife. Plastic debris can also adsorb POPs such as PCBs, DDT and dioxins which, if ingested, exhibit a wide range of adverse chronic effects in marine organisms. The Stockholm Convention controls various POPs which have been used as additives, flame retardants, plasticizers in plastics or manufacture of fluoropolymers. Through Decision BC-14/13, the COP welcomed the work of the Stockholm Convention to eliminate or control the production or use of POPs in plastic products that may reduce the presence of such pollutants in plastics waste, thus contributing to reducing the risks associated with marine plastic litter and microplastics at the global level.

### *Cooperation with UNEP on activities related to plastic wastes, marine plastic litter and microplastics*

In 2019, the United Nations Environment Assembly (UNEA) adopted resolution 4/6, therein noting with concern that the high and rapidly increasing levels of marine litter, including plastic litter and microplastics, represent a serious environmental problem at a global scale. The resolution further stressed the importance of environmentally sound waste management and international cooperation for effectively preventing pollution from marine litter, among others. Through Decision BC-14/21, the COP requested the Executive Secretary to cooperate with the United Nations Environment Program (UNEP) in fostering the implementation of UNEA resolutions related to the sound management of chemicals and waste, e.g. Resolution 4/6 on marine plastic litter and microplastics.

The ad hoc open-ended expert group on marine litter and microplastics (AHEG) was established by UNEA in 2017 to further examine the barriers to and options for combating marine



▲ *The greatest burden of plastic waste entering the sea is likely to arise where waste collection and management systems are ineffective*



### Basel Convention Plastic Waste Amendments

*The fourteenth meeting of the Conference of the Parties to the Basel Convention (COP14, 29 April - 10 May 2019) adopted amendments to Annexes II, VIII and IX to the Convention with the objectives of enhancing the control of the transboundary movements of plastic waste and clarifying the scope of the Convention as it applies to such waste.*

*The amendment to Annex VIII, with the insertion of a new entry A3210, clarifies the scope of plastic wastes presumed to be hazardous and therefore subject to the PIC procedure. The amendment to Annex IX, with a new entry B3011 replacing existing entry B3010, clarifies the types of plastic wastes that are presumed to not be hazardous and, as such, not subject to the PIC procedure. The wastes listed in entry B3011 include: a group of cured resins, non-halogenated and fluorinated polymers, provided the waste is destined for recycling in an environmentally sound manner and almost free from contamination and other types of wastes; mixtures of plastic wastes consisting of polyethylene (PE), polypropylene (PP) or polyethylene terephthalate (PET) provided they are destined for separate recycling of each material and in an environmentally sound manner, and almost free from contamination and other types of wastes.*

*The third amendment is the insertion of a new entry Y48 in Annex II which covers plastic waste, including mixtures of such wastes unless these are hazardous (as they would fall under A3210) or presumed to not be hazardous (as they would fall under B3011).*

*The new entries become effective as of 1<sup>st</sup> January 2021.*

plastic litter and microplastic from all sources. The Secretariat is collaborating closely with the AHEG in delivering on these mandates. The Secretariat is also cooperating with other important UNEP activities and initiatives with linkages to plastic waste, including the following: Adopted at ICCM1 in 2006, the Strategic Approach to International Chemicals Management (SAICM) is a policy framework to promote chemical safety around the world. The Secretariat participates as a stakeholder in the intercessional process considering the Strategic Approach and sound management of chemicals and waste beyond 2020; The Clean Seas Campaign was launched by UNEP in 2017 with the aim of engaging governments, the general public and the private sector in the fight against marine plastic pollution. The Campaign seeks to address the root-cause of marine litter by targeting the production and consumption of non-recoverable and single-use plastic; UNEP's International Environmental Technology Centre focuses on effective and efficient waste management. Its work on plastic waste includes the "Single-use plastics: A roadmap for sustainability"; Following the recommendations contained in the Manila Declaration, the Global Partnership on Marine Litter (GPML) was launched in 2012 at the United Nations Conference on Sustainable Development. The GPML seeks to protect human health and the global environment through the re-

duction and management of marine litter; The Regional Seas Conventions and Action Plans (RSCAPs) address the accelerating degradation of the world's oceans and coastal areas by engaging neighboring countries in comprehensive and specific actions to protect their common marine environment. The first Regional Seas Convention was the 1976 Barcelona Convention, an integral part of the Mediterranean Action Plan; The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (Abidjan Convention) provides an overarching legal framework for all marine-related programs in West, Central and Southern Africa.

#### **Cooperation with the World Customs Organization (WCO)**

In Para 3 of Decision BC-14/9, the COP requested the Secretariat to submit to the WCO a proposal for amending the Harmonized Commodity Description and Coding System to allow the identification of the various types of waste, including plastic waste.

#### **Cooperation with other international bodies and initiatives**

The Secretariat is also cooperating with over 20 international bodies and initiatives with linkages to plastic waste in order to fulfill its mandate such as the following: Food and Agriculture Organization (FAO), Global Environment Facility (GEF), Global Plastic Action Partnership (GPAP), International Union for Conservation of Nature (IUCN), World Health Organization (WHO), World Trade Organization (WTO), United Nations Industrial Development Organization (UNIDO), Organization for Economic Co-operation and Development (OECD), Inter-Organization Program for the Sound Management of Chemicals (IOMC)...■

**ĐỖ HOÀNG**





# Repairing humanity's relationship with the planet to secure a viable future

All around, on the land and in the ocean, nature's alarm bells are ringing. Wildfires rage in California as hotter, drier conditions make such events more frequent and more severe. One of the worst Atlantic hurricane seasons on record threatens coastal communities... All this seems like a new normal in what scientists refer to as the Anthropogenic, the current geologic period dominated by human influence on the planet.

According to the newly released 2020 Living Planet Report, produced by the WWF, population sizes of mammals, fish, birds, reptiles and amphibians declined globally by an average of 68 percent between 1970 and 2016. Such loss of nature is driven by unsustainable forms of food and energy production and consumption - the same factors that have fanned climate change and provoked public health crises, such as COVID-19.

But there is reason for measured optimism: These problems are linked, but so are their solutions. And if 2020 was the year when our broken relationship with nature revealed itself with immense global consequences, so too can 2020 be the year when humanity began to repair it. The Living Planet Report provides a detailed look at the drivers behind biodiversity loss and an examination of those also serves as a road map for restoring planetary health. Land use change looms largest in this equation, particularly the conversion of pristine native habitats, like forests and grasslands, into agricultural systems. In the Amazon, for example, cattle ranching accounts for 80 percent of the region's deforestation. Deforestation in turn releases carbon into the atmosphere, robs species of their natural habitat and pushes humans into closer proximity with animals that harbor diseases.

Ending this cycle needs to start with ending deforestation in tropical areas, where nearly 90 percent of intact forest loss since 1990 has occurred. One of the most effective interventions is establishing protected areas, such as national parks, wildlife refuges, Indigenous reserves and other conservation areas. Once such designations are made, Governments still need to secure the long-term funding necessary to make those parks



▲ Since 1990, nearly 90 percent of intact forest loss in the planet

effective. After all, a park in and of itself cannot keep out illegal loggers or safeguard sensitive biodiversity. That requires clear borders, engaged communities living in or adjacent to protected areas, rangers, scientists, maps of fragile resources and educational signage. In some cases, it may also involve applying modern technology to the protection of Indigenous lands. All of this costs money.

For that, partnerships among Governments, donors, foundations and financial institutions - similar to the model that has secured long-term funding for 42 million acres of protected rainforest in Peru through Patrimonio Natural del Perú will be vital. Such efforts to channel investment toward forests are a remedy both for environmental pressures and a source of jobs, revenue and well-being.

Other strategies will also be needed to fully repair humanity's broken relationship with nature. As the Living Planet Report makes clear, food production and consumption are also key drivers behind the loss of forests and other vital ecosystems around the globe. Governments could address this phenomenon by enacting policies to reward sustainable agriculture - as has been done in Costa Rica, where locals are paid to follow regenerative practices - and to greatly reduce food loss and waste. The world would also benefit from strategies that reduce the impact of livestock on land use, such as working with ranchers to sustainably manage grasslands. Last, ending the global trade of high-risk wildlife for exotic pets and meat can limit our risk to future zoonotic disease outbreaks while also ending a major threat to species populations.

These are big challenges. But we ignore nature's warning signs at our peril. The pandemic has made that clear. Governments crafting plans for their post-coronavirus recovery have an once-in-a-lifetime opportunity to address the root causes of zoonotic disease spillover and turn the tide on climate change and biodiversity loss.

Effectively, the world has a choice. We can continue with the status quo and accept increasingly frequent wildfires, extreme weather, species loss and disease outbreaks that require trillions of dollars to address each year. Or we can take the steps required to secure a viable future on Earth at a fraction of the cost. ■

NAM VIỆT



# Light pollution effects on wildlife and ecosystems

**F**or billions of years, all life has relied on Earth's predictable rhythm of day and night. It's encoded in the DNA of all plants and animals. Humans have radically disrupted this cycle by lighting up the night. Plants and animals depend on Earth's daily cycle of light and dark rhythm to govern life-sustaining behaviors such as reproduction, nourishment, sleep and protection from predators.

Scientific evidence suggests that artificial light at night has negative and deadly effects on many creatures including amphibians, birds, mammals, insects and plants.

## LIGHT POLLUTION IS A DRIVER OF INSECT DECLINES

A recent study says habitat loss, pesticide use, invasive species and climate change have all played a role in insect declines globally, but that artificial light at night is another important but often overlooked cause. The light affects insect movement, foraging, reproduction and predation, says the study which, however, suggests that insect biodiversity loss can be mitigated with better informed lighting practices.

## ARTIFICIAL LIGHTS CAN LEAD BABY SEA TURTLES TO THEIR DEMISE

Sea turtles live in the ocean but hatch at night on the beach. Hatchlings find the sea by detecting the bright horizon over the ocean. Artificial lights draw them away from the ocean. In Florida alone, millions of hatchlings die this way every year.

## ARTIFICIAL LIGHTS HAVE DEVASTATING EFFECTS ON MANY BIRD SPECIES

Birds that migrate or hunt at night navigate by moonlight and starlight. Artificial light can cause them to wander off course and toward the dangerous nighttime landscapes of cities. Every year millions of birds die colliding with needlessly illuminated buildings and towers. Migratory birds depend on cues from properly timed seasonal schedules. Artificial lights can cause them to migrate too early or too late and miss ideal climate conditions for nesting, foraging and other behaviors.



▲ *Birds that migrate or hunt at night navigate by moonlight*



▲ *Light pollution radically alters nocturnal animal nighttime environment*

## ARTIFICIAL LIGHTS DISRUPT THE WORLD'S ECOSYSTEMS

Nocturnal animals sleep during the day and are active at night. Light pollution radically alters their nighttime environment by turning night into day. According to scientific researches, for nocturnal animals, the introduction of artificial light probably represents the most drastic change human beings have made to their environment. Predators use light to hunt and prey species use darkness as cover. Near cities, cloudy skies are now hundreds, or even thousands of times brighter than they were 200 years ago. We are only beginning to learn what a drastic effect this has had on nocturnal ecology.

Glare from artificial lights can also impact wetland habitats that are home to amphibians such as frogs and toads, whose nighttime croaking is part of the breeding ritual. Artificial lights disrupt this nocturnal activity, interfering with reproduction and reducing populations.

## MANAGING THE IMPACT OF ARTIFICIAL LIGHT

With artificial light increasing by around 2% per year globally, light pollution has become a pertinent issue.

At the Convention on Migratory Species of Wild Animals thirteenth meeting of the Conference of Parties (CMS COP13) which took place in Gandhinagar, India from 17 to 22 February, 2020, delegates considered the topic for the first time following draft resolutions submitted independently by the European Union and Australia. New proposed guidelines drafted by the Government of Australia provide a framework for assessing and managing the impact of artificial light on susceptible wildlife, including migratory species. For example, they consider wildlife-friendly lighting design and the management of light sources near protected wildlife.

The guidelines recognize the potential of conflicting requirements for wildlife conservation and human safety and the need for a balance between the two.

To prevent harm to migratory species, the guidelines propose a multi-step approach. If artificial light is visible outside, best practice light design should be applied so as not to impact nearby habitats of threatened species. An environmental impact assessment should consider negative effects before artificial light sources are installed■

**ĐỖ THỦY**  
(*UNEP source*)



# GreenBays Project: Moving toward model cities for waste management in coastal Northeast Vietnam

Plastic pollution has become one of the most pressing environmental issues. Along with many countries around the world, Việt Nam is determined to repel plastic waste pollution in general and marine plastic waste in particular. To join hands to reduce plastic waste, Centre for Supporting Green Development (GreenHub) has implemented the Project “Moving toward model cities for waste management in coastal Northeast Vietnam” (GreenBays), funded by United States Agency for International Development (USAID), from March 31st, 2018, to September 30th, 2020, in Hải Phòng City and Hạ Long Bay (Quảng Ninh Province). After nearly 3 years of operation, the Project has achieved many results so far, contributing to promoting management and minimizing plastic waste in Việt Nam.

Summary of the achievements of the GreenBays Project, on September 25th, 2020, Centre for Supporting Green Development cooperates with Directorate of Fisheries, Quảng Ninh Department of Agriculture and Rural Development; International Union for Conservation of Nature (IUCN) organized the workshop "Marine plastic waste management towards biodiversity conservation and aquatic species habitat". Through this workshop, GreenHub shared the economic and environmental efficiency of the pilot models that the GreenBays Project has supported to implement.



▲ Ms. Trần Thị Hoa - Director of GreenHub speaking at the workshop

## MINIMIZE FOAM BUOYS WASTE IN AQUACULTURE

Implementing the model of foam buoys covered with paint material Line X in aquaculture cages, recently, with the consent of the Hạ Long Bay Management Department, The GreenBays Project has piloted a Line X-coated foam float model in aquaculture cages to increase the durability of the buoy and limit the impact on the marine environment in the Bay. The Project has installed 70 Line X-coated foam buoys at the Vạn Chài Cooperative on Hạ Long Bay (this is a US paint that has announced environmental and durability criteria according to USA standards) in 2 phases (January 1 - 2/2019 and May 2020) and will provide another 50 buoys in October 2020. The results after nearly 2 years of testing show that the use of Line-X paint over the foam buoys has helped increase the hardness and durability of the buoys reduce impact due to crash, limit breakage and flaking. The environmental efficiency of float-



▲ The composting model from organic waste of the Women's Union of Hà Phong



▲ Lane products, recycled baskets from brick ties of the Women's Unions of Hà Trang Ward





▲ (Left photo) Director of the Directorate of Fisheries Mr. Trần Đình Luân and delegates visiting the Painted Buoy Line-X Model

ing materials in cage culture is reflected in the criteria of materials that do not pollute the environment, easy to clean and non-toxic to the aquaculture environment (Article 34, Decree No. 26/2019/ND-CP detailing Point b, Clause 1, Article 38 of the Law on Fisheries). Besides, to minimize styrofoam waste into the environment and promote the use of Line X paint, the People's Committee of Quảng Ninh Province has issued Document No. 6419/UBND-MT, dated September 5th, 2019, on strengthening protection environmental protection in aquaculture activities and construction of floating works in the Province. Accordingly, the regulation: "in case of using foam buoys, it is required to coat Line X paint on the surface to increase the durability of foam buoys, resist impact, compression, prolong while using"; Local technical regulations on materials used for buoyancy in brackish and salty aquaculture in Quảng Ninh, issued on August 31st, 2020, regulate the roadmap until 2021, only those materials are eligible in terms of durability, tensile... (Line-X buoys) can be installed as floating buoys in aquaculture activities.

From the results of the Project, to reduce plastic waste, especially styrofoam waste in Việt Nam, in the coming time, SHQ Indochina Joint Stock Company (Distributor and developer of Line-X paint in Việt Nam) has planned to build a factory to manufacture Line-X coated buoys in Quảng Ninh and at the same time make a plan for withdrawing broken buoys, price support for aquaculture households in the area.

## REPLICATION OF GREEN PRACTICE MODELS

In the fight against Covid-19, masks were an indispensable weapon. However, disposable medical masks have put enormous pressure on the environment. With the aim of minimizing waste as well as making the most of available resources, the GreenBays Project has supported the Hạ Long Women's Union and the Women's Union of Cát Hải District (Hải Phòng City) implement a project to recycle masks, with 1,000 masks made from excess fabric. Along with that, Green Hub's experts guided Yết Kiêu Ward Women's Union to practice the model of producing organic detergent products - ecological enzymes from fruit peels; The Women's Union of Hà Phong Ward composts from organic waste; The Women's Union of Hà Trung Ward makes products of lanes, recycled baskets from brick ties...

Implementing the project, awareness of each officer, member and people in each neighborhood has gradually changed and raised. Households automatically sorting garbage at home; scrap can be reused, such as beer cans, scrap, plastic bottles, cardboard, old utensils not used... are individually gathered into each bag, then brought to a gathering point for sale. The proceeds from the sale of scrap materials, the Women's Unions donate to households in difficult circumstances.

Besides, GreenHub has conducted a waste audit for 7 restaurants and hotels in Cát Bà town. The audit results show that, on average, each hotel room generates about 0.32 kg of waste per day, equivalent to 6.2 liters of waste. Of which 27% by volume is non-recyclable plastic. To reduce the amount of plastic waste every day, Sea Pearl is a pioneer hotel change after sharing green practices. In the bar area of the hotel, plastic straws have not been used at all. Single-time plastic items such as foam boxes, single plastic cups are not provided unless requested by the customer... In addition, the Project also supports Thành Vinh Cooperative (Kiến Thụy District, Hải Phòng City) to implement an asynchronous model of the collection - classification of waste at the source. Ms. Đoàn Thị Mơ - Chairman and Director of the Company



▲ *Delegates directly observed the model of buoys painted with Line-X paint at Vung Vieng Fishing Village*

shared, with the guidance and support of the Project, the Cooperative's staff increased the plastic waste collection and separation, from organic waste including vegetables, fruits and leftovers to make bio-detergent. This is a product that is safe for human health and friendly with the environment.

Next, the communication activities on waste pollution in general and plastic waste in particular were also focused by GreenHub, designing the following documents: "The summary manual for the production of ecological enzymes"; "Bio-composting technologies for organic solid waste treatment"; "Surveying and monitoring of waste in coastal areas in Việt Nam"; "Waste assessment and branding audit (Practical guide)..."

Also, at the GreenBays Project, in the closing workshop, GreenHub organized exhibitions and displays green products and publications. This was considered as a "green highlight", not only attracting people to interact directly with the product, attracting viewers with publications that were designed in bright colors and content that is easy to read and understand.

At the end of the workshop, GreenHub organized a field visit to the pilot model of coating buoy Line-X in Vung Vieng Fishing Village where the Project was implemented. Delegates discussed the type of material as well as the effects of porous waste on the aquaculture industry and the environment. Two painted Line-X buoys on display included a net-coated buoy and an un-netted one. After directly observing and researching the model shows, the difference between a normal porous float (fragile and causes a small porous waste to be difficult to clean) and the float covered with Line-X coating without meshing (durable, firm, there is still grip on the buoy) and covered buoys with net wrap (durable, strong and can replace the net when too much is attached to it, the float remains in its current state and is wrapped with a different wrap instead of being discarded float). Finally, all in favor of Line-X coated buoy with an additional protective net, which will be an effective solution to minimize broken and loose debris.

It can be said that the practical activities, appropriate models, and effective creation of the GreenBays Project are contributing to a positive change in awareness, "small action, big change" of the community, join hands to protect the environment■

**TRẦN THỊ HOA**

## INTRODUCTION

In Việt Nam, fresh surface water pollution and deterioration have been an important problem because of impact on human health and aquatic ecosystem. In practice, detail and extensive monitoring of fresh water quality are limited due to the shortage of human and financial resources. In recent years, the quick induction of urbanization and industrialization become main reasons of increasing water demand and water pollution caused by anthropogenic activity. Therefore, it called for a better procedure to monitor the quality of water in Sài Gòn River systems, which are important water resources for Hồ Chí Minh. Among variety of contaminants which can pollute the fresh water and toxic to human health, heavy metals are great concern due to its toxicity and tolerance once introduced into the aquatic environment. The objective of this study was to investigate the possibility of using tropical fresh water living creatures to detect the contaminated Cr in the water through acute toxicity test. This study is going to contribute to provide a simple and cost effective method to quickly assess the toxicity of fresh water quality, to protect the water resource and health of water users.

Metals are among the most intensively studied pollutants in fresh water environments. Many of metals are important for live processes at very low concentrations, but at higher doses they become toxic (Warnau et al., 1995). Metals can be introduced into environment from many anthropogenic activities such as industrial, agricultural, and mining processes, then they become tolerant pollutants and pose significant risks on living creatures in the ecosystem including human (Lancôt et al., 2016; Schwarzenbach et al., 2010; Tomasiks and Warren, 1996). While some metals play vital roles in living processes of organisms, some others do not. On the other hand, it is worth noting that all metals become toxicants when reaching a concentration threshold (Wetzel, 2001). The previous studies have pointed out that metals are indestructible and can be accumulated



# Detection of chromium contamination in freshwater through acute toxicology test with water flea *D. carinata* and freshwater microalgae *Scenedesmus* sp

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Recently, the quickly increasing of population and variety of anthropogenic activities such as urbanization and industrialization put the freshwater ecosystem in the risks of contamination with xenobiotics released by anthropogenic activities. Among pollutants, heavy metals are considered as the most toxic elements to aquatic living organisms and human health. In South - Eastern region of Việt Nam, Sài Gòn River not only provides drinking water for million people, but also supports biodiversity of local freshwater ecosystem. The aim of this study is to assess the sensibility of freshwater microalgae *Scenedesmus* sp. and water flea *Daphnia carinata*, two fresh water species from Viet Nam to chromium (Cr). After physical and chemical characterization, field water samples from upstream of Sài Gòn River was used as dilution water in toxicity tests. With water flea *D. carinata*, the EC50 value of 48h immobilization experiment was 96.3 µg/L for Cr. Growth inhibition of the algae cells was determined following exposure for 72 h, and EC50 values of Cr was 386.1 µg/L. The results showed that Cr is highly toxic to *D. carinata*, and toxic to algae *Scenedesmus* sp. Based on the observed high sensitivity with Cr, both two organisms are potential bioindicators for the assessment of chromium pollution in Sài Gòn River. However, water flea *D. carinata* was more sensitive than freshwater algae *Scenedesmus*. On the other hand, algae *Scenedesmus* sp. calls for further investigation on chromium uptake capacity and utilization in chromium contaminated water treatment.



▲ **Figure 1:** Morphology of *Daphnia carinata* (from left to right: male and female)

in body of organisms (Lau et al., 1998; Waykar and Shinde, 2011), then transferred to higher trophic levels of the food chain (Ikemoto et al., 2008). The toxic effects of metals to living organisms have been well defined and considered as a major threat to aquatic biodiversity (Lancôt et al., 2016; Millennium Ecosystem Assessment (Program), 2005; Moldovan et al., 2013; Van et al., 2013). Recently, it has been found that toxicity of dissolved metals in water is regulated by variety of water physical and chemical characteristics such as pH, alkalinity, dissolved organic carbon (DOC) and hardness (De Schampelaere and Janssen, 2004; Hoang et al., 2004; Jo et al., 2010; Linbo et al., 2009; Ryan et al., 2009). Therefore, it is necessary to take the water samples of interested area and use them to prepare the toxicity test using tropical organism to define the sensitivity level.

In this study, two tropical freshwater microcrustacean and phytoplankton species, including *D. carinata*. and *Scenedesmus* sp., were screened in terms of sensitivity to Cr for cost effective pollution monitoring. The two living organisms were chosen due to high sensitivity of microcrustacean *Daphnia* to dissolved heavy metals in water, while planktonic algae are easy to culture, and require only small laboratory space and simple equipment. Algae are primary producers of which population growth inhibition can be used as criterion of response in toxic-



ity test. Moreover, the inhibition of algae's population in aquatic environment can imply the chain reaction on ecological food chains in water environment.

The purpose of this study is to develop and optimize a procedure using a battery of organisms for use in routine monitoring of freshwater of Sài Gòn River. One of the first criteria for toxicity test is sensitivity of organism to contaminants of interest. Therefore, we aim to develop a practical process which enables the detection of Cr pollution in fresh water using a battery of organisms. The test battery consists of two species representatives of two consecutive trophic levels: micro algae *Scenedesmus* sp. (primary producer), and *Daphnia carinata* (primary consumer).

## MATERIALS AND METHODS

### Water samples collection

Surface water was collected from the upstream of Sài Gòn River (Dầu Tiếng Freshwater Reservoir). The water sample was transferred to the Environmental Toxicology Laboratory, Institute for Environment and Resources in Hồ Chí Minh City, filtered through 0.45  $\mu\text{m}$  syringe filter (Sartorius, Germany) and stored at 4°C prior to the tests.

### Water samples characteristics

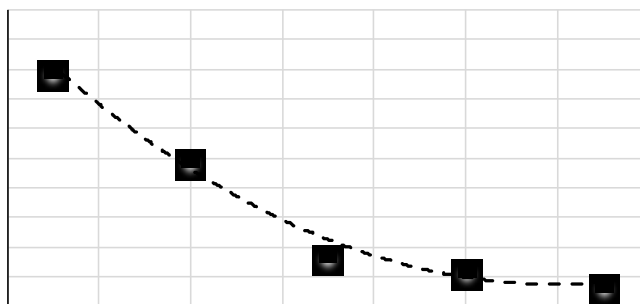
The filtered waters from Dầu Tiếng Reservoir was analyzed for water quality parameters that may affect the bioavailability of dissolved metals and the survival and growth of the two organism of test battery, alkalinity and hardness, pH, trace metals and pesticides. Total hardness was determined based on concentrations of  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$ , metals were analysis by ICP/MS.

### Testing organisms

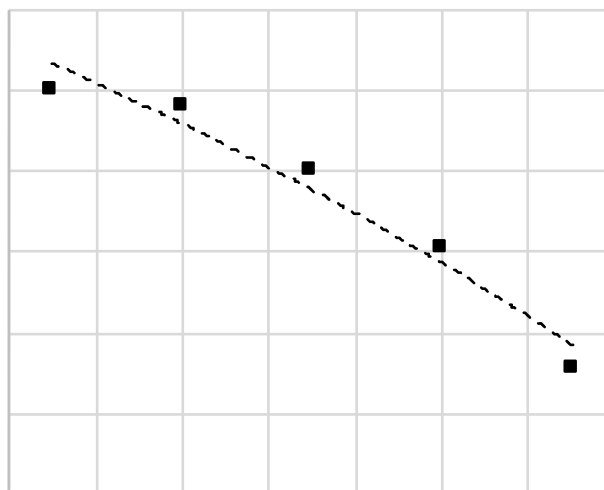
Organisms used in the present study were *D. carinata* and freshwater algae *Scenedesmus* sp. These species were collected from the field in Việt Nam and have been cultured in the Ecotoxicology Laboratory, Institute for Environment and Resources, Vietnam National University - Hồ Chí Minh City for over a year. *D. carinata* were cultured in 1.2 L beakers with 1.0 L of COMBO medium (Kilham et al., 1998) it is necessary to develop a medium that adequately supports the growth of both algae and zooplankton without the need



▲ **Figure 2:** Fresh water algae *Scenedesmus* sp in culture flasks.



▲ **Figure 3:** *Daphnia* concentration-immobilization rate curve. Log concentration of chromium is presented in x axis, and immobility percentage of *Daphnia* at 48 hours is showed in y axis.



▲ **Figure 4:** Algal concentration-inhibition (growth rate) curve. Log concentration of chromium is presented in x axis, and growth rate inhibition percentage of *Scenedesmus* algae at 72 hours is showed in y axis.



**Table 1: Dissolved metal concentrations (µg/L) and physical characteristics of filtered field water from Sài Gòn River used for the test. BDL, below detection limits of the ICP/MS. N/A, not available**

Nr.	Parameter	Value	Nr.	Parameter	Value
1	TSS (mg/l)	5	17	Cd (mg/l)	BDL (LOD = 0.00004)
2	Hardness (mg CaCO <sub>3</sub> /l)	14	18	Pb (mg/l)	0.0032
3	COD (mgO <sub>2</sub> /l)	7	19	Cr (mg/l)	0.006
4	N-NH <sub>4</sub> <sup>+</sup> (mg/l)	BDL (LOD = 0.03)	20	Cu (mg/l)	0.090
5	Cl <sup>-</sup> (mg/l)	4.10	21	Ni (mg/l)	BDL (LOD = 0.004)
6	N-NO <sub>3</sub> <sup>-</sup> (mg/l)	0.24	22	Mn (mg/l)	0.010
7	P-PO <sub>4</sub> <sup>3-</sup> (mg/l)	BDL (LOD = 0.01)	23	Hg (mg/l)	BDL (LOD = 0.0003)
8	Total N (mg/l)	BDL (LOD = 1)	24	Se (mg/l)	BDL (LOD = 0.006)
9	Total P (mg/l)	0.02	25	Ag (mg/l)	BDL (LOD = 0.003)
10	SO <sub>4</sub> <sup>2-</sup> (mg/l)	2.17	26	Lindan (µg/l)	BDL (LOD = 0.006)
11	Al (mg/l)	3.34	27	Aldrin (µg/l)	BDL (LOD = 0.01)
12	Ca (mg/l)	9.91	28	Dieldrine (µg/l)	BDL (LOD = 0.01)
13	Mg (mg/l)	1.73	29	Endosulfan (µg/l)	BDL (LOD = 0.01)
14	Na (mg/l)	2.42	30	4,4'-DDT (µg/l)	BDL (LOD = 0.01)
15	K (mg/l)	2.35	31	4,4'-DDE (µg/l)	BDL (LOD = 0.01)
16	As (mg/l)	BDL (LOD = 0.0005)	32	4,4'-DDD (µg/l)	BDL (LOD = 0.01)

to alter the medium to accommodate either the algae or the animals. We devised a freshwater medium, named COMBO, that supports excellent growth of both algae and zooplankton. Two types of algae, *Ankistrodesmus falcatus* and *Stephanodiscus hantzschii*, were reared in COMBO and their growth rates were not significantly different from those of algae grown in a reference medium (WC). The light intensity was approximately 1000 lux. The crustaceans were fed with a mixture of green alga (*Chlorella sp.*) and YCT (yeast, cerro-phyl and trout chow digestion), prepared according to the U.S. Environmental Protection Agency Method (US EPA, 2002) with a modification to the algal culture medium, which was the COMBO medium. Algae *Scenedesmus sp.* were culture in COMBO medium.

#### Acute toxicity tests

The 48 - h static nonrenewal acute toxicity tests were conducted following the guidelines of the US EPA methods (US EPA, 2002) with two adjustments of: light regime (a photoperiod of 12 h:12 h light:dark at a light intensity of ca. 1000 Lux) and temperature (27 ± 1°C) for tropi-

cal species. Neonates of *D. carinata* (age ≤ 24 h) were used for testing. Each treatment had four replicates and each replicate consists of 10 neonates in 40 mL of exposure solution in a 50 - mL polypropylene cup. The neonates were fed during the pre-exposure duration but starved during the tests (US EPA, 2002). Chromium treatments were prepared by spiking Cr in constituted medium prepared with field-collected water. K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> was used as Cr salt. Five concentrations of Cr were prepared for each metal exposure. Controls were prepared by transferring the neonates into into the constituted medium without metal addition.

We checked daily for immobilized organisms and removed them from the cups. Immobilization data were used to determine median lethal concentrations (48 h-LC50). At the end of the test, test solution in one of the four replicates was randomly taken (in each metal concentration) for the metal analysis by ICP/MS.

#### Algal inhibition test

Bioassays were performed using the green algae *Scenedesmus sp.* To analyze the toxic effect of Cr on the algal growth, serial concentrations of K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> were tested using the COMBO media prepared without EDTA (Kilham et al., 1998) it is necessary to develop a medium that adequately supports the growth of both algae and zooplankton without the need to alter the medium to accommodate either the algae or the animals. We devised a freshwater medium, named COMBO, that supports excellent growth of both algae and zooplankton. Two types of algae, *Ankistrodesmus falcatus* and



*Stephanodiscus hantzschii*, were reared in COMBO and their growth rates were not significantly different from those of algae grown in a reference medium (WC). The initial inoculum cell density was  $2 \pm 0.2 \cdot 10^4$  cells/mL, and the assays were performed in triplicate using 125 mL flasks containing 25 mL of medium. Cultures were incubated at 24°C in constant light (4000 Lux), and the algal growth was estimated by absorbance readings at 750 nm after 96 h incubation. The effective concentrations of metal inducing 50% effect (EC<sub>50</sub>) were calculated by plotting the values for the percent inhibition in average specific growth rate against the logarithmic value of the test substance concentration. Using the regression equation..., determine the 50% inhibition concentration (EC<sub>50</sub>).

## RESULTS & DISCUSSION

The aim of this study is to develop a practical and cost effective procedure to detect chromium contamination in freshwater of Sài Gòn River. The two organisms were selected because they originated from tropical freshwater environment that made it easy to use in Việt Nam environmental conditions.

In order to evaluate the applicability of the procedure in detection of Cr once introduced into freshwater of Sài Gòn river, field water sample was obtained and spiked with Cr at different concentration, then put in our toxicity test procedure with a battery of two organisms to detect Cr contamination. The chemical analyzing result of freshwater from upstream of Sài Gòn River showed good quality, without metals or herbicides contamination (Table 1).

Chromium and chromium salts are widely used in ore refining, chemical and refractory processing, cement-producing plants, automobile brake lining, catalytic converters for automobiles, leather tanneries.

Chromium is an essential micronutrient in carbohydrate metabolism cycle, but is toxic at high levels. Hexavalent chromium is known to be 100 times more toxic than trivalent chromium, for both acute and chronic exposures because of its high-water solubility and mobility, as well as

easy reduction. Therefore, this form of chromium is more strictly considered in water quality monitoring. At low levels, chromium can cause harmful effects on aquatic organisms. For instance, at 62 ppb it inhibits the growth of algae. In many cases, aquatic animals are found more sensitive to chromium than aquatic plants (Wright and Welbourn, 2002). Like other metals, chromium toxicity change according to temperature, pH and salinity. Besides, chromium toxicity is higher in low hardness water environments.

Increasing industrialization in recent years, poses higher risks of Cr contamination of the freshwater reservoir and therefore it is required better supervision to detect Cr pollution in this freshwater body. For *D. carinata*, with the modified ISO test medium with pH 7.0, EC 168.8 (µS/cm), DO = 6.8 (mg/L) and temperature 29°C, the EC<sub>50</sub> value of 48 h immobilization experiment was 96.3 µg/L. The result showed that the sensitivity of *D. carinata* in this study to Cr was comparable with *Daphnia magna* with EC<sub>50</sub> being 130 µg/L (Okamoto et al., 2015).

The results clearly demonstrated that the proposed toxicity testing procedure using *D. carinata* in this study has high sensitivity to detect Cr contamination in freshwater of Sài Gòn River. Therefore, it can be considered as a useful tool for Cr pollution monitoring control in the Fresh Water Reservoir. The EC<sub>50</sub> value was 96.3 µg/l for Cr make this organism a promising tool for detection Cr pollution. According the environmental law of Việt Nam, the highest allowance level of Cr can be up to 1000 µg/l. Therefore, with EC<sub>50</sub> value 96.3 µg/l the proposed testing procedure using *D. carinata* is sensitive and easy to apply to detect chromium contamination.

Apart from *D. carinata*, freshwater microalgae *Scenedesmus* sp. was also used to detect chromium pollution. The combined use of different organisms could increase the reliability of heavy metal pollution detection. Using COMBO medium without EDTA prepared with water collected from Dầu Tiếng Reservoir. The test medium has pH of 7.6, EC of 278 (µS/cm), DO of 6.9 (mg/L) and temperature of 26°C. The result pointed out the growth inhibition effect of Cr on the fresh water algae. The IC<sub>50</sub> value was 386.1 µg/L, lower than *Scenedesmus obliquus* (620 µg/L) which has been reported previously (Pavel and Cepák, 2005).

In Việt Nam, the highest allowance value of Cr in surface water is 1000 µg/L. Therefore, the EC<sub>50</sub> value of *S. cenedesmus* in this study was lower than the legal threshold of water quality and can be a potential tool to detect Cr contamination water samples.

## CONCLUSION

The result showed that both organisms are potential bioindicators for the assessment of chromium pollution in Sài Gòn River. However, water flea *D. carinata* was more sensitive than freshwater algae *Scenedesmus* sp. Moreover, the algae *Scenedesmus* sp. may be useful in bioremediation of Cr contamination waste water by simply adding required nutrients to support algae growth and they may extract Cr from water into its





biomass. However, this potential strategy needs further study to investigate the ability to absorb and accumulate Cr in cells of the fresh water algae. The cost effective and practical proposed toxicity test procedure in this study can be a useful tool to monitor water quality and detect Cr contamination in Sài Gòn River as a first protection barrier. Then, more detail chemical analysis can be combined later to precisely identify toxic pollutants■

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# Vietnamese companies urged to willingly adopt the rules of Free Trade Agreement

HOÀNG XUÂN HUY

*Department of International Co-operation (MONRE)*

The European Union-Viet Nam Free Trade Agreement (EVFTA) is a new generation bilateral trade agreement between Việt Nam and 28 member states of the European Union (EU). The trade deal was approved by Việt Nam's Parliament on June 8<sup>th</sup>, 2020 and came into effect on August 1<sup>st</sup>, 2020. The EU is one of Việt Nam's top export markets, where total export and import values in 2019 were US\$ 41.48 billion and US\$ 14.91 billion, respectively. Thus, the EVFTA is expected to boost the two-way trade, provide optional consuming markets for companies of both sides and set up new supply chains to increase the added values for products. As a new-generation FTA, the EVFTA contains new subjects regarding intellectual property, labour protection and environmental issue besides common matters of merchandises and services. The document consists of 17 chapters and environmental issues are written in Chapter 17 on sustainable development. The environmental adherences and obligations ruled by the EVFTA are meant to make the stakeholders enhance their interaction in trading and environmental policies, thus assuring trade and investment activities subject to the EVFTA will not have negative impact on the environment and relevant activities.

## MAJOR ENVIRONMENTAL OBLIGATIONS SUBJECT TO THE EVFTA

The environmental commitments, obligations and arrangements subject to the Sustainable Development Program involve in the following actions and fields: the Consensus on obligations to implement the Multilateral Environmental Agreements (MEAs) such as the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the United Nations' Framework Convention on Climate Change (UNFCCC). Under the EVFTA, Việt Nam and the EU are obliged to maintain both environmental protection and legal enforce-

ment at a highly intensive level of efforts when increasing investment and trade. Either side has their own standards of environmental protection but they should meet the requirements under the MEAs. At the same time, under the EVFTA, companies from both Việt Nam and the EU must comply with the rules on corporate social responsibility (CSR) developed by the international community and the Organisation for Economic Co-operation and Development (OECD); enhance their efforts in the preservation and management of natural resources; fight illegal logging and fishing...

In the EU, imported goods are subject to highly strict regulations on environmental quality control. Under the EU rules on technical standards, the imports must be marked with CE' symbol if they meet the test on environmental safety requirements so that they become tradable in the European market. That proves the EU is becoming more alert on companies' CSR policies and their environmental standards in production.

Thus, the EU and Việt Nam both recognize the sustainable balance between economic development, social development and environmental protection. Environmental obligations ruled by the EVFTA require strict compliance from the Vietnamese Government, businesses and people. Therefore, Vietnamese producers must follow and meeting high environmental standards in addition to assuring the quality of goods and services exported to the European market.

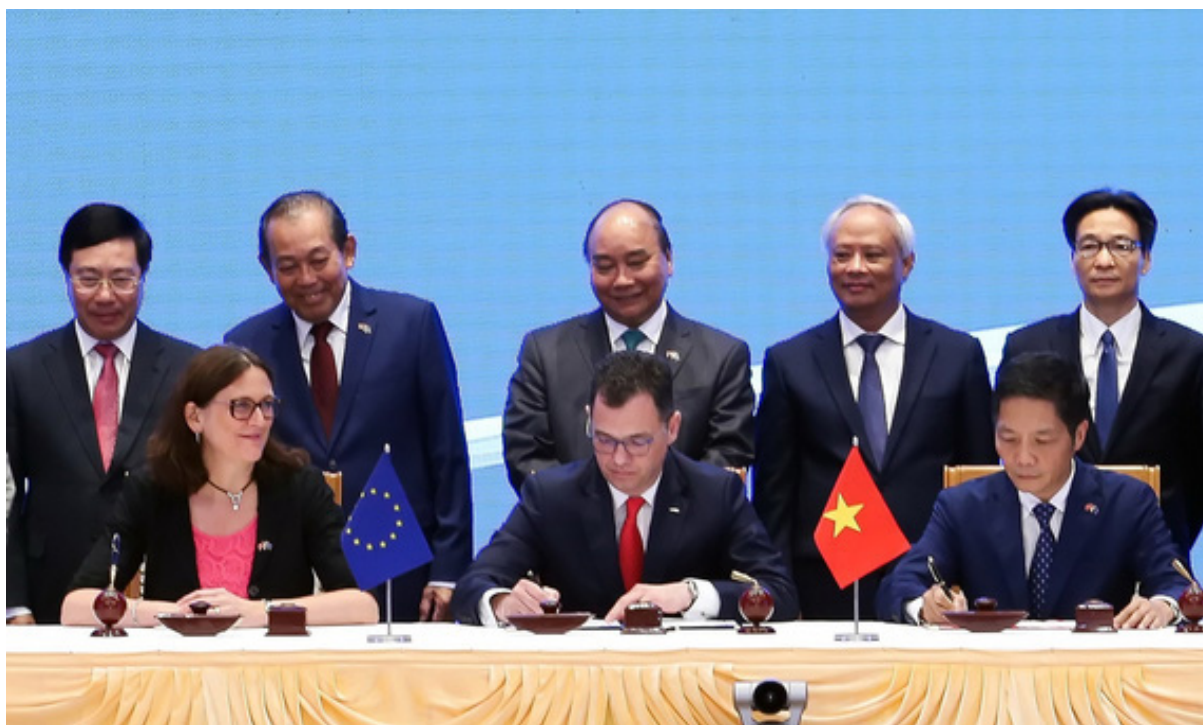
## DIFFICULTIES AND CHALLENGES

As a developing economy, Việt Nam is still struggling and the resources for environmental protection activities remain limited. Thus, the pressure and risk are quite high for Việt Nam when it comes to complying and implementing environmental obligations under the FTAs. The following are the obstacles:

The legal framework on environmental protection is still incomplete. Though policies, regulations have been issued but the enforcement has remained stagnant. And when it comes to practice, there is overlap among policies and agencies, making it harder for Việt Nam to comply with international rules.

The implementation of environmental regulations has remained less inefficient than expected. Though rules have been made to enhance the administration of environmental activities, there are still serious violations.

Low public awareness of environmental protection remains and this is the major cause for the growing number of violations. A number of Vietnamese companies and people blame economic poverty for environmental destruction while some Government officials have not fulfilled their duty to protect the environment.



▲ The signing Ceremony of the EU - EVFTA between Việt Nam and EU on June 30<sup>th</sup>, 2019 in Hà Nội City

The quality of some international trade officials is below the bar. The FTAs and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) are new to Việt Nam but its Government officials have not experienced with related issues so it would be difficult for Việt Nam to deal with disputes brought by the trade agreements.

Financial resources for environmental protection are limited. Lack of financial support will lead to sufficient investment for the environmental sector. Suffering this, Việt Nam will be tackled to comply and follow the high standards and obligations ruled by the likes of EVFTA and CPTPP.

While the environmental protection standards are not accomplished and the control system has not been fully developed, removing technical barriers for the import of merchandise, equipment and technology would put Việt Nam at the risk of becoming the world's junkyard and consuming market for low-quality products and services.

For the private sector, especially small- and medium-sized enterprises, spending on new production technology and waste treatment system to meet international standards will be very challenging in case they want to raise their shares in overseas markets.

## ISSUES FOR THE GOVERNMENT AND BUSINESS COMMUNITY

### *For the Government and its agencies*

Việt Nam needs to be prepared to comply with the EVFTA's environmental obligations in the near future. The Government has to develop an action plan to resolve the problems mentioned above and focus on the following issues:

*Firstly*, environmental regulations and standards must be improved and completed to make sure Việt Nam meets the obligations and commitments ruled by the MEAs and international laws.

*Secondly*, more investment is required for environmental pollution control while the Government needs to enhance the administration on how people, organisations and businesses comply with environmental rules. Stricter measures and penalties are also imposed on the sectors and businesses that have high risk of environmental pollution and violate the laws.

*Thirdly*, Government officials should be sent to training programmes to improve their knowledge about trade and environmental disputes. Support should be made for environmentally-friendly economic activities, in which the private sector is encouraged to enhance its participation.

*Fourthly*, people and companies should raise their awareness about the obligations and commitments in MEAs and FTAs such as the EVFTA, to which Việt Nam is a member. Especially local enterprises are expected to join training programmes to understand how environmental violations are treated so that they further improve their international integration.

*Fifthly*, the Government, Ministries, sectors and local authorities should be held involving in a integrative system to



resolve environmental issues under the EVFTA. The integrative system must be strong enough to support Việt Nam deal with environmental disputes in global trade.

*Sixthly*, local companies must be updated with any changes of the Vietnamese and international rules. Government agencies should work with Vietnamese firms to study potential impact of the changes so those changes would have minimum effects on domestic business operation.

*Seventhly*, the Government should give local companies updates of environmental technologies so they can adopt the right solutions to meet the standards demanded by the State and increase the performance in both business operation and environmental protection.

#### ***For companies***

Vietnamese enterprises must focus on the following issues to maintain their positions and status on both domestic and international markets, as well as expand their market network:

Local firms are asked to follow the Vietnamese and international laws on environmental protection and apply internationally-recognised environmental standards in production.

Domestic businesses should acquire sufficient understanding of the environmental requirements in the countries where they will send the exports. They should get rule updates from overseas partners, including environmental policies. Vietnamese companies must adopt advanced management models for production and environmental protection, invest in modern, less-polluting technologies to make more competitive, environmentally-friendly products and meet the requirements of export markets.

Local firms are encouraged to develop their own environmental standards, which are in line with international rules, for their products - especially the ones sold to overseas markets.

They are also urged to acquire the biological stamp and strive to create environmentally-friendly outputs to expand the influence in other markets.

In addition, local companies must be proactive to adopt internationally - known environmental mechanisms such as CSR and expanded producer responsibility (EPR)■

Viet Nam needs to address environmental challenges to fully reap the benefits from its new free trade and investment agreements with the European Union (EU). On 8th June, 2020, Vietnam's National Assembly ratified the EU - Vietnam Free Trade Agreement (EVFTA) and Investment Protection Agreement following the European Parliament's approval in February. Ratifying the Agreement clears the path for Việt Nam to expand exports to the potentially lucrative EU market and to attract more investment from the economic bloc.

It is expected to increase Vietnam's GDP and exports by 2.4 and 12 per cent respectively by 2030. This is among the most comprehensive trade agreements between the EU and a developing country. It will remove 99 per cent of tariffs on goods traded between Việt Nam and the EU. It also involves strong, legally binding and enforceable commitments on sustainable development.

Việt Nam is the EU's second largest trading partner in ASEAN after Singapore, with trade in goods and services worth €54.4 billion (US\$ 61.1 billion) a year. Vietnam's major exports include textiles and clothing, electronic products, rice, coffee, seafood and furniture. It imports aircraft, motor vehicles and pharmaceutical products from the EU. The EU is one of the largest foreign investors in Việt Nam, with foreign direct investment totalling €6.1 billion (US\$ 6.9 billion) in 2017, mainly in the industrial processing and manufacturing sectors.

Apart from free trade and associated labour issues, the Agreement commits the EU and Việt Nam to implement the Paris Agreement on climate change and to meet other international environmental agreements. Since negotiations started in 2012, Việt Nam has come a long way to meet the Agreement's requirements. But significant environmental challenges remain.

With commitments ranging from an 8 to 25 per cent reduction in greenhouse gas emissions by 2030 relative to business as usual without and with international assistance respectively, Vietnam's efforts are deemed insufficient by some EU climate advocacy organisations. Vietnam's current trajectory of increasing the share of coal and gas to up to 57 percent in the electricity mix by 2030 appears at odds with its greenhouse gas reduction commitment under the new EU agreements. Việt Nam may face the risk of the EU imposing carbon border adjustments - a tax levied on imports from countries without carbon pricing mechanisms.

Vietnam's water pollution may also raise concerns about the quality of its exported agricultural products among EU consumers who pay close attention to the quality of food sourcing conditions. Further, if not properly addressed, Vietnam's illegal, unreported and unregulated fishing will prolong the current EU 'yellow card' imposition which impedes fishery exports.

High EU environmental standards require Vietnamese businesses to make huge efforts to improve environmental performance. For example, textile products need to follow strict regulations on biodegradable detergents, Nonyl Phenols (NP) and Nonyl Phenol Ethoxylates (NPEs). Packaging



# EVFTA and environmental challenges

Dr. ĐỖ NAM THẮNG  
Australian National University



▲ The workshop "The role of carbon pricing, market-based instrument, potential contribution in implementing the NDC and its applicability in Việt Nam" held on June 25th, 2020 in Vĩnh Phúc Province

materials must follow recyclability and labelling requirements. The Agreement's requirements for conservation and sustainable use of biological diversity, conservation and sustainable management of forest resources, sanitary and phytosanitary measures and non-tariff barriers to trade and investment in renewable energy generation involve significant capacity building and regulation reforms. Vietnam's incomplete environmental institutions also present challenges to protecting the environment under increasing industry activities associated with foreign investment.

Việt Nam could overcome these challenges with sound and timely policy. Setting more ambitious nationally determined contribution targets, followed by imposing a carbon tax on fossil fuels and establishing an emissions trading scheme for large emitters, such as cement and steel manufacturers, would strengthen its commitment to the Paris Agreement. Increasing the share of renewables such as wind and solar power in the electricity mix in Vietnam's forthcoming the eighth National Power Development Master Plan would also help facilitate achieving the greenhouse reduction targets.

There are opportunities to strengthen environmental institutional capacity by amending the Law on Environmental Protection. Improving and enforcing environmental compliance standards could address water pollution, eliminate pollutant contamination of agricultural products and improve product quality. Strengthening regulations on illegal wildlife trade and consumption, and facilitating the promotion of trade in forest products from sustainably managed forests would demonstrate Vietnam's commitment to the agreement. This would help develop trust in Vietnamese production and supply chains among EU consumers and investors.

Environmental education and training, particularly for small- and medium-sized enterprises, would build business and industry capacity in meeting EU environmental requirements. Raising awareness for fishermen, assisting with economic diversification of their livelihoods and applying advanced monitoring technologies could help alleviate illegal, unreported and unregulated fishing. As ASEAN Chair in 2020, Việt Nam could promote cooperation with other ASEAN countries to solve this common problem.

These measures would enable Việt Nam to reap the potential benefits of its new trade and investment agreements with the EU, particularly in revitalising its economy in the post-COVID-19 period. This would also affirm the government's commitment to address increasing public demand for better environmental quality and standards. Prime Minister Nguyễn Xuân Phúc's statement that "economic development must go together with environmental protection and social development to ensure sustainable growth and prosperity" is useful guidance for policymakers■

# Mobilize internal resources to properly implement international commitments regarding animal welfare and wildlife protection



▲ Mrs. Thẩm Hồng Phượng - Director of HSI/Viet Nam

***On 8<sup>th</sup> June 2020, Việt Nam's National Assembly approved an EU- Vietnam Free Trade Agreement (EVFTA) that has opened a new era in Intergovernmental Cooperation on Animal Welfare and Wildlife Protection. This agreement has a strong potential to promote wildlife protection and enhance international cooperation on animal welfare particularly farm animals. On this occasion, the Vietnam Environment Administration Magazine (VEM) has an open talk on this topic with Mrs. Thẩm Hồng Phượng - the Director of Humane Society International (HSI)/Vietnam.***

**VEM:** Please let us know what key areas of animal welfare and wildlife protection are mentioned in the EVFTA?

**Mrs. Thẩm Hồng Phượng:** The EU and Việt Nam signed a Trade Agreement and an Investment Protection Agreement on 30<sup>th</sup> June 2019 after many negotiation rounds. The Council of the European Union approved the Agreement on 30<sup>th</sup> March 2020 after the European Parliament gave its consent on 12<sup>th</sup> February 2020. Afterward, the EVFTA was approved by Vietnam's National Assembly on June 8<sup>th</sup> 2020 and entered into force on August 1<sup>st</sup> 2020. The main objectives of these two agreements focus on the economic integration of Việt Nam with the European Union and vice versa. As a result, content relating to wildlife protection and animal welfare are relatively minor "bullet points" within what is a huge content frame of the whole Agreement.

While wildlife protection is referenced in Chapter 13: Trade and Sustainable Development, animal welfare or the humane treatment of animals is mentioned in Chapter 16 regarding Cooperation and Capacity Building. In Chapter 13, the specific aims are to facilitate commitments on the proper imple-

mentation and enforcement of multilateral environmental agreements; provisions aimed at protecting biodiversity and reducing illegal wildlife trade through information exchange on strategies, policy initiatives, programmes, action plans and consumer awareness campaigns; and a commitment to enhance cooperation to increase species protection through proposing new CITES listings.

Points d and f of Clause 3 of Article 13.7 about Biodiversity clearly state respectively: "Adopt and implement appropriate effective measures, which are consistent with its commitments under international treaties to which it is a party, leading to a reduction of illegal trade in wildlife, such as awareness raising campaigns, monitoring and enforcement measures" and "enhance cooperation with the other Party, as appropriate, to propose new animal and plant species to be included in Appendices I and II to the CITES". Point j, of Clause 1 of Article 13.14 about Working together on trade and sustainable development, shows that "trade-related measures to promote the conservation and sustainable use of biological diversity, including the mapping, assessment and valuation of ecosystems and their services and to combat illegal international trade in wildlife".

Both Parties expressed the commitment to implement animal welfare, referred to the Article 16.3: "The Parties agree to cooperate on animal welfare as necessary, including technical assistance and capacity building for the development of animal welfare standards. For the purpose of this Article, they shall consult the Committee on Sanitary and Phytosanitary Measures established pursuant to Article 17.2 (Specialized Committees)".





In fact, the EU and Việt Nam have cooperated in wildlife protection for a period of time. For example, in 2019, the EU and Việt Nam submitted a number of joint proposals uplisting several reptile and amphibian species to the Appendix of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). When the EVFTA comes into force, it creates great opportunities for Việt Nam to improve its limited enforcement capacity to combat the illegal wildlife trade across country boundaries and protect endangered species.

**VEM:** *What are the benefits of the National Assembly's approval for wildlife protection and biodiversity conservation?*

**Mrs. Thẩm Hồng Phượng:** In fact, Việt Nam continues to serve as a source, consumer and transit country for the illegal wildlife trade. HSI/Vietnam hopes that, throughout the proper implementation of this trade deal and cooperation development, the EU will be able to assist with reducing demand for wildlife products and increasing our Government's enforcement capacity with the training and tools it needs to tackle the scourge of wildlife trafficking. Conserving threatened species will be improved and the illegal trade in wildlife at national and international/regional levels will be prevented, with these issues handled more transparently and strictly. The Agreement ratification will provide the greatest opportunity for Law enforcement agencies and relevant authorities and officials to enhance their limited enforcement capacity through training courses, accessing the tools to combat wildlife crime and techniques and skills to rescue animals. Moreover, this Agreement will open financial support opportunities for relevant stakeholders in Việt Nam to better manage wild animals and identify and deter sophisticated tricks by transnational crime.

Wildlife trafficking not only poses a threat to biodiversity and natural habitats, but, as the recent COVID-19 pandemic has demonstrated, the trade in wildlife can also pose a serious threat to public health. It was technically already illegal to sell and consume wild-caught

species in Việt Nam, but the existing rules were poorly enforced and wet markets selling wildlife have proliferated. Such challenges are not resolved at grass-root level in a short time. It is crucial to cooperate between inter-agencies, civil society organizations (CSOs), the private sector and the public. As such, the entry into force of the EVFTA Agreement is a tipping point for businesses on both sides (EU and Việt Nam) to make strong commitments to fulfill corporate social responsibility (CSR) in protecting wildlife, biodiversity and the environment.

Specifically, to deal with the unpredictable COVID-19 pandemic, on July 23<sup>rd</sup>, 2020, the Prime Minister issued Directive No.29/CT-TTg on a number of urgent solutions to manage wildlife that demonstrates the strong commitment of the Government to combat wildlife crime. This Directive once again highlights key issues in wildlife management that need to improve in the foreseeable future such as: Improving enforcement capacity in terms of preventing and combating illegal wildlife trade in Việt Nam; Reducing the risk of pathogen transmission from wet markets, commercial wildlife farms and the import of wildlife specimens; Having a clear and specific protocol or mechanism to deal with wildlife consumption.

I hope that the entry into force of this Agreement will help the enforcement agencies and relevant authorities overcome major obstacles such as a lack of financial resources and shortage of equipment to identify commonly traded species, establish gene banks, rescue animals and trace the seized animals' origin, as well as for transparent and effective inter-agency coordination mechanisms and sharing of information among countries... in order to better prevent wildlife trafficking.

**VEM:** *Can you please highlight HSI's achievements to protect wild animals in Việt Nam?*

**Mrs. Thẩm Hồng Phượng:** HSI works around the globe to promote the human-animal bond, rescue and protect dogs and cats, improve farm animal welfare, protect wildlife, promote animal-free testing and research, respond to natural disasters and confront cruelty to animals in all of its forms. HSI not only takes care of animals in need of help, but is also a leader in helping to change laws and corporate policy to prevent cruelty to animals, end suffering and save lives.

In Việt Nam, HSI campaigns to help the greatest possible number of animals and to save those who are suffering from the most severe abuse. We invest our time, efforts and resources in ways that will make a real difference. We are currently operating several programs in Việt Nam: Farm Animal Protection (FAP); Companion Animal Protection, Be Cruelty Free (to end cosmetics animal testing) and Wild Animal Protection programs. Our FAP work focuses on public advocacy for a healthier, more sustainable and compassionate/humane lifestyle in order to reduce harmful impacts on the environment and animal welfare. HSI en-



gages a range of different stakeholders including farmers, agri-business companies, governments, food retailers and consumers to improve farm animal welfare, with a special focus on ending the confinement of egg laying hens in battery cages and the confinement of breeding sows in gestation crates. The focus of our Companion Animal Protection work is ending the illegal trade, slaughter and consumption of dogs and cats. Additionally, in partnership with other NGOs and relevant authorities/agencies, HSI aims to implement a joint program to reduce and control rabies transmission to the local communities. A relatively new and innovative initiative that HSI is implementing in Việt Nam is a communication and advocacy the campaign “Be Cruelty Free” to end the cruelty of testing cosmetics on animals. This Campaign is to encourage the public to choose cruelty-free products and inspire them to care for/love animals.

Our Wild Animal Protection Program in Việt Nam was launched in August 2013 and since then HSI has achieved encouraging successes including a Government-led rhino horn demand reduction campaign implemented by HSI and Việt Nam CITES

Management Authority under Ministry of Agriculture and Rural Development. This multi-faceted campaign has reached an estimated 37 million people - approximately one third of the national population.

With HSI’s support, Việt Nam held an event in November 2016 at which - for the first time in the country’s history - more than two tons of ivory, 70 kg of rhino horn, and other seized wildlife specimens were destroyed to send a message to the international community that these live animals are valued more than the products derived from them. This was also an inspiring event for many enforcement authorities and prosecution agencies that would later boldly destroy these seemingly valuable items.

**VEM:** *Please share with us your opinions about which feasible solutions are needed to help Việt Nam properly implement its commitments in the EVFTA?*

**Mrs. Thẩm Hồng Phượng:** As mentioned above, obstacles for wildlife conservation include, but are not limited to, a shortage of capable personnel and financial resources, poor enforcement capacity, unclear cooperation amongst inter-agencies to tackle wildlife trafficking and corruption within the criminal justice system and so on. Therefore, in my opinion, there are some feasible actions that Việt Nam should take to ensure implementing proper commitments under this EVFTA: Identify and mobilize internal resources to obligate all international commitments to which Việt Nam is a signatory; strengthen bilateral and multilateral information exchanges in order to increase enforcement capacity, seeking financial and technical resources to overcome challenges in wildlife conservation, as well as combatting illegal wildlife trade such as strengthening deterrence to reduce crime, addressing abuse within the commercial wildlife farming industry or continuing to develop communication campaigns and/or humane education to raise awareness about behavior change to reduce demand for wildlife production/consumption and last but not least is to cooperate amongst inter-nations or inter-continent/regions in order to better protect endangered species and conserve biodiversity.

**VEM:** *Sincerely, thank you!*

**NGUYỄN HẰNG**  
(Implemented)



# The Alliance of business for environment protection launched



▲ *Representatives of partners in the VB4E Alliance*

For the first time in Việt Nam, an alliance of business enterprises for environmental protection has been launched to tackle environmental issues in Việt Nam.

On 17<sup>th</sup> June, 2020, in Hà Nội, the Việt Nam Business for Environment (VB4E) Alliance was launched to strengthen the role of companies in environmental protection and biodiversity conservation in Việt Nam. The Alliance is a joint initiative of the International Union for Conservation of Nature (IUCN) in collaboration with the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) under the Ministry of Natural Resources and Environment and the TH Group Joint Stock Company (TH Group).

Speak at the Launch, Prof. Dr. Nguyễn Thế Chinh, Director General of ISPONRE appreciated TH Group's pioneer role in this Alliance and businesses to ensure environmental protection. ISPONRE considers enhanced collaboration between businesses, social organizations and the Government a strategic objective. ISPONRE has been assigned by MONRE as the Government agency that directly supports business in-

vestment through the MONRE Business and Environment Supporting Team (MBEST) Program.

Head of Sustainable Coordination of TH Group Hoàng Thị Thanh Thủy expected the initiative to effectively contribute to the common goal of environmental protection. This partnership will offer opportunities for businesses to meaningfully contribute to environmental protection, bringing benefits to the consumer community in Việt Nam. VB4E will be the platform supporting environment initiatives of enterprises in the most practical and efficient way, in which “sustainability” is not merely a word.

Joining VB4E, member companies can improve their environmental performance through field projects, showcasing and replicating sustainable business practices, being part of the policy advocacy and enhancing business reputation.

Next time, the VB4E Alliance will focus on development of a concept data bank, policy advocacy and capacity building. Its flagship is the concept data bank whereby NGOs, businesses and other stakeholders will co-operate on conservation projects. Collaborative projects can embrace the following thematic areas: biodiversity conservation, plastic waste management, sustainable tourism development, marine and coastal conservation, forest landscape restoration, water and wetland conservation, renewable energy and climate change■

HỒNG CẨM





## VIỆT NAM JOINS HANDS WITH INTERNATIONAL ORGANIZATIONS TO TACKLE OCEAN PLASTIC POLLUTION



▲ The IUCN and D-FISH signed a MoU on aquatic resources conservation and development for 2020 – 2025

In Hà Long City (Quảng Ninh Province), The Ministry of Agriculture and Rural Development's Directorate of Fisheries (D-FISH), in collaboration with the International Union for the Conservation of Nature (IUCN) and the Center for Supporting Green Development (Greenhub) held the workshop "Ocean plastic waste management towards biological diversity conservation".

At the workshop, delegates discussed partnerships between them to support the implementation of an action plan to reduce plastic pollution from the fisheries sector; local and international experiences on reducing plastic waste from fishing and aquaculture were shared with calls for voluntary commitments from relevant stakeholders. In response to the call for commitments, the IUCN and D-FISH signed a Memorandum of Understanding (MoU) on aquatic resources conservation and development for 2020 - 2025.

Following from the IUCN's MoU with D-FISH that ran from 2015 to 2020, the new MoU covers five areas of collaboration: implementation of the Marine Turtle Conservation Action Plan by 2025; improvement of MPA management effectiveness; research on the legal and scientific framework for the Fisheries Resources Protection and Development Fund; management and conservation of threatened aquatic species; and management of aquatic habitats.

The workshop offered a good opportunity for stakeholders including Government agencies, international and local environmental organizations and businesses to discuss the action plan and commitments they can make in the fight against plastic pollution in Việt Nam■

TRẦN TÂN

## VIỆT NAM, JAPAN BEEF UP ENVIRONMENTAL COOPERATION



▲ The 6<sup>th</sup> Việt Nam-Japan Environmental Policy Dialogue takes place in Hà Nội, August 25<sup>th</sup>, 2020

On August 25<sup>th</sup>, 2020, in Hà Nội City, at the 6<sup>th</sup> Việt Nam - Japan Environmental Policy Dialogue, Minister of Natural Resources and Environment Trần Hồng Hà and Japanese Environment Minister Shinjiro Koizumi signed an agreement on extending the Memorandum of Understanding (MoU) on environment. The MoU aims to enhance mutual cooperation in environment and affirm the importance of activities to quickly and successfully realize the Paris Agreement and Sustainable Development Goals. It also promotes coordination in environment between the countries for sustainable development and highlights the importance of preserving and improving environment.

In his remarks, Minister Trần Hồng Hà lauded the support in different forms of the Japanese Ministry and the Japan International Cooperation Agency (JICA) to Việt Nam in the processing of amending the Law on Environmental Protection 2014. He suggested the two countries adjust cooperation contents in the context of the COVID-19 pandemic posing challenges for both nations and the world at large.

Japanese Environment Minister Koizumi Shinjiro expressed his hope that Việt Nam will work with Japan towards the goal of reducing the use of fossil fuels, and in managing, collecting and treating marine plastic waste.

Both Ministers expressed their hope that the extension of the MoU manifests the effectiveness in cooperation between the two countries as well as the deep concerns of the two sides in establishing and realizing the commitments of senior leaders in environment, climate change, maritime and ocean policies. The two sides also plan to work together in environmental protection for chemical activities, environmental technology, measurement, reporting and verification, low-carbon technology, bio-diversity preservation and other issues regarding environmental protection and improvement■

PHƯƠNG LINH



# Clean energy took up a record share of global electricity production during coronavirus pandemic

According to the Reuters review of data, renewable power has taken up a record share of global electricity production since the onset of the coronavirus pandemic.

## RENEWABLE ENERGY HAS BECOME MORE DEPENDABLE

Advocates of traditional energy said that clean energy sources, like solar and wind farms, which depend on fickle weather, cannot be trusted to provide steady supplies of electricity into national grids that were designed to operate in tandem with coal and gas generators. But the past three months have shown that renewable energy has become more dependable, accounting for well over half of output in some European countries, while grid operators proved they could successfully manage larger doses of fluctuating energy flows.

Maybe this will give confidence to Governments and policy makers that they can be more ambitious about the number of renewables on the grid. However, before Governments take decisions based on recent experiences, they will have to answer various questions. These include how the system would have coped in the mid of winter, when sunshine is at a premium, or how it will manage when the economy picks up and demand gathers pace.

The recent boost for wind and solar power came for all the wrong reasons: the health crisis has tipped the world into recession, pushing down electricity usage by more than a fifth in some countries, according to the International Energy Agency (IEA). Most grid operators automatically turned to the cheapest energy supplies to meet the falling demand. Wind and solar power costs very little to generate once the installations are built and is often backed by Government mandates and subsidies. As a result, more expensive fossil fuel sources were the first to be pulled.

## EUROPEAN RECORDS

Data from Wartsila (Finnish Energy Technology Group) shows renewables generated an average of 44% of power across the 27-nation bloc and Britain from April to June 2020, when many countries were in lockdown, against 37.2% in the same period last year. Daily peaks hit 53%. The leading performer was Austria which saw renewables average 93% from a previous 91%, thanks largely to hydropower; with Portugal, renewable energy surge to 67% from 49%; in Germany, it averaged 54% up from 47.5%. The increase in the share of renewables is essential if the European Union (EU) wants to achieve its climate and energy goals and cut harmful greenhouse gas emissions blamed for climate change. The EU's target is to meet 32% of its energy needs, including transport, from renewable sources by 2030.

Britain's National Grid (NG.L) has set a target of being able to operate a completely carbon-free electricity system by 2025, it would be the world's first. The coronavirus provided an early test, with renewables hitting a peak share of 67.5% of electricity in May 2020. The country also went without coal power for 67 days from April 10 to June 16 2020. While clean power is increasingly available, storing it and ensuring a smooth supply remains highly complicated. Winds die down, clouds cover the sun, or, alternatively, gales can blow on bright, sunny days.

The grid managed fluctuations by relying on a tool called "demand side response (DSR)". DSR asks users to time their consumption to match power generation - something that can ease pressure on the grid and reduce costs for consumers.



▲ Power-generating windmill turbines in a wind farm in France





## STORING SUNLIGHT

A similar system is in place in India, where officials in 2017 started asking farmers in some regions to water fields in the daytime to make use of higher solar and wind output. They had previously been expected to irrigate late at night or in the evening to preserve power supplies during the day for other industries. As elsewhere in the world, the share of renewable energy in India's electricity market climbed during the COVID-19 lockdown, hitting a record high of 30.9% in the week of June 15 from 17.9% in mid-March.

While Britain's DSR system of matching power generation with consumption provides some relief to grids, it is not a panacea. The country's National Grid has regularly had to fall back on so-called "curtailments", paying power producers to shut down when electricity supply is too high and risks disturbing operations. The firm said it expected to pay out 826 million pounds (\$1 billion) in various costs from May to August, more than double than in the same period last year. It did not give a breakdown, but said curtailments made up a "significant proportion" of this. Keen to encourage the development of battery technology, the British Government said on July 14 it was cutting red tape and relaxing planning rules to make it easier to launch large-scale energy storage projects.

The United States (US) is a world leader when it comes to storage, notably battery technology, and some businesses are investing heavily in the sector. Renewables, including hydro, wind and solar, provided 23% of US's electricity during the April lockdown, up from 17% in the same period of 2019. The peak share rose to almost 80% in parts of the windy interior of the country. Governments will have to introduce an array of such initiatives if they want to build on recent experiences and further boost renewable energy■

## 4 ASIAN CITIES ARE SUPPORTED TO REDUCE PLASTIC POLLUTION



▲ Southeast Asia is the world's "most polluting region" for ocean plastics

Southeast Asia is the world's "most polluting region" for ocean plastics. The region's fast-growing cities, in particular, contribute approximately 60% of plastic waste leakage into the environment. The pollution originates from uncollected waste and leakages in municipal waste management systems.

The UN Economic and Social Commission for Asia and the Pacific (ESCAP) has announced a four-city pilot of a project to make plastic waste management more "circular" and reduce plastic pollution of the marine environment. The Closing the Loop project launched on 5<sup>th</sup> May 2020, which is supported by the Government of Japan, help to build the capacity of ASEAN cities to plan for and manage their plastic waste using circular economy principles. The pilot cities are Kuala Lumpur (Malaysia); Surabaya (Indonesia); Nakhon Si Thammarat (Thailand) and Đà Nẵng (Việt Nam).

Through the Closing the Loop project, local governments will be used digital tools to identify waste generation "hot spots". The tool will use remote sensing, satellite and crowdsourced data applications to produce plastic waste maps and simulations. The project will provide training and tools for policymakers to develop policy and investment strategies that apply a "circular economy" approach in managing their plastic waste streams. The project will support local implementation of two intergovernmental frameworks: the ASEAN Framework of Action on Marine Debris and the G20 Osaka Blue Ocean Vision, which was introduced during Japan's presidency of the Group of 20 (G20) in 2019■

NAM VIỆT





## NEW CONSERVATION OPPORTUNITY FOR VIỆT NAM

The Convention on Biological Diversity (CBD), to which Việt Nam is a party, has recently agreed a new conservation designation that complements protected areas and this is an opportunity for Việt Nam to extend and connect the country's conserved areas by identifying and legally recognizing "other effective area-based conservation measures (OECMs)".

According to Mr. Jake Brunner, Head of the IUCN Indo-Burma Group, OECMs are a chance for Việt Nam to both recognize the contributions to the conservation of biodiversity occurring outside of protected areas and to incentivize conservation outside of protected areas through recognition and support. Việt Nam is home to several large agricultural dominated landscapes that include areas of high biodiversity value and/or are the target of restoration to reestablish natural ecosystem functions for climate change and biodiversity benefits. Within these landscapes there are opportunities to recognize OECMs.

Mr. Nguyễn Đức Tú, a conservationist and Head of IUCN Biodiversity Program in Việt Nam said OECM helps Việt Nam fulfill conservation commitments and protects habitats with high biodiversity which are



▲ Species of rare primates with scientific are facing extinction in Việt Nam

at high risk, such as isolated karst areas, seasonally inundated grasslands and coastal mudflats. OECMs also offer an opportunity to recognize contributions to biodiversity conservation by businesses and communities by improving the efficiency of the management of the land they are allowed to use. In particular, it can improve biodiversity conservation of various sectors, including the business sector which is considered to be outside biodiversity conservation efforts and supplement the list of CSR (corporate social responsibility) activities of businesses that have large land plots, ensuring biodiversity in development projects■

NAM HÙNG

## VIỆT NAM HAS THIRD GLOBAL GEOPARK RECOGNIZED BY UNESCO

Vietnam's Đắk Nông Geopark has been recognized by UNESCO as a Global Geopark, becoming the third of its kind in the country, with Đồng Văn Karst Plateau Geopark in Hà Giang Province and Non Nước Cao Bằng Geopark in Cao Bằng Province.

Located on the M'Nông Plateau, Đắk Nông Geopark - the Land of Sounds - covers an area of 4,760 km<sup>2</sup> of the Northern Districts of Đắk Nông Province in Vietnam's Central Highlands. Population of 416,000 people of 40 ethnic groups, including 3 autochthonous, live in the area, occupied mostly in agro-forestry, trade and services, and small industries. Many archaeological, historical and cultural relics as well as scenic spots are recognized and conserved.

The Geopark can be reached by several routes by land and air, including two international border gates with Cambodia.



Characterized by sub-equatorial tropical monsoon and plateau climate, the area features an evenly distributed network of rivers, streams, lakes and reservoirs.

UNESCO Global Geoparks are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. Their bottom-up approach of combining conservation with sustainable development while involving local communities is becoming increasingly popular. At present, there are 147 UNESCO Global Geoparks in 41 countries■

NGUYỄN HẰNG



## Hopes raised for conservation of world's rarest turtle in Việt Nam

According to the statement from the Asian Turtle Program (ATP) of Indo-Myanmar Conservation (IMC), the trace of another giant Swinhoe's Softshell turtle (*Rafetus swinhoei*), also known as a Hoàn Kiếm turtle has been found in Hanoi's Đồng Mô Lake, raising hopes for the conservation of the world's rarest turtle in Việt Nam. The Hoàn Kiếm turtle is believed to be almost extinct in the wild. No surviving populations were known until the first wild animal was confirmed in Đồng Mô Lake on the outskirts of Hà Nội in 2007. It was a long wait until a second animal was confirmed on May 24 of the same year in nearby Xuân Khanh Lake (Sơn Tây Town) and it creates the prospects which could potentially increase the number of known living Swinhoe's Softshell turtles to four individuals, with three in Việt Nam and one in China.

Living in wetlands, streams and large rivers in Northern of Việt Nam, Southern China and possibly Laos, the giant Swinhoe's Softshell turtle can reach up to 150kg or more in size. It was heavily hunted for food from the 1970's until the 1990's and is believed to be almost extinct in the wild.

In January 2016, the only remaining turtle in Hoàn Kiếm Lake in the centre of Hà Nội, known as Cụ Rùa (Great-Grandfather Turtle) by Hanoians, was reported dead due to old age. It was believed to have lived for 200 years. The two turtles in Đồng Mô or more may be the only hope of conservation for this species in the world. Therefore, Đồng Mô Lake has always been strictly supervised by the authorities and conservation organisations for many years.

The ATP/IMC has partnered with the local authorities and other conservation organizations around the world to implement a conservation action plan for the species since 2003. ATP/IMC staff have been working hard at Đồng Mô for the last 13 years to record sightings and the behaviour of the large individual while working with local communities to promote conservation.



▲ The identity of the smaller turtle's species cannot be confirmed with these photos but, together with previous observations by staff of the ATP



▲ Đồng Mô Lake offers hope for the world's rarest turtle to recover

In May 2011, one staff of the ATP/IMC, who continuously monitors the Đồng Mô Lake, did see a Softshell turtle that appeared to be smaller than the big turtle that is regularly seen. Although some photographs have been captured of this individual in recent years, the images have not been clear and some doubt remained over if was only one animal being seen or not. Finally, on August 20<sup>th</sup>, 2020, Mr. Nguyễn Văn Trọng, the ATP/IMC local field officer, was able to capture a photo of two large softshell turtles emerging simultaneously. Although they appeared for only a few seconds, he was able to capture some amazing pictures.

With a number of other sites already identified by the ATP/IMC in Việt Nam, the new findings bring the hope that additional Swinhoe's Softshell turtles may be found, giving more options for the future conservation of the world's rarest turtle species in Việt Nam. These new photos will boost monitoring efforts at Đồng Mô and will hopefully draw more attention to the species■

AN VI





# The attraction of eco-tourist destination of Xuân Thủy National Park

**X**uân Thủy National Park is a coastal Wetland Reserve, located in Giao Thủy District, Nam Định Province. This is the place where the sea and the forest are in harmony with human beings, creating a vivid picture of typical countryside in the Northern coastal estuary, an eco-tourist attraction.

Xuân Thủy National Park is the first Ramsar (international important wetland, water bird habitat) of Việt Nam and South-east Asia. This is home to hundreds of precious plants and animals, of which there are nearly 220 species of birds. In particular, the number of waterbirds recorded during the migratory season reaches 30,000 - 40,000 individuals.

To Xuân Thủy, visitors can live in the immense space of the sky and clouds, breathe the fresh air, watch the world of the flocks of heavenly birds: Cranes, storks, jiang, pelicans, geese and ducks... There is nothing more interesting when traveling in the middle of the Ramsar observing many rare and precious birds listed in the red book. The best time to see birds is from October to November to March 3 - 4 years later. In addition, tourists can see the immense mangrove forest, green casuarina forest and the ground cover with green sea lettuce blooming purple flowers.

Visit Xuân Thủy National Park, visitors have the opportunity to enjoy the scenery on the Vọt River to Ba Lạt Door, to the caves observatory, visit the Green Cồn, walk along the casuarina strip on Cồn Lu. Visitors will discover nature, observe birds and admire the unique landscape of the wetland and coastal wetland ecosystem.

Take a boat along the Vọt River to the end of Cồn Lu, visitors have the opportunity to explore the concentration of migratory birds, the habitat of rare waterbirds. Visitors can continue to walk along the sand dunes



▲ Visitors can take a boat along the Vọt River to the end of Cồn Lu

outside Cồn Lu to observe the casuarina forest and see the forest birds here. Continuing the journey is the exploration of mangrove forests, admiring the unique landscape of the coastal estuarine ecosystem.

If you want to experience the indigenous life in the buffer zone of Xuân Thủy National Park, visitors can visit villages, houses, churches, Giao Hải fish wharf, rural market... and chat with people, see weaving net, making fish sauce, bee keeping...

A trip to Xuân Thủy National Park is also an opportunity for tourists to enjoy famous Giao Thủy specialties such as: Nnem grilled Giao Thủy, fried spring rolls of Giao Xuân, Sa Châu fish sauce (Giao Châu), Hoàn Nha fish sauce, jellyfish salad, mangrove honey... and fresh seafood in the estuarine areas such as shrimp, crab, clams, oysters...■

**NHÂM HIỀN**



▲ Xuân Thủy National Park





*KEITI creates a clean and green world by disseminating eco-friendly technologies and establishing global cooperation networks so that every country can enjoy the benefits that the environment offers.*

■ Promote and enhance the cooperative activities in the field of environment between Vietnam and Korea;

- Manage funding sources to support cooperation and investment promotion, technology transfer in the field of environmental infrastructure development and new energy (water supply, wastewater treatment, renewable energy, emissions management, ...);
- Support Korean and Vietnamese enterprises to promote investment in the field of environmental industry in Vietnam;
- Research and explore the technology market in order to serve the promotion and cooperation development, investment and technology transfer in the field of environment and sustainable development.



Chief representative: Dr. Shon Dong Yeob