

Major Environmental Policies

March 2023

1. Feature Article: Legislative Process Continues for Environmental Testing and Analysis Act

In January this year the EPA's draft of the *Environmental Testing and Analysis Act* (環境檢驗測定法) was submitted to the Executive Yuan for review. Handled alongside it was formulation of important sub-laws and related legal regulations. The bill aims to improve the environmental testing and analysis system, strengthen management of organizations, personnel and equipment in the environmental testing and analysis industry, and enhance quality of testing and analysis data. After it takes effect, the Act will be able to enable integration and improvements to the management of environmental testing, making it more comprehensive.

Background

Environmental testing and analysis is an important part of environmental protection. Accurate testing and analysis data are required to establish a basis for various types of work such as formulation of environmental laws and regulations, environmental impact assessment (EIA) investigations, environmental quality monitoring, pollution prevention and controls, and inspection and control of public nuisances.

Following the Executive Yuan's policy direction, the EPA's Environmental Analysis Laboratory (EAL), has developed an implementation plan in accordance with a medium-term implementation plan and an approved budget. The plan also took into account current social conditions and the EAL's future development. The four current objectives are as follows:

1. Development of standard environmental testing methods
2. Strengthening management of environmental testing and analysis organizations
3. Conducting sampling and testing for environmental quality and pollution sources
4. Promoting quality control and management to improve the level of environmental testing technology

The first objective is to develop standard environmental testing methods. The EPA aims to formulate and refine environmental testing standards, improve the quality of environmental data, and facilitate development of the environmental testing industry. Other goals include improving the mechanism for issuing penalties at different levels based on severity of violations. It is therefore necessary to change legislation to enable the new management measures, hence the drafting of the *Environmental Testing and Analysis Act*.

Legislative process for the *Environmental Testing and Analysis Act*

1. The purpose of drafting the bill is to improve the environmental inspection and analysis system, strengthen the management of organizations, personnel, and equipment related to environmental inspection and analysis operations, and enhance data quality.

2. The current management for the environmental inspection and analysis industry follows the *Environmental Analysis Organization Management Regulations* (環境檢驗測定機構管理辦法). Enterprises in the industry are required to go through rigorous evaluation procedures when applying for permits, and comply with announced testing methods and related quality assurance and management measures as they conduct their environmental testing work. Although the management system is becoming more sound, most environmental tests are commissioned by

enterprises for testing organizations to conduct, which may raise concerns about potential conflicts of interest.

In addition, the *Environmental Analysis Organization Management Regulations* originally were formulated under authorization of nine different environmental laws, and penalties for false or misleading testing have been limited by the scopes of authority under each law. Therefore, it is hoped that the system for managing environmental inspection and analysis can be integrated and enhanced through a new, comprehensive *Environmental Testing and Analysis Act*.

3. Legislative process: The draft was first preannounced on 25 January 2021 and a second time on 29 December of the same year. A total of 22 meetings were held to solicit opinions from all sectors. On 12 January 2023 the draft was submitted to the Executive Yuan for review along with changes to important sub-laws and related legal matters.

4. Stringency of management and methods mapped out under the draft have been adjusted after considering feedback from all sides. The Act focuses on the four major categories below:

(1) A gradient of management requirements for the environmental testing industry: The testing industry is divided into different levels based on factors such as human resources, facilities and capabilities, with each level being allowed to conduct different tests and subject to different management requirements. Enterprises that consistently achieve outstanding performance in conducting tests will be treated as higher-level, while those with poor performance can be graded down. A testing entity's deemed level will affect what tests it can perform and at what scale (e.g., higher-level organizations can undertake tests at larger market scales). In order to promote positive competition in the market, there is also a gradient for the stringency of management requirements, such as permit expiration/extension rules and frequency of inspection.

(2) Certification of environmental testing personnel: With appropriate training, different types of personnel (e.g., laboratory directors, quality control personnel, field sampling and laboratory analysis personnel, etc.) are to be certified for various specialized qualifications to ensure high professional standards.

(3) Inspection of testing facilities: Key facilities used for environmental testing are subject to inspections as required by the competent authority, and will undergo regular and random inspections to ensure they are properly maintained and in good condition.

(4) Testing fee collection and payment: The method of commissioning tests is to be changed. The environmental tests conducted in accordance with environmental laws will be announced with designated testing items (such as regular testing stipulated in the *Air Pollution Control Law* (空氣污染防制法) or the *Water Pollution Control Law* (水污染防治法)). Entities announced as obligated to conduct designated tests are to commission testing organizations to sign standardized contracts and carry out said designated tests. Competent authorities are responsible for collecting testing fees from commissioning parties first and paying them to testing organizations, as well as completing audits and testing reports, so as to better ensure that commissioning parties do not influence test results.

5. Multiple meetings held to discuss issues and responses with industry representatives.

(1) On 28 November 2022 the EPA held talks with the Taiwan Environmental Certified LAB Commercial Association, and also solicited opinions from the Chinese National Federation of Industries and the Central Chamber of Commerce of the Republic of China. However, opinions still differed regarding the graded management system, which may affect business volumes and the rights of businesses. It may also affect fee collection and payment via delegated third-parties, increasing the burden on industries and testing enterprises.

(2) The EPA will continue to communicate with industry representatives and hold meetings to

consult with industries, experts, and scholars when drafting key policies and sub-laws. There will be more precise policies and supplementary measures to alleviate industry concerns and incorporate feedback from all sectors to develop comprehensive control measures.

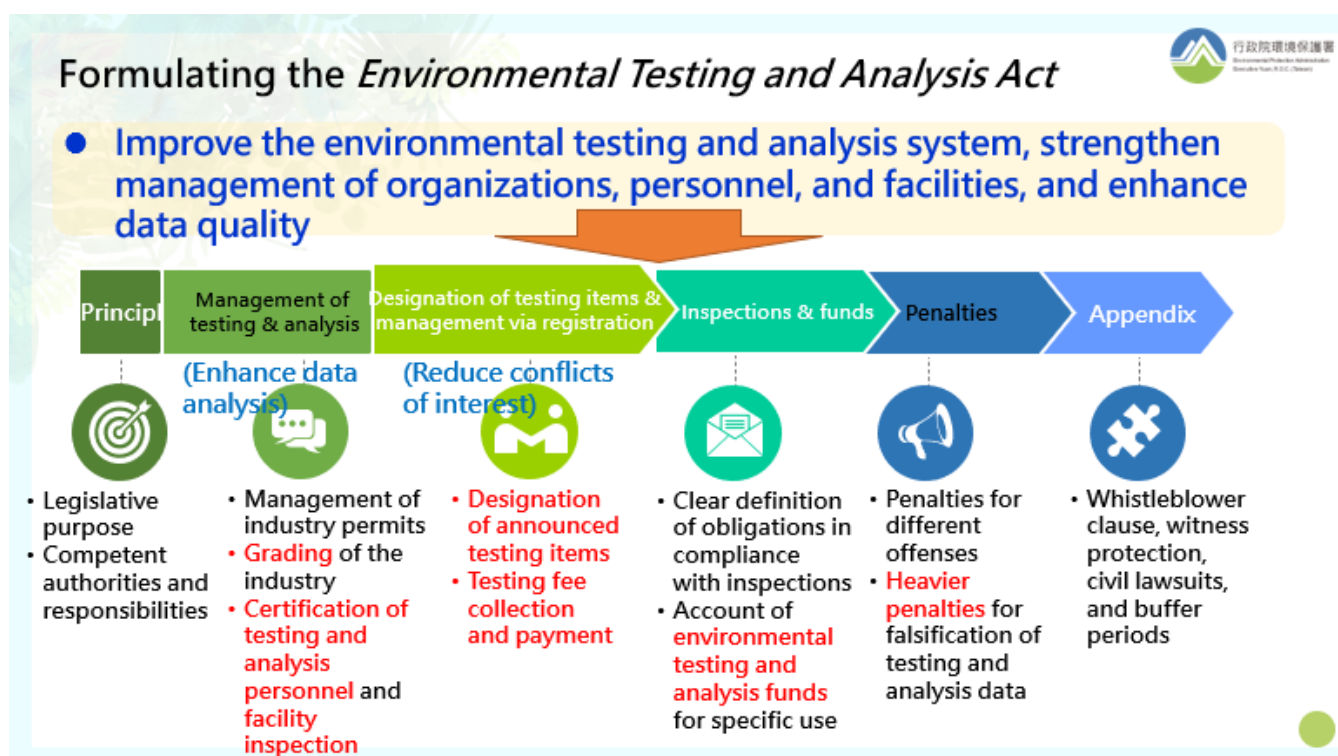
(3) For important policies, the EPA will first plan feasible measures, such as strengthening cooperation with the Taiwan Environmental Certified LAB Commercial Association on personnel certification and graded management. Assistance will be provided to help enterprises with voluntary testing of personnel on topics such as safety of testing and analysis environments, basic testing and analysis principles, practical training, and the graded management of the testing industry.

6. Continuous enhancement of environmental testing and analysis management before the *Environmental Testing and Analysis Act* is enacted

(1) Additional future measures to enhance management include increasing frequency of unannounced inspections and evaluating the technical capabilities of testing organizations.

(2) In 2022, the EPA started to employ big data analysis to systematically identify abnormal test result patterns, such as discrepancies among reported itineraries, the number of samples, and the number of personnel. Inspection frequency and severity of penalties have also been raised in cases of the aforementioned violations, with the number of inspections planned in 2023 being at least twice that in 2022.

(3) To strengthen management of the testing industry, the blind sampling and testing method will be improved with distribution of double-blind samples, blind sampling and testing with additional verification, or designation of specific targets for blind testing.



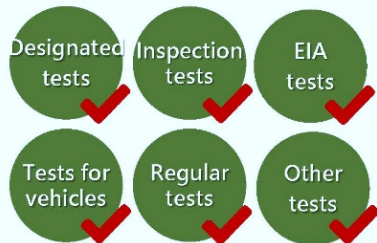
Environmental Testing and Analysis Act

Before & After



Grading of Organization

Unlimited tests of any purpose and scale



AFTER

Higher Certification

Lower

Types of tests an entity is qualified to perform

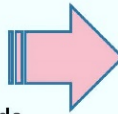
More

Less

Personnel Certification



Required to provide only **education** and **previous employment experiences**



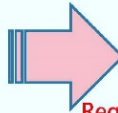
Required to obtain **qualification certificates**



Facility inspection



Self-maintenance for testing and analysis facilities



Regular/irregular inspections of facilities carried out by competent authorities



Fee collection and payment

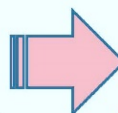


Enterprises



Testing fees

Testing and analysis organizations



Enterprises



Testing and analysis organizations

Testing fees

Collection and payment

Testing fees

Competent authorities

Direct commissioning and payment

2. Revisions Announced for EIA-Related Regulations and Tables

On 22 March 2023, the EPA announced the amended *Standards for Determining Specific Items and Scope for Environmental Impact Assessments of Development Activities* (開發行為應實施環境影響評估細目及範圍認定標準). The revisions, including those to Article 46, table 6, were made in order to achieve better implementation in accordance with relevant laws and regulations, after considering suggestions provided by various agencies and following a review of ambiguities in actual practices.

The standards have undergone 13 amendments since they were first announced in 1995. This amendment was made in accordance with relevant laws and regulations after considering suggestions provided by various agencies and following a review of ambiguities in actual practices. Revisions include: amending certain contents in the standards; Article 46, table 6; Article 12, table 1 of

the *Environmental Impact Assessment Enforcement Rules* (環境影響評估法施行細則). Amendments were also made to item 1, table 1 and table 2, mandating environmental impact assessments (EIAs) on lands owned by Taiwan Sugar Corporation (TSC), where building of factories, or establishment or expansion of industrial zones, may have adverse environmental impacts.

- EIAs are exempted for maintenance dredging for the purpose of safe vessel passage and regular port and harbor operations.
- Seawater desalination facilities are considered for emergency use in times of drought and are to be shut down for future use after the drought relief is no longer needed. Construction of seawater desalination plants or expansion of treatment capacity, deemed measures for immediate drought relief, are exempted from EIAs after approval from the industrial competent authority.
- For wind turbines, there are concerns that noise, flicker effects, and other impacts may exist for nearby residents even if the straight-line distance between the center of the wind turbine base and the nearest building boundary is more than 250 meters. In regard to this and with references from overseas research, EIAs are now mandated if the straight-line distance between the center of any wind turbine base and the nearest building boundary is under 500 meters.
- For mixed industrial/commercial districts, large shopping centers, and exhibition, fair, or trade show venues, EIA determination standards shall depend on the size of the overall development area. An EIA is required if the aforementioned developments are located in reservoir watersheds.
- EIA regulations concerning cable cars have undergone revisions, taking into consideration that development of cable cars creates smaller environmental impacts in comparison to construction of other transportation infrastructure.
- New categories of development activities have been added. For establishing national launch sites under the *Space Development Act* (太空發展法), EIAs are mandated if the size or cumulative size of the developments stated in the application is ten hectares or more.
- New categories of development activities have been added in response to the “determination standards” mentioned above. Regarding establishment of national launch sites under the *Space Development Act*, the EPA is added as the agency in charge of EIAs as well as supervision of competent authorities based on the *Environmental Impact Assessment Enforcement Rules*, Article 12, table 1.

Additionally, the revisions to item 1, table 1 and table 2 under the announcement pertaining to installation of factories, or construction or expansion of industrial zones on TSC-owned lands, EIAs are mandated if there are potential adverse environmental impacts. TSC has reexamined registration numbers of all properties listed in the announcement’s tables 1 and 2 and found that some lots are categorized as urban land or Type-D construction land, which also have been set for railway use. In addition, all current properties within TSC factories, factories that have been shut down, headquarters of all divisions, industrial zones, residential areas, commercial areas, or areas specified for storage and transshipment, are not designated for agricultural use. The Council of Agriculture of the Executive Yuan has further confirmed that all properties provided by TSC are not to be used for agriculture. The announcement has thus undergone revisions, with one piece of property removed from table 1 and 152 properties removed from table 2.

3. Outstanding Adopters of Air Quality Zones Awarded for Purification Efforts

To enhance air quality, the EPA has been urging the public to take part in improving the living environments around them. The rate of air quality purification zones “adopted” by entities such as businesses or communities has grown from 32% in 2014 to 51% in 2022. On 22 March 2023, a

ceremony was held in Hualien to acknowledge excellent adopting entities, all of which received awards from the EPA Deputy Minister Chih-Hsiu Shen and were thanked for their hard work and efforts to maintain good air quality for all to enjoy.

Since 1995, the EPA has been promoting Air Quality Purification Zones to improve urban air quality, with a total of 1,315 zones designated to date. To encourage participation of private enterprises, communities, and other non-governmental organizations in the adoption and maintenance of Air Quality Purification Zones, after initial local screening, 73 adopted sites were recommended for the award, which then underwent onsite evaluations by the EPA to ultimately select 31 outstanding adopters located at 26 sites.

The EPA pointed out that the adopters recognized by these awards have not only kept their adopted zones clean, but also developed local characteristics by integrating unique geographical features, creating additional value.

For example, Chiayu Biking Trail in Chiayi City is maintained by local environmental volunteers based in Hong-ua and Shihtze Neighborhoods, where numerous trees and shrubs have been planted, to sequester a sum of nearly 105 metric tons of carbon per year. Such an accomplishment is particularly important for pollution and emission reduction.

Another example is the Keelung Maritime Cultural and Educational Foundation, which has adopted the Affiliated Keelung Maritime Senior High School of National Taiwan Ocean University as its Air Quality Purification Zone. The adopters have taken advantage of the site being based around a school, promoting environmental education by collaborating with foreign and local students as well as the Ministry of Education's K-12 Education Administration.

Last but not least, Tongoil Blossom Park in Tucheng District, New Taipei City, has been adopted by the Tucheng Natural Landscape Conservation Association. Besides going to clean-up events, its volunteers also receive training to become certified ecological guides, providing guided tours and even participating in environmental education activities in schools. The diversification of their volunteer services has thus earned them the honor of unique contribution award.

The Air Quality Purification Zones function by planting trees and vegetation on public lands, such as enclosed landfills, exposed lands, or waste disposal sites, through subsidization. By purifying air, lowering dust and particulate matter, and regulating humidity and temperature, these plants and vegetation help improve air quality as well as conserve water, soil resources and ecosystems. With the current global endeavor to achieve zero-emissions, which aims for not only carbon reduction but also carbon removal, the carbon-sequestering ability of trees can remove greenhouse gases from the atmosphere, contributing to sustainable resource utilization.

The award recipients were chosen by a panel of scholars and experts, who evaluated the results of all Air Quality Purification Zones in 2022. There were three categories: Excellence Awards, Unique Contribution Awards, and Service Model Awards. The Excellence Award recognizes the outstanding achievements of adopters, the Unique Contribution Award is given to those who have adopted zones in ways that can serve as significant models for others, while the Service Model Award acknowledges adopters that have made continuous efforts to protect the environment for years. In addition, seven county and city governments were recognized for their active facilitation of the adoption program for Air Quality Purification Zones.

The program's outcomes indicate the public's increasing awareness and participation in environmental protection. In the future, the EPA will align the program with Taiwan's 2050 Net-Zero Emission Pathway, combine urban greening with natural carbon sinks, and encourage businesses, communities, and schools to join the adoption program, together creating a sustainable environment with net-zero emissions.



EPA Deputy Minister Chih-Hsiu Shen (the fourth from left) awarded the Outstanding Adopters of Air Quality Zones

4. EPA and NFA Provide Three Tips for Eco-Friendly Tomb Sweeping

During Tomb Sweeping Day, if people are careless with fire or burn joss paper in open areas, uncontrolled fires may occur and further harm air quality. In 2022, 72% of fire incidents on the holiday were caused by tomb sweeping or burning of weeds. The EPA and the National Fire Agency (NFA) of the Ministry of the Interior, publicized the following three tips to make tomb cleaning more eco-friendly. First, overgrowth can be cut and disposed of at designated locations without open-air burning, second, joss paper can be placed at designated locations for centralized transport and burning, and third, joss paper can be replaced with donations for charities. Moreover, people are encouraged to practice fire-free tomb sweeping practices while taking advantage of the joss paper collection service at designated spots in public cemeteries, to make the tradition friendlier to the environment.

Tomb Sweeping Day is a peak period for ancestral worship in Taiwan, during which many people burn joss paper and weed grave sites. Director Mengyu Tsai of the EPA's Department of Air Quality Protection and Noise Control pointed out that on the Peace Memorial Day on 28 February this year, the EPA used miniature sensors to monitor air quality during from burning weeds at public cemeteries in Tongluo, Miaoli County. It was found that PM_{2.5} concentration in the air increased from 20 µg/m³ to 300 µg/m³, significantly higher than the "red alert" level of 54.5 µg/m³, which indicates an extremely high health risk.

In response, the EPA and the NFA have joined forces for the first time, inviting the Taipei City Environmental Protection Bureau and the Keelung City Environmental Protection Bureau as representatives of local governments to promote centralized joss paper disposal, eco-friendly ancestral worship, and a fire-free Tomb Sweeping Day. Weeds can be gathered together at the same place before being bundled after gravesite clean-ups, while littering cigarette butts should be avoided. Moreover, local governments provide joss paper collection and transportation services, with 22,000 metric tons of joss paper collected in 2022. This year there will be more collection spots in cemeteries nationwide, with at least 300 collection spots available. People with a need to burn joss paper can hand it over to the local government for centralized disposal.

Open-air burning during tomb sweeping can easily cause fires. According to the NFA's statistics in 2021 and 2022, as much as 52% of fire incidents were caused by residual embers and burning of weeds related to ancestral worship and tomb sweeping. A staggering 72% of fire incidents were caused by burning of joss paper and weeds during Tomb Sweeping Day in 2022, hence the urging of necessary caution.



Weeds can be gathered together at the same place before being bundled after gravesite clean-ups

5. Livestock Manure Reutilization Program Expanded to Six Counties and Cities

The EPA and the Council of Agriculture (COA) jointly promote utilization of livestock manure digestate as fertilizers for farms. A pilot program was conducted in 2022, in which farmers were invited to use manure digestate to fertilize and irrigate crops such as red bean. After positive trial results, this year the program will be expanded to six counties and cities: Changhua County, Yunlin County, Chiayi County, Tainan City, Kaohsiung City and Pingtung County.

In 2023, to encourage farmers to participate in demonstration fertilization projects the EPA has offered an incentive, equivalent to 10% of the proceeds from the harvests. The aim is to lower river pollution, improve air quality in rural areas, and facilitate a circular economy via policies to recycle and repurpose livestock manure as nitrogen fertilizers. Local environmental bureaus and agriculture offices have prepared planting handbooks for various crops, are available to provide guidance and assist in matching farmlands needing fertilizers with livestock farmers. The cost of transporting digestate will be subsidized by the central government.

For this year's program, the EPA will emphasize the use of manure digestate from the second-crop of rice cultivation. Based on previous trial results, rice crops fertilized with manure digestate have shown benefits such as reduced pest problems and disease, plumper rice grains, and greater strength in general. Soil monitoring is continually carried out to ensure quality control and deal with concerns about heavy metal content, often a question in the past.

The program not only improves river water quality by reducing discharges of livestock wastewater into water bodies, but food safety for consumers is also enhanced with less use of agrochemicals and chemical fertilizers on crops. Meanwhile, farmers will benefit from less spent for chemical fertilizers, increased yields, and incentives from the EPA. Farmers participating in the demonstration program have seen an average increase in crop yields of 30%, which along with the additional 10% incentive provided by the EPA is approximately equal to a 40% increase in income.

Giving a thumb's up, program participant Mrs. Li, who grows red beans in Xinyuan, Pingtung County, said, "The EPA promotes the wisdom of our ancestors, which helps to save on use of fertilizers and water." For her, using manure digestate for fertilization has led to halving the amount of chemical fertilizers, crops less prone to disease, and an abundant harvest, 30% more than that of neighboring red bean farms. Upon seeing the results, other nearby farmers of red beans, bananas, and other crops have been inquiring about fertilization with manure digestate.

The program's achievements showcase the perfect combination of traditional farming methods and modern technology, as well as the charm and potential benefits of returning organic matter to farmland. Utilization of livestock manure resources is part of a sustainable agricultural model, benefiting the land and the environment by transforming manure digestate into useful fertilizers while cutting reliance on chemical fertilizers and agrochemicals.

During the past five years the EPA has actively promoted manure digestate reutilization by providing assistance, subsidies and various other resources. Over 600 seminars were held in collaboration with local governments to match livestock farms with crop farmers for use of manure digestate for fertilization, with 11 townships selected as demonstration sites nationwide. As of the end of December 2022, the three methods of utilizing manure digestate have helped reduce biochemical oxygen demand (BOD) by 66,165 metric tons per year. Another result is that total digestate used for fertilization contain 1,565 metric tons of nitrogen per year, equivalent to 241,556 bags per year of Taiwan Fertilizer Co.'s No. 5 Fertilizer, thus saving NT\$99.04 million per year in fertilizer costs. However, such result excludes nitrogen content of 2,309 metric tons/year in matters recycled for plant irrigation based on the *Effluent Standards* (放流水標準) as plants irrigated according to the standards require no fertilizers.

Resource recycling such as re-use of livestock manure and better wastewater disposal can make significant contributions towards net-zero emissions. The EPA explained that the *Water Pollution Control Act* (水污染防治法) has been amended with targets set for reuse of livestock wastewater. As of March 2023, the target of 5% reuse rate for farms with 2,000 heads of livestock or more by 2023 has been achieved. The next challenge is for small and medium-sized farms with 20 to 1,999 heads to reach a 5% reuse rate by 2025, and for farms with 2,000 heads or more to reach a 10% reuse rate by 2027. This requires the joint efforts and cooperation of the livestock industry, agricultural authorities, and environmental protection authorities to implement resource utilization and improve water quality.



"The EPA promotes the wisdom of our ancestors," commented program participant Mrs. Li while giving a thumb's up.

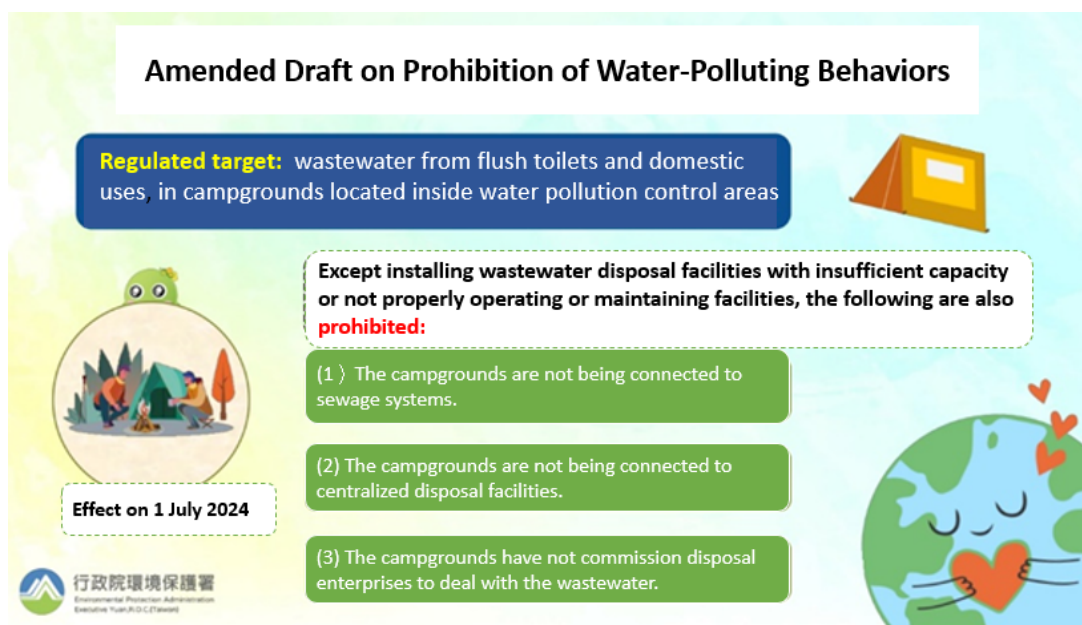
6. Amended Draft on Prohibition of Water-Polluting Behaviors Preannounced

On 22 March 2023, the EPA preannounced the revised draft of the *Prohibition of Water-Polluting Practices* (禁止足使水污染行為). For campgrounds, the draft includes requirements for proper collection and treatment of wastewater generated from flush toilets and domestic use, as well as installation of adequate wastewater treatment facilities. The law will come into effect on 1 July 2024 in consideration of the preparations and adjustments needed before implementation.

In recent years, there has been an increase in camping activities and campground use. Out of all existing campgrounds in Taiwan, currently over a thousand in total, only about two hundred are legal, with the majority not listed for control under the *Water Pollution Control Act*. Based on the Executive Yuan's "Respect the Mountains" policy and the *Campground Management Guidelines* (露營場管理要點), established by the Tourism Bureau of the Ministry of Transportation and Communications in July 2022, small campgrounds less than one hectare located on land designated for agricultural, livestock and forestry use may apply for legal certification under certain conditions. Subsequently, in December 2022 the Tourism Bureau publicized the draft application forms and plans for issuing permits for use of land as campgrounds, which will serve as references for campground enterprises as they apply for legal certification.

Aiming to regulate installation of sewage treatment facilities in campgrounds, the EPA has targeted specific acts in campgrounds located inside water pollution control areas, such as installing wastewater disposal facilities with insufficient capacity or not properly operating or maintaining facilities. Another target is the improper channeling of wastewater from flush toilets and domestic uses, due to the campgrounds not being connected to sewage systems or centralized disposal facilities, or because they have not commissioned disposal enterprises to deal with the wastewater. The draft is preannounced based on the *Water Pollution Control Act* Article 30, paragraph 1, item 5, listing such behaviors as water-polluting acts that are to be prohibited. The goal is to jointly safeguard environmental quality.

In addition, on 7 March 2023 the EPA issued the *Guidelines for Application and Evaluation of Campground Environmental Protection Affairs* (露營場環境保護事項申請及審查指引) as a reference for competent authorities managing campgrounds, local environmental bureaus, and campground enterprises, and to facilitate the legal certification process for campgrounds.



7. Aiming for a 30% Usage Rate of Recycled Plastic in Packaging Materials

To promote domestic plastic recycling and waste reduction, the EPA encourages industries to mix recycled plastic materials into packaging materials, aiming to achieve a 25% usage rate of recycled materials by 2025 and a 30% usage rate by 2030. On 30 April a press conference was held to promote recycled plastic products for green circularity, inviting companies such as Kao Corporation and Nice Group to participate. It is hoped that collaboration with the industry will reduce consumption of virgin materials and move towards resource circulation and zero waste.

Internationally, efforts have been made to promote net-zero emissions and sustainable development in response to plastic pollution. The European Union (EU) has been a pioneer in this regard, with the European Plastics Pact introduced in 2020, which aims for an average of at least 30% recycled plastics in products and packaging by 2025. Other countries, such as the United Kingdom, the Netherlands, and France, have also set similar goals. As Taiwan heavily relies on imported petrochemical resources for plastic production, the EPA is promoting increased use of recycled plastic materials in industries to more efficiently utilize such resources and maximize their value, and thus align with international environmental trends. It is expected that, via such promotion, by 2025 the usage rate of recycled plastic materials in packaging can reach 25%, the use of recycled plastics can increase by roughly 75,000 metric tons, and carbon emissions be reduced by around 150,000 metric tons.

To encourage voluntary use of recycled plastic materials in industries, on 3 November 2022 the EPA set the *Operation Guidelines for Promoting Recycled Plastic Products for Non-Food Packaging* (非填充食品之塑膠再生商品推動作業要點) with a priority focus on non-food plastic containers. For plastic containers for cosmetics, animal cleaning and care products, cleaning agents, lubricants, etc., an evaluation mechanism has been established to confirm sources of recycled materials, their quality, and proportions within mixtures, thus providing a regulatory framework for enterprises to follow. Several companies have already begun using recycled materials and have voluntarily participated in the process of evaluating content of recycled materials. In the future, consumers will be able to find on the EPA's website information on products that have passed the evaluation for recycled plastic containers (<https://www.epa.gov.tw/Page/E98E2B0A22D482BB>).



Director Ing-Ing Lai of the EPA's Department of Waste Management (third from right) with representatives of model enterprises participating in the recycled plastic scheme.

8. Net Zero City Expo Showcases Ways to Realize Green Living and Zero-Waste Future

The Net Zero City Expo, demonstrating the sustainable development practices and policies promoted by the EPA, held its grand opening on 28 March 2023. The EPA showcased key exhibition areas with the themes of "Zero Waste through Resource Circulation" and "Net-zero Green Living," which correspond respectively with Strategy 8 and Strategy 10 of Taiwan's 2050 Net-Zero Emissions Pathway and Strategy. Through interactive experiences and practical demonstrations, the event showcased ways to achieve net-zero green living and create a zero-waste future through resource circulation. On opening day, EPA Minister Tzi-Chin Chang was interviewed by the media, and Vice President William Lai and Secretary-General to the President, Chia-lung Lin, also visited the exhibition areas of the EPA and gave high praise.

The Net Zero City Expo was organized by the National Development Council and the Taipei Computer Association, with the aim of promoting Taiwan's policy towards *2050 Zero Emissions Pathway* (2050 淨零排放路徑). The EPA participated in the exhibition with a focus on the themes of "Zero Waste through Resource Circulation" and "Net-zero Green Living."

Minister Chang mentioned that since President Tsai Ing-wen declared the goal of "Net-Zero Transition by 2050" on Earth Day (22 April) 2021, multiple net zero related plans have been announced. The *Climate Change Response Act* (氣候變遷因應法), which after three readings was passed by the Legislative Yuan in January 2023, also includes several important policies. About half of the *12 Key Strategic Action Plans* (12項關鍵戰略行動計畫) are related to energy policies. The EPA's promotion of "Zero Waste through Resource Circulation" and "Net-zero Green Living" aims to work with the whole nation to reduce carbon emissions generated by daily activities such as eating, clothing, housing, transportation, education and entertainment. For example, locally sourced food should be chosen for meals and public transportation, or electric vehicles should be chosen for transportation.

Minister Chang explained that the EPA's actions are not only aimed at raising public awareness of the Net Zero by 2050 goal but also at encouraging people to take action in their daily lives. For example, the "10 Great Food-saving Actions" campaign encourages people to adopt green habits and engages the public in making full use of resources. For example, in the textile industry academia and industry have developed precise fiber sorting and recycling technologies, providing more options for processing old clothing, including use as secondhand clothing, downgrading for other uses, or using technology to make raw materials for textiles, fuel for energy, etc.,

During his visit to the Sustainable Living Pavilion of the exhibition, Vice President Lai exchanged views on the achievements of resource circulation with Deputy Minister Ya-Fen Wang. The Vice President was particularly curious about the first carbon-neutral shoes produced by domestic manufacturers and asked about the details of the technology and materials used. Deputy Minister Wang pointed out that through innovative technology and business models, the implementation of a circular economy by the entire citizenry can be realized, existing resources can be reused, and cities can become urban mines. Secretary-General to the President Chia-lung Lin also stopped to learn about the environmental technology achievements of "boiler fuel transformation" and "acoustic cameras".



Vice President Lai and Speaker Adamová of the Czech Republic praised the first carbon-neutral eco-friendly shoes.



Deputy Minister Ya-Fen Wang (7th from right) led the EPA team to welcome Vice President William Lai (5th from right) and the Speaker of the Chamber of Deputies of the Czech Republic, Markéta Pekarová Adamová (4th from right) to visit the exhibition.

9. Arrests Concerning Waste Acid Dumping Businesses Ends Atrocious Pollution

In October 2022, the Environmental Protection Bureau of the Taichung City Government discovered evidence of unscrupulous businesses illegally dumping hazardous industrial waste into the soil in Qingshui District, Taichung City. After investigations, the Taichung District Prosecutors Office concluded the case on 31 March 2023, with estimated illegal gains exceeding NT\$83.35 million. Eleven offenders, including the head of the main offending company, were charged with violating the *Waste Disposal Act* (廢棄物清理法), and will be held responsible for environmental restoration.

In 2022, evidence was reported to the Taichung District Prosecutors Office, which then commanded the Taichung Field Division of the Investigation Bureau of the Ministry of Justice, the Seventh Special Police Corps, and the National Taxation Bureau of the Northern Area to investigate the case. A task force was formed with the EPA and the environmental protection bureaus of Taoyuan City, Taichung City, and Miaoli County to expand the investigation. The investigation traced and uncovered a case of environmental crime in which a Taoyuan-based waste acid recycling company illegally disposed of waste acid received from factories without undergoing proper recycling processes.

The company in question is a recycling organization that primarily collects waste pickling acids from factories. In order to save costs, the company did not add chemicals to treat the waste acids during the recycling process in accordance to regulations. They commissioned unscrupulous businesses to transport the used strong acids without having gone through the proper recycling process, and illegally disposed of them in various locations spanning four counties/cities: Xinwu in Taoyuan, Sanwan in Miaoli, Qingshui and Dali in Taichung, and Dacheng Township in Changhua County. At the same time, they fabricated false reports on the amount of raw materials used, monthly sales reports, shipping invoices, product weighing records, and seals, with the intention of evading detection by environmental protection personnel.

Through the joint efforts of the special task force composed by the Taichung District Prosecutors Office and various agencies, including the EPA and the environmental protection bureaus of relevant counties and cities, the source of the waste acid and the related criminal networks and methods were traced and clarified. Key evidence was obtained to put an end to the illegal activities of unscrupulous businesses that harm the land and pollute the environment.

The task force spent nearly half a year comparing relevant financial flows, big data, and conducting verification work such as excavating disposal sites, inspecting waste and soil samples component by component, and unraveling the criminal methods of the dishonest operators. These methods included dumping waste pickling acids of strong acidity into holes, directly pouring them on the ground, hiding them in bamboo forests and camping sites, or disposing of them on remote cemetery land. Suspected disposal sites were excavated and sampling and testing were carried out to confirm the extent of pollution and strengthen the evidence of the illegal acts of the operators who criminally harmed the land. The soil pollution conditions at the relevant disposal sites have been evaluated by the county/city environmental protection bureaus, and emergency response measures have been taken to prevent the spread of pollution.

Another notable point is that during the process of verifying one of the illegal dumping sites, EPA personnel inspected the downstream riverbed of Zhonggang River in Sanwan Township, Miaoli County. Despite the dangerous and steep terrain and sharp rocks, they hiked three kilometers upstream along the river and finally found the illegal dumping site. It was this relentless spirit that enabled the authorities to uncover the unlawful acts of the businesses.

The EPA would like to extend its special thanks to the Taichung District Prosecutors Office and the agencies and members that formed the special task force for the investigation of this case.

Through the cross-agency collaborations, the mechanisms and effectiveness of environmental regional governance have been fully demonstrated. The EPA will continue to rely on the collaboration platforms set up between the prosecutors' offices, police and environmental protection bureaus for cracking down on environmental crimes and uphold the policy of regional governance to bring environmental criminals to justice and jointly maintain environmental quality with the citizenry.



Polluted spots on the river bed of Zhonggang River

10. Transformation of Recycling Army Program into Recycler Care Program Gives More Help to Disadvantaged Recyclers

The EPA has been promoting the *Recycler Care Program* (資收關懷計畫) for over three years, aimed at caring for individual recyclers with low to medium incomes. Measures such as guaranteed-price acquisition, home collection and transportation, and micro-insurance have been adopted. The entire funding from the original *Recycling Army Program* (資收大軍計畫) has been transformed and used to promote the *Recycler Care Program*, with a focus on providing better care for disadvantaged recyclers and subsidizing local promotion efforts.

In 2017, the EPA launched the *Recycling Army Program*. The original plan employed low-income individual recyclers commonly seen on the streets to assist cleaning squads and communities in waste sorting to improve recycling quality. The maximum working hours per month were twenty-five, with a maximum payment of around NT\$4,200. After two years of implementation, in order to care for the disadvantaged recyclers more directly, the EPA consolidated various suggestions from the public and incorporated a new recycler care program into the original plan, with subsidies higher than market prices to encourage recyclers to recover recyclables and mitigate the impact of market price fluctuations. In addition, the program later included supplementary measures such as home collection and transportation services, environmental improvement counseling, and micro-insurance services.

The *Recycler Care Program* currently provides five major measures: 1) A guaranteed-price acquisition subsidy, offering 2-3 times the market price to purchase recyclables, with a monthly limit of NT\$5,000; 2) Home collection and transportation services, providing clearance and transportation services for recyclables at recyclers' homes by appointment if necessary; 3) Supplemental epidemic prevention equipment, purchasing epidemic prevention materials such as masks and face shields, and providing them to recyclers; 4) Micro-insurance, helping recyclers to purchase micro-insurance; 5) Environmental improvement services, conducting site cleaning and disinfection in the storage areas of recyclers.

The *Recycler Care Program* has been fruitful. The recycling volume reached 9,215 metric tons in 2020 and increased to 13,510 metric tons in 2022, a growth of almost 1.5 times. The program targeted low-to-middle-income recyclers and offered a higher purchase price based on their actual recyclable collection volume, unlike the *Recycling Army Program*, part of which did not target individual recyclers of low-to-middle income. Considering that the *Recycler Care Program* can provide more substantive assistance to individual recyclers with higher purchase prices and help the

growth of their actual recyclable collection volume, the focus of promotion has gradually shifted from the *Recycling Army Program* to the *Recycler Care Program*.

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