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Major Environmental Policies

Ministry of Environment, R. O. C. (Taiwan)

http://www.moenv.gov.tw

General Policy

Ministry of Environment Established, Marking Taiwan's New Chapter toward Sustainable Development

Following the third reading and passage of the *Organization Act of the Ministry of Environment* (環境部組織法) by the Legislative Yuan, and its official promulgation by President Tsai Ing-wen on 24 May, the Executive Yuan's Environmental Protection Administration (the EPA) was formally restructured to become the Ministry of Environment (MOENV) on 22 June. The inauguration ceremony included the official appointment of Minister Shieu Fuh-sheng. Under the witness of distinguished guests, Premier Chen Chien-jen presented the appointment order and official seal to Minister Shieu. President Tsai, Premier Chen, USEPA Assistant Administrator Jane Nishida, and other esteemed guests joined Minister Shieu for the unveiling of the ministry's plaque, marking the completion of the inauguration. On the same day, the heads of the departments under the MOENV were also officially appointed and sworn-in, leading Taiwan into a new epoch of environmental protection with a focus on sustainable development.

The establishment of the MOENV was in response to critical concerns such as net-zero emissions by 2050, air quality improvement, resource circulation, and chemical substance management. The official strategy for better environmental quality has shifted from controlling pollutions to preventive management, integrating responsibilities and expanding operations. Major efforts will be made toward systematically address five major issues: climate change, resource circulation, chemical substance management, environmental quality management, and strengthened research of environmental science.

President Tsai: MOENV is tasked with three missions

President Tsai said that Minister Shieu was a scientist with administrative competence that takes proactive initiatives. With a background in materials engineering, he has devoted his past efforts to researching energy-efficient and circular materials. During his eight-year tenure as president of National Chung Hsing University, he not only established Taiwan's Academy of Circular Economy, but also set up a Sustainable Development Office

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President Tsai Ing-wen (fourth from left), Premier Chen Chien-jen (fourth from right), USEPA Assistant Administrator Jane Nishida (first from right), and other distinguished guests unveil the ministry's plaque with MOENV Minister Shieu.

and installed an energy-saving and carbon reduction system. He was the first to advocate for the vision of achieving net-zero emissions on campus by 2040.

President Tsai emphasized that since taking office in 2016, her administration has been actively engaged in government organizational reform to enhance governance. The restructured MOENV will be tasked with three major objectives in the future. The first is coordination of climate change policies and establishment of a carbon pricing mechanism. The second one is to advance resource recycling management, achieving zero waste by shifting the focus from post-pollution controls to design and planning at the beginning. And finally, the capacity for technological research and development, with the MOENV working with the National Science and Technology Council to utilize technology as a cornerstone for addressing climate change and environmental governance.

Premier Chen: A sustainable environment is essential for Taiwan's future

"Only with a sustainable environment can we have a sustainable Taiwan," said Premier Chen. He pointed out that the restructuring of the EPA would consolidate responsibilities across various departments in response to global efforts toward net-zero emissions. Following President Tsai's pledge of "net-zero emissions by 2050" two years ago, not only will the MOENV finish amending the *Climate Change Response Act* (氣候變遷因應法), but the recent establishment of Taiwan Carbon Solution Exchange has demonstrated the ongoing progress in the carbon tax mechanism. Moreover, the Executive Yuan has a budget in the tens of billions planned out to initiate projects related to net-zero technologies across multiple government agencies. Premier Chen emphasized that every agency will play a significant role in environmental matters in the future. Only through inter-agency cooperation would Taiwan achieve the best outcomes for sustainable development and future generations live in a resilient and comfortable Taiwan.

Minister Shieu: Full implementation of the transition pathway to ultimately achieve net-zero emissions by 2050

"Environmental sustainability is not only our mission, but also a severe global challenge we all face," stated MOENV Minister Shieu. The average monthly temperature in July this year marked the highest point in 100,000 years, as the world experienced extreme heat, heavy rainfalls, and incidents such as wildfires in Hawaii and a drought in the Panama Canal. Extreme

climate change phenomena are currently affecting every corner of the globe at an unprecedented speed. The transition from the EPA to the MOENV marked a significant milestone, and the MOENV will mobilize its entire staff and fully dedicate itself onward to mitigate these impacts.

Minister Shieu said the ministry's future endeavor and its ultimate goal will be net-zero emissions, as it steadfastly follows the pathway to net-zero emissions by 2050. The MOENV will continue to expand social dialogues and promote a circular economy, zero emissions, as well as zero waste. This will enable Taiwan to undergo a successful transition in energy, industry, lifestyle, and society, and become resilient and sustainable.

Minister Shieu pointed out that the shift of the MOENV's mission from pollution control to proactive management presents a tremendous challenge. Nevertheless, research institutes across Taiwan boast abundant capabilities, so in the future the MOENV will collaborate closely with the academic community and the industrial sector. The establishment of the National Environmental Research Academy, a merger of the Environmental Analysis Laboratory and the Environmental Staff Training Institute, is part of the ministry's plan to have it as a think tank that conducts forward-looking research and assists in proactive management.

In the restructuring, the Climate Change Administration (CCA) was set up to accelerate legislation and organization of tasks that respond to climate change, and the Resource Circulation Administration (RCA) to integrate management of industrial waste reuse as well as strengthen resource circulation. The Chemicals Administration (CA) was formed to expand and improve chemical substance management, while the Environmental Management Administration (EMA) is designed to enhance coordination of waste treatment facilities and environmental quality management. Finally, the National Environmental Research Academy (NERA) is established to bolster environmental research capabilities and elevate the expertise of its staff in the area of net-zero emissions. With the establishment of these agencies, the ministry aims to actively address global environmental issues and create opportunities in Taiwan's transition.

The inception of the ministry reflects the government's increased effectiveness in promoting green economy and sustainable development policies. With continuous environmental education and campaigns, the ministry strives to raise public awareness of environmental issues and work toward the goal of net-zero emissions by 2050 in order to leave a clean and healthy environment for future generations.

Minister Shieu's first official document upon assuming office was the appointment letter for the entire MOENV staff. It was transmitted electronically to all workers in the ministry, formally announcing the formation of a new team. On the same day, various directors and heads of the MOENV divisions were also appointed and took their oaths of office. They included CCA Director Tsai Ling-i, RCA Director Lai Ying-ying,CA Director Hsieh Yein-rui, EMA Director Yen Hsu-ming, and Acting Director Chang Shun-chin of the NERA.

Premier Chen presents appointment order and official seal to MOENV Minister Shieu

General Policy

EPA Reflects on Past Achievements on Its 36th Anniversary

"Graduation is not the end, but a new beginning." On 19 August the then-EPA celebrated its 36th anniversary in a "commencement" ahead of its transformation into the MOENV on 22 August. As the EPA approached the end of its long course, a special ceremony was held with the EPA's first administrator, Eugene Chien, and the following heads, including Larry L.G. Chen, Chang Ju-en, Stephen Shu-hung Shen, Wei Kuo-yen, and Tsai Hung-the, were invited to commemorate this historic occasion. These former heads as well as many distinguished guests together witnessed and reflected upon the various milestones achieved by the EPA from its first to 36th year in the collective pursuit of protecting the environment.

All former heads served as valedictorians in the ceremony, starting with the first administrator Eugene Chien, who recalled that 36 years ago the sky over Taipei was not blue, the rivers had a dark color, and garbage was everywhere. The establishment of the EPA transformed Taiwan's living environment, even though the outcomes of many actions carried out during his tenure were not immediately visible. Take the example of the Tamsui River, for which the EPA began remediation work in 1988, initially hoping to just eliminate foul odors. Today, the river runs clear and is suitable for dragon boat races. He also recalled that in the past it was challenging for him to represent Taiwan in the international community because of Taiwan's low environmental quality, but now Taiwan is recognized as an outstanding performer in recycling on the global stage.

"We have graduated and come to an end, and we are proud," said Minister Chang Tzu-chin as the last minister "graduating" from the EPA on the eve of its restructuring. He emphasized that while the establishment of the MOENV may have been due to the demands of the times, it would not have been possible without the support of the Directorate-General of Budget, Accounting, and Statistics of the Executive Yuan and the unwavering dedication of the EPA staff. The cumulative achievements over the years have further demonstrated to the society the EPA's capability to step up and become the MOENV. Minister Chang expressed his hope that, with an excellent system and regulations, the future MOENV would be able to make a more significant contribution in the face of challenges such as climate change, resource recycling, environmental management, and controls of chemical substances.

"From smog to blue skies, from warriors fighting garbage to geniuses in waste disposal -– these are all the fruits of everyone's incessant labor," commented the Chief Secretary Yeh Chun-hung as he reflected with attendees on the EPA's journey of growth. Under the leadership of 16 administrators and ministers, the EPA undertook distinct missions in four phases.

The EPA was established in 1987 in response to grassroots environmental initiatives like the Anti-DuPont protests in Lukang and the opposition to the Fifth Naphtha Cracker Project in Houjing. Administrators during the first phase led the EPA in tackling various challenges, including public nuisances, war on garbage, illegal waste disposal, air and river pollution. This period saw the formation of the Bureau of Environmental Inspection, the Recycling Fund Management Board, and the Environmental Police Force, along with legislation and enactment of the *Public Nuisance Dispute Mediation Act* (公害糾紛處理法), the *Environmental Impact Assessment Act* (環境影響評估法), the *Environmental Agent Control Act* (環境用藥管理法), and the *Soil and Groundwater Pollution Control Act* (土壤及地下水污染整治法). Not only so, the establishment of the Air Pollution Control Fund and the Recycling Fund laid a solid foundation for the EPA.

The second phase, from 1990 to 2008, is marked with significant development with the establishment of the Soil and Groundwater Pollution Remediation Fund Management Board and the Carbon Reduction Management Office. The EPA also completed formulating the *Marine Pollution Control Act* (海洋污染防治法), the *Resource Recycling Act* (資源回收再利用法), and the *Basic Environmental Law*. As for the Environmental Impact Assessment (EIA) system,

a legal dispute related to the EIA concerning Linne Incineration Plant resulted in a judicial recognition that review conclusions were also administrative sanctions in their nature. This recognition led to the subsequent increase in administrative remedies through litigation.

In the third phase, from 2008 to 2016, significant milestones were achieved with the enactment of the *Environmental Education Act* (環境教育法), the *Indoor Air Quality Act* (室內空氣品質管理法), and the *Greenhouse Gas Reduction and Management Act* (溫室氣體減量及管理法). In 2010, levying began for soil and groundwater pollution remediation fees, enabling the EPA to complete remediation for all farmland pollutions across Taiwan in 2022. Then the revision of the *Water Pollution Control Act* (水污染防治法) raised the maximum fine to NT$20 million for discharges that failed to meet standards, introduced clauses on confiscation of illegal gains and also protection for whistleblowers. In addition, this amendment led the way in increasing penalties for exceeding the limits regarding substances detrimental to health.

From 2016 to the present, several significant developments having taken place including the establishment of the Toxic and Chemical Substances Bureau, the Climate Change Office, the Resource Cycling Office, and an preparatory office for establishment of the CCA under the MOENV. The formation of a clear and efficient EIA review system has yielded positive results, particularly in the offshore wind power sector and investments from Taiwanese businesses returning from abroad. Not only have there been record-breaking improvements in air quality, but there have also been notable achievements in promoting reduction of plastic usage at six major sources and facilitating better recycling. Even now, the MOENV continues its endeavors with the ongoing revisions of the *Resource Recycling Promotion Act* (資源循環促進法), aiming to maximize resource cycling and minimize waste disposal, as well as the transition toward net-zero emissions by 2050.

International Cooperation

Promoting SRF to Achieve Zero Waste through Resource Circulation

On 2 August 2023, the EPA invited experts, scholars, local environmental bureaus and enterprises to exchange and share key aspects of the management, production and use of Solid Recovered Fuel (SRF). These include insights into local governments' implementation and industry best practices. The discussion was aimed to engage with the stakeholders and focused on how to improve management. It was also to prepare for the future policy direction of converting combustible waste resources into energy.

As part of the key strategy of "Zero Waste through Resource Circulation" for Taiwan's transition to net-zero emissions by 2050, the EPA has been promoting the conversion of combustible waste resource into fuel since 2019. As of the end of 2022, there were 28 companies engaged in the production of SRF and 14 companies engaged in its use. The annual consumption of SRF had been steadily increasing, reaching 180,000 metric tons in 2022, up from 60,000 metric tons in 2019. Moving forward, the EPA will continue to collaborate with local governments to enhance inspection and management efforts, and to ensure strict oversight of SRF manufacturing facilities, including their production technology, quality, and flow management, so as to maintain the smooth operation of industries involved in conversion of combustible waste resources into fuel.

The conference focused on strengthening the management and expanding the benefits of converting combustible waste resource into fuel. This included requiring SRF manufacturing facilities to install necessary equipment, confirming user needs in advance, and using appropriate equipment to receive and process waste materials. It also entails regular sampling and testing of the finished product. The finished product should be directly sold to SRF users who adhere to the standards, and the authorities should review the management of both fuel production and utilization in series and conduct on-site inspections. Additionally,

practical examples of applying the methodology for calculating carbon reduction benefits through "the substitution of coal with SRF in boilers and combustion devices to generate thermal energy" were also discussed during the conference.

In 2020, the *Guidelines and Quality Standards for Solid Recovered Fuel Manufacturing Technology* was formulated to primarily create a management system and standards for SRF, providing guidelines for both industry operators and reviewing authorities to follow. To enhance this management system, the quality standards were further revised in January 2023, mandating that SRF manufacturing facilities should have essential equipment such as sorting, shredding, and mixing machinery. At the same time, the EPA continued to assist SRF manufacturing facilities to enhance their manufacturing technology and quality.

In response to the international trends of coal reduction and efforts toward net-zero carbon emissions, more and more domestic enterprises in Taiwan, including large boiler operators and the cement kiln industry, are planning to adopt SRF as an alternative to coal. This will place a stronger demand on the management of SRF. The EPA has formulated the *Management Regulations for Solid Recovered Fuel*, which integrates regulations pertaining to the application, reporting and management of the production, manufacturing, and use of SRF, as well as SRF's ash residue treatment or recycling stages. In the future, the EPA will introduce additional management regulations regarding SRF quality verification, the responsibility of users for confirmation, regulatory agency inspections, and import and export procedures. These regulations are aimed at providing clear guidelines for enterprises to follow.

International Cooperation

2023 GEEP Meeting Held in Northern Ireland

From 15 to 11 August, the 2023 Global Environmental Education Partnership Meeting was held in Belfast, Northern Ireland by the Global Environmental Education Partnership (GEEP) program, co-initiated by the EPA and the USEPA. Taiwan's delegation was led by Deputy Director Hsu Shu-chih of the EPA Department of Comprehensive Planning. It also included three representatives from ecological schools as well as Professors Chang Tzu-chau and Pai Tzu-i, both experts in this field. The conference brought together some 30 environmental education experts and scholars from the public sector and NGOs in various countries for exchanges and discussions.

Continuing from the 2022 conference, this meeting was jointly organized by the EPA, the USEPA, and the North American Association for Environmental Education (NAAEE). In addition to inviting experts to discuss the GEEP's future strategic goals and implementation methods, the conference had participants sharing experiences and operational status of regional environmental education centers. The expert advisors in attendance came from various countries, including the UK, India, Canada, Botswana, Nepal, the US, and Taiwan.

Deputy Director Hsu expressed during the conference that, with increasingly frequent exchanges and cooperation around the globe, Taiwan is committed to advancing environmental education by cultivating young international environmental talents and promoting ecological schools. It is hoped to create an environment where all living beings coexist and thrive through the influence of environmental education. She also expressed gratitude to the USEPA and international partners for their contributions. Since the initiation of the GEEP Program in 2014, the past decade has witnessed even more rapid climate change worldwide. Taiwan wishes to further promote environmental education with the GEEP to tackle challenges that may confront humanity in the future.

In order to strengthen regional cooperation networks, in 2019 the Asia-Pacific Regional Center (APRC) was established in Taiwan under the GEEP framework. Besides promoting regional environmental education, the APRC is responsible for building in the Asia-Pacific region an environmental education exchange network dedicated to

Taiwan's delegates with NAAEE Executive Director Judy Braus (third from right) and KNIB Chief Executive Ian Humphreys at Queen's University Belfast

integrating information platforms for environmental education. In the conference, Professor Chang Tzu-chau, the APRC's project director, also talked about the center's current operation status and promoted the 2023 GEEP APRC International Exchange Workshop, inviting experts from around the world to participate in the event's live broadcast online.

In addition, the delegation took advantage of the trip to visit Keep Northern Ireland Beautiful (KNIB), an organization promoting environmental education in Northern Ireland, and, during the visit, shared achievements of Taiwan's ecological schools. The three delegates representing Taiwan's ecological schools were Principal Hsu Ching-hung of Dashan Elementary School in Miaoli County, Director of Student Affairs Yen Hsiu-wen of Tzu Chi High School's Elementary Department in Tainan City, and Director Ho Chia-hui of Sinpu Elementary School's in Taoyuan City. The visit to KNIB allowed for mutual learning of international experiences and aimed to create future opportunities for more exchanges between ecological schools at home and abroad.

Air Quality

Adjusted Air Pollution Fees Provide More Incentives to Lower Emissions

To further lower air pollutant emissions during periods of poor air quality, on 30 June 2023, the EPA announced the amended control fee rates for air pollution emissions from stationary sources, which took effect on 1 July 2023. The amendments include widening the gap in seasonal fee rates, revising the calculation method for flare stack fees, adjusting the fees for dioxins, heavy metals, and volatile organic compounds (VOCs), and initiating collection of new air pollution fees for three VOCs. The purpose is to increase benefits from reducing both conventional and harmful air pollutants through enhanced economic incentives, which are expected to cut approximately another 9,000 metric tons of air pollutants annually.

Main amendments to the control fee rates for air pollution from stationary sources are as follows:

1. **Expanding seasonal fee rate differentiation and reducing incentives**
   The revisions have raised the first and fourth-quarter fees for periods of poor air quality as well as incentives for air pollution reduction efforts. This aims to reduce air pollutant emissions through economic incentives, encouraging enterprises and public and private premises to adjust production capacity or enhance proper operation of pollution control equipment during periods of poor air quality.
2. **Facilitating enterprises to voluntarily reduce use of flare stacks**
   Under the revisions, fee rates and calculation methods for flare stacks have been adjusted and further integrated into the control standards for VOC emissions. Air pollution control fees regarding flare stacks are now calculated based on factors such as the annual cumulative times of usage, operating hours, and exhaust gas flows, urging enterprises to actively cut use of flare stacks.
3. **Adjusting and adding rates for emissions of hazardous air pollutants**
   Based on the concept of risk to

health, the amendments have adjusted rates for dioxins, heavy metals, and harmful VOCs and introduced new air pollution fees for three harmful VOCs, namely vinyl chloride, 1,3-butadiene, and acrylonitrile. These measures aim to encourage enterprises to reduce emissions of hazardous air pollutants.

The EPA stated that this fee revision primarily impacts industries involved in producing electricity, steel, petrochemicals, cement, panel manufacturing, and others. It is hoped that while pursuing economic development, these industries will take greater responsibility to reduce air pollution. Through economic incentives, the revisions strive to push enterprises to lower air pollution emissions and expenditures on air pollution control fees by using measures such as proactively adjusting production capacity, installing pollution control equipment and enhancing facility efficiency during periods of poor air quality.

The EPA further explained that, when announcing the draft revisions to the fee rates on 1 February 2023, it had initially planned to introduce new emission categories and rates for high-emission entities. The formulation process originally relied on emission data analysis from 2015 to 2019. However, the EPA later considered that proactive implementation of air pollution control measures in recent years had resulted in an approximate 30% drop in stationary-source pollution emissions in 2021 in comparison with those in 2016. This shows a disparity exists between the level of originally planned emission categories for high-emission entities and their actual emissions in recent years. This is due to accumulative, overall efforts to tighten and evaluate over 110 sets of regulations since the amended *Air Pollution Control Act* (空氣污染防制法) was promulgated on 1 August 2018. Therefore, the EPA reanalyzed the threshold for categories of high-emission entities based on the latest data.

The EPA reminded enterprises that the regulations mentioned above will take effect in October 2023, during which public and private premises declare their control fees for air pollutants from stationary sources for the third quarter of 2023 (July to September 2023). More detailed information concerning fee rates are available on the EPA website at (https://oaout.epa.gov.tw/law/index.aspx).

Table: Revised control fee rates for air pollutants from stationary sources (sulfur oxides and nitrogen oxides)

Types of pollutants	Fee rates			
	Class 2 control zones		Classes 1 and 3 control zones	
	Second and third quarters	First and fourth quarters	Second and third quarters	First and fourth quarters
Sulfur oxides	NT$7/kg	NT$11/kg	NT$8.5/kg	NT$13/kg
	NT$5/kg	NT$9/kg	NT$6/kg	NT$10/kg
	NT$450/quarter	NT$450/quarter	NT$450/quarter	NT$450/quarter
Nitrogen oxides	NT$8/kg	NT$12/kg	NT$10/kg	NT$14/kg
	NT$6/kg	NT$10/kg	NT$7.5/kg	NT$12/kg
	NT$450/quarter	NT$450/quarter	NT$450/quarter	NT$450/quarter

Climate Change

Enterprises Urged to Reduce Emissions Ahead of Carbon Fee Collection in 2024

The *Climate Change Response Act* (氣候變遷因應法), which introduces a carbon fee collection mechanism, was promulgated on 15 February 2023. According to the Climate Change Administration (CCA) of the Ministry of Environment, the carbon tax-related subsidiary laws are currently being discussed with industries, with an expected preannouncement at the end of 2023. The actual carbon fee rates will be determined in the first half of next year. The initial carbon fee collection will be based on the 2024 emissions of the entities subject to carbon fee, with the carbon fee calculated and payable in 2025. The aim of this plan is to encourage businesses to reduce their emissions in advance so as to lessen the burden of carbon feees.

The CCA has been formulating subsidiary laws related to the *Climate Change Response Act*. These include the announcement made on 31 May regarding the *Emission Sources Subject to Inventory, Registration and Inspection of Greenhouse Gas Emissions*. From June to August, the CCA successively preannounced draft regulations of the *Management Regulations for the Inventory and Registration of Greenhouse Gas Emissions*, the *Management Regulations for Greenhouse Gas Increase Offsets*, the *Management Regulations for Voluntary Greenhouse Gas Reduction Projects*, and the *Management Regulations for Greenhouse Gas Certification and Inspection Organizations*. Public hearings and consultations have also been conducted for these four draft subsidiary laws.

The carbon fee-related subsidiary laws include regulations for carbon fee collection, the announcement of carbon fee collection targets and rates, the regulations for the review of designated emission reduction objectives and voluntary emission reduction plans, and the guidelines for the establishment of the carbon fee rate review committee. The draft regulations for these subsidiary laws are expected to be proposed by the end of this year. In the initial stage, the entities subject to carbon fee collection are expected to be the manufacturing enterprises and the power generation enterprises with annual emissions exceeding 25,000 metric tons. The CCA has not only actively engaged in drafting the aforementioned subsidiary laws but has also planned discussions with various industries to minimize the impact on them. It emphasized that carbon fee collection will have significant implications and will be carefully evaluated and discussed extensively with stakeholders before its implementation.

Regarding the timeline for carbon fee collection, the CCA stated that, as previously explained to the public, carbon fee collection will commence in 2024. The collection process is planned to base on the 2024 greenhouse gas emissions of the entities subject to carbon fee, with payment due in 2025. There are no delays anticipated in this timeline. The CCA emphasized that this timeline for carbon fee collection allows the entities subject to carbon fee to review their greenhouse gas emissions early and initiate carbon reduction efforts. Doing so, they would be able to reduce greenhouse gas emissions in 2024 and thereby mitigate the impact of the fee.

Environmental Education

Special Prize Added in Environmental Map Competition to Promote Net-Zero Transformation to Youngsters

The EPA and the Ministry of Education (MOE) are jointly holding the fourth competition for creative environmental maps, in order to encourage elementary school students to create their own unique maps. Students from the second to sixth grades are welcomed to team up and have until 1 December to sign up for the competition. Not only will school-age children get to work with classmates, parents, and teachers to step out of their own homes and explore surrounding areas, but this year a special prize on transformation toward net-zero emissions has been added to the competition so as to align with the government's latest policies. Two submitted works will be selected from each age group for this category. All maps centering on climate change or sustainable use of energy and resources have a chance to win the special prize.

The previous three competitions received good responses, leading up to a total of 538 submissions in the fourth competition this year. The submissions show the full range of issues in Taiwan from different perspectives and through the eyes and minds of children. The event welcomes pupils who will be in second to sixth grade this September to compete. There will be two age groups, middle classmen and upper classmen. Participants are allowed to team up with students from different schools so that children of different ages and schools can exchange ideas on environmental topics. With parents and teachers accompanying them to observe living environments, children will learn more about various environmental issues in their daily lives and use their enhanced

Submitted maps are to incorporate one of the five environmental education themes, which are environmental ethics, sustainable development, climate change, disaster prevention and rescue, and sustainable use of energy and resources.

understanding to make maps.

Submitted maps are to incorporate one of the five environmental education themes, which are environmental ethics, sustainable development, climate change, disaster prevention and rescue, and sustainable use of energy and resources. There are also manuals on how these maps are to be created to enable competitors to express their motives and messages behind making individual maps, as well as to express more reflections about caring for one's living environment.

All total prizes to a sum of NT$200,000. A total of 50 winners will be picked out, including the top three submissions, five for excellence, and two nomination teams out of the middle classmen group and the upper classmen group, with the top winner receiving gift vouchers worth NT$30,000. Moreover, two participants will be selected from each age group for the prize category, transformation toward net-zero emissions, newly added this year in accordance to recent relevant policies. Submitted maps whose themes are climate change or sustainable use of energy and resources have a chance to win the prize. The aim is to urge school-age children to align their daily living practices with environmental policies by learning about relevant policies and in the future even participate in policy making.

To help students, parents, and teachers better understand the making of environmental maps, from July to November this year a series of promotional events are held, including meetings, workshops, and an exhibition of the winning maps from last year's competition. Attendees were able to learn about net-zero policies and the competition via fun games, talk with winning teams from the previous competitions, and tour the sites on which the previous winning maps were based. In addition, the exhibition helped more children, parents, and people learn about the map creators' motives, choice of themes, and on-site investigations. The goal was to inspire potential participants and help them understand the basics of making environmental maps.

Mother Nature is the best teaching material in a child's journey to grow and learn. Making environmental maps allows kids to visit their communities, explore new people and things, discover unexpected wonders, and naturally identify with and love their neighborhoods. The EPA sincerely invites parents and children to embark on environmental education and environment-friendly practices in their daily lives by signing up for the event, exploring, creating, and sharing. Detailed information on competition rules and relevant events can be found on the event website at https://www.environmentalmap.com.tw/.

Chemicals

Taiwan Aligns with International Conventions in Prohibiting Perfluorohexane Sulfonic Acid and Its Salts and Related Compounds

In response to the Stockholm Convention on Persistent Organic Pollutants (hereinafter referred to as the Stockholm Convention) adding perfluorohexane sulfonic acid and its salts and related compounds to its list of controlled substances, the EPA has amended the *Regulated Toxic Chemical Substances and Their Operations and Management* (列管毒性化學物質及其運作管理事項). Perfluorohexane sulfonic acid and its salts and related compounds have been classified as toxic chemical substances, and operation and management regulations have been established to strengthen the management of such substances in Taiwan.

Persistent organic pollutants possess characteristics such as being difficult to break down, having long-range transport capabilities, and bioaccumulation, which pose a health risk to living organisms. In response to this, the United Nations established the Stockholm Convention to eliminate, restrict, and reduce persistent organic pollutants, so as to safeguard human health and the environment. This preannouncement was in line with the addition of perfluorohexane sulfonic acid and its salts and related compounds to the Stockholm Convention, and took the directive list provided by the Stockholm Convention as reference. It added Annex 1 to Paragraph 1 of the announcement, which specifies the regulatory scope, encompassing 147 types of perfluorohexane sulfonic acid and its salts and related compounds, aligning with international control measures.

Perfluorohexane sulfonic acid and its salts and related compounds were added to Annex A (elimination list) of the Stockholm Convention in 2022. Due to their environmental persistence and bioaccumulation characteristics, they fall under Category 1 toxic chemicals as defined by the *Toxic and Concerned Chemical Substances Control Act* . As a result, they have been classified as Category 1 toxic chemicals, with control concentration set at the full concentration. In accordance with the Convention's provisions, their use is comprehensively prohibited except for purposes such as research, testing, and education. Additionally, control concentrations for perfluorooctane sulfonic acid, lithium perfluorooctane sulfonate, perfluorooctane sulfonyl fluoride, and perfluorooctanoic acid have been simultaneously adjusted from 0.01% to full concentration.

The EPA has investigated the usage of perfluorohexane sulfonic acid and its salts, as well as related compounds by domestic enterprises and found that these substances are primarily employed for research, experimentation, education, with no other complicated purposes. The impact of the amendment on Taiwan's industry is quite limited.

For the handling of perfluorohexane sulfonic acid and its salts and related compounds involving requirements such as permit applications, labeling, transportation, detection and alarm equipment, professional technical management personnel, and the establishment of professional response personnel, businesses have been granted a phased implementation buffer period of six months to one and a half years.

Furthermore, for the handling of perfluorooctane sulfonic acid, lithium perfluorooctane sulfonate, perfluorooctanoyl fluoride, and perfluorooctanoic acid when their concentrations do not exceed 0.01%, involving requirements such as permit applications, hazard prevention, and response regulations, businesses have also been granted a phased implementation buffer period of six months to one and a half years.

Environmental Inspection

Smart Fence System to Be Established for Timely Pollution Monitoring and Environmental Enforcement

To ascertain the air, water, and waste pollution potential and to proactively prevent the spread of pollution, the EPA showcased the "Smart Fence System" on 19 July, and planned to seek funding from the Executive Yuan. The EPA aims to gradually set up 4,000 smart fence device points to monitor air, water, and waste pollution over a span of six years. Internet of Things (IoT) monitoring equipment and AI analysis modules will be used to enable pollution prevention and timely enforcement actions.

The EPA indicated that society has entered the digital era, and environmental law enforcement shall also keep pace by evolving into "remote enforcement." After the EPA is restructured as the Ministry of Environment, the Environmental Management Administration is established, making remote enforcement a crucial policy, and strategically planning with forward-thinking to devise comprehensive environmental improvement strategies. This will transform Taiwan's approach to environmental quality management from "pollution control" to "prevention management." The most significant transformation will involve shifting from a passive to a proactive approach, systematically addressing environmental issues.

The EPA will utilize technology and

employ the Smart Fence System for remote enforcement, enabling real-time handling of pollution incidents to prevent further spread of pollution. It plans to install remote monitoring devices at critical locations in pollution hotspots, creating a sweeping network to ascertain the air, water, and waste pollution potential.

Monitoring equipment for illegal waste dumping, air pollution, and water pollution has been gradually established, and the Smart Fence Program will move towards more systematic planning. The EPA plans to set up 4,000 smart fence device points over a period of six years. The initial plan includes setting up 3,200 monitoring points at 120 air pollution hotspots, 200 monitoring points at 100 water pollution hotspots, and 600 monitoring points for illegal waste dumping hotspots, among which 400 points will be located near 200 highway exits (national and provincial highways) and 200 points will be located along roads in areas with high rates of waste dumping.

The system will be able to take information collected by on-site Internet of Things (IoT) devices and transmit it to an AI module. The AI module then analyzes the degree of risk posed by abnormal pollution patterns, automatically sends out alerts, and notifies the relevant inspection units.

The Smart Fence System for air pollution hotspots will deploy graded air sensors based on different environments and specific air pollutant requirements to promptly detect pollution. For water pollution hotspots, the system will deploy water quality sensors at channel nodes near monitoring zones or upstream and downstream drainage points to constantly monitor watershed water quality. The system for illegal dumping will monitor waste clearance and transportation vehicles simultaneously. It will install license plate recognition systems at dumping hotspots and crucial road sections to quickly identify abnormal waste disposal activities.

The EPA emphasized that compared to the traditional method of investigating individual cases, where inspectors have to wait like cats trying to catch mice and rely on their experience to investigate after detecting abnormal pollution, the Smart Fence mechanism will cross-reference information in the system's database, such as processes and materials used by each factory in industrial parks, and the AI will compute a risk list, allowing inspectors to conduct enforcement with precision and efficiency.

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