

Major Environmental Policies

Mar 2021

1. Feature Article: Ozone-depleting Substance Reduction Strategies and Results in Taiwan

On its work in controlling ozone-depleting substances (ODSs), Taiwan has always abided by the Montreal Protocol to align with the pace of advanced countries in cutting down ODS production and consumption. Both the government and industries have successfully achieved the protocol's production and consumption limits by formulating reduction strategies accordingly. For instance, Taiwan has reached zero halon (haloalkane) consumption since 1994.

Reduction plans

Taiwan has placed on its regulatory list all of the ODSs listed in the Montreal Protocol's Annexes A, B, C, and E. In 1993, these substances were announced for control in the *Regulations Concerning Control of Chemical Substances Listed for Control by the Montreal Protocol* (管制蒙特婁議定書列管化學品作業要點) composed by the Industrial Development Bureau (IDB) of the Ministry of Economic Affairs (MOEA).

Chemicals, divided into nine major categories, have also been added to the regulatory list afterwards, based on the Montreal Protocol's agreements. The Chemical Substances Control List has detailed categorizations, substance names, chemical formulas, and their potential ozone-depleting index.

On the production or consumption of regulated chemical substances, the Montreal Protocol sets different reduction plans that include

< Baseline level > usually, a regulated chemical substance's production or consumption amount in a specific year

< Freezing schedule > the time taken to lower a regulated chemical substance's production or consumption amount to less than the baseline amount

< Reduction percentage > the time taken to lower a regulated chemical substance's production or consumption amount to a certain percentage of the baseline amount

< Conditions for exemption > conditions in which chemical substances can be exempted from production or consumption regulations

According to Montreal Protocol regulations for developed countries (Non-Annex V countries), Taiwan's National Complete Reduction Schedule has been formed based on the focuses above. Other relevant reduction measures are also set based on these focuses.

Reduction progress

Out of the Montreal Protocol's regulated chemical substances, Taiwan only produces

hydrochlorofluorocarbons (HCFCs) in Production Table C under Category 1. The production freezing schedule of substances in this category began in 2004, so Taiwan's past control of HCFC production complied with the Protocol.

Formosa Plastics, the only manufacturer of HCFCs in Taiwan, stopped producing HCFC-141b and HCFC-142b in 2004. Its production of HCFC-22 only reached 80 ozone-depletion-potential (ODP) tons of HCFC-22 in 2005, and all production has been terminated as of June 2005. It marked the end of Taiwan's HCFCs and ODS production in 2006.

For consumption, the government and industry have been working hard to meet the Montreal Protocol's requirements. Consumption goals for many chemical substances were reached before 1996. Significant moments in the reduction journey include:

- halon has been at zero consumption since 1994
- consumption of methyl bromide has been regulated since 1 Jan 1995
- CFCs, carbon tetrachloride, and 1,1,1-trichloroethane have been below-zero consumption since 1996
- HCFC allocations became effective on 1 Jan 1996 to freeze its consumption, set to reach zero by 1 Jan 2030

Reduction results: Analysis of ODS consumption in 2019

Complying with the Montreal Protocol, Taiwan has reported its ODS consumption data to the UN since 1994, which is the total of imports plus production minus exports.

Taiwan's CFC consumption has been at zero since 1996, the level required of parties to the Montreal Protocol. That year HCFC consumption was also frozen, stopping at 84% of Taiwan's baseline level. National HCFC consumption was 382.51 ODP tons in 2004 (65% of the baseline level required by the protocol), 152.56 ODP tons in 2020 (25%), and 59.35 ODP tons in 2015 (10%). The 63.119 ODP tons of HCFC consumption in 2019 was 0.680 ODP tons less than that in 2018. Image 1 shows Taiwan's declining consumption of HCFCs over the years.

Measures to effectively cut down consumption include allocations and bans for specific uses in different stages. Effective bans so far include: all types of HCFCs in aerosol propellants and foaming agents in manufacturing processes; HCFC-141b in solvents or cleaning agents in the manufacturing processes; filling HCFC-22 coolants in the manufacture of new refrigerating or air conditioning equipment or new construction; and so on. Moreover, HCFCs have been banned since 1 Jan 2020 as coolant fillings in the manufacture of new refrigerating and air conditioning equipment and new construction. The goal was to lower the consumption to 0.5% of the baseline level and restrict its applications. Such practices will result in much fewer imports and limit the demand from domestic refrigeration and air conditioning equipment, leading to further reduction.

Regarding production of ODSs, Taiwan has stopped producing CFCs since 1996 and HCFCs and all ODSs as of 2006. As for imports in 2019, only 1039.223 metric tons (56.497 ODP tons) of HCFC-22, 320.000 metric tons (6.520 ODP tons) of HCFC-123, small amounts of

HCFC-124 (4.360 metric tons, or 0.096 ODP tons) and HCFC-225 (0.250 metric tons, or 0.006 ODP tons) were imported.

In 2019, Taiwan exported only 12 metric tons (0.660 ODP tons) of HCFC-22, 7 metric tons (0.385 ODP tons) more than it did in 2018. The continuous export of HCFC-22, even with reduced domestic production, is estimated to be used for maintenance and coolant refills of refrigerating equipment on board fishing vessels operating offshore. On the other hand, methyl bromide imported after 1999 has been used only for quarantine and pre-shipment (QPS) purposes. There were 28.826 metric tons (12.616 ODP tons) imported in 2019, 20.276 metric tons less than in 2018.

The annual imports of methyl bromide are shown in Image 2.

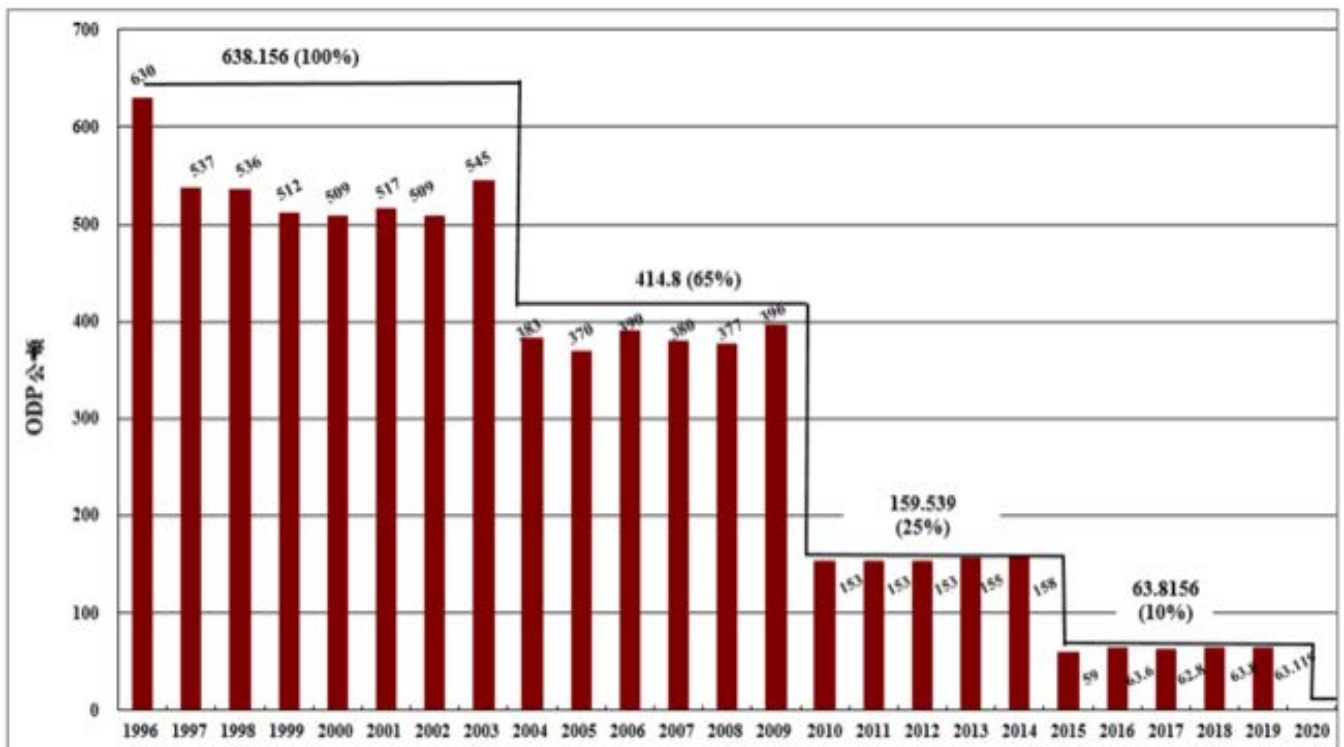


Image 1: Taiwan’s annual consumption of HCFCs

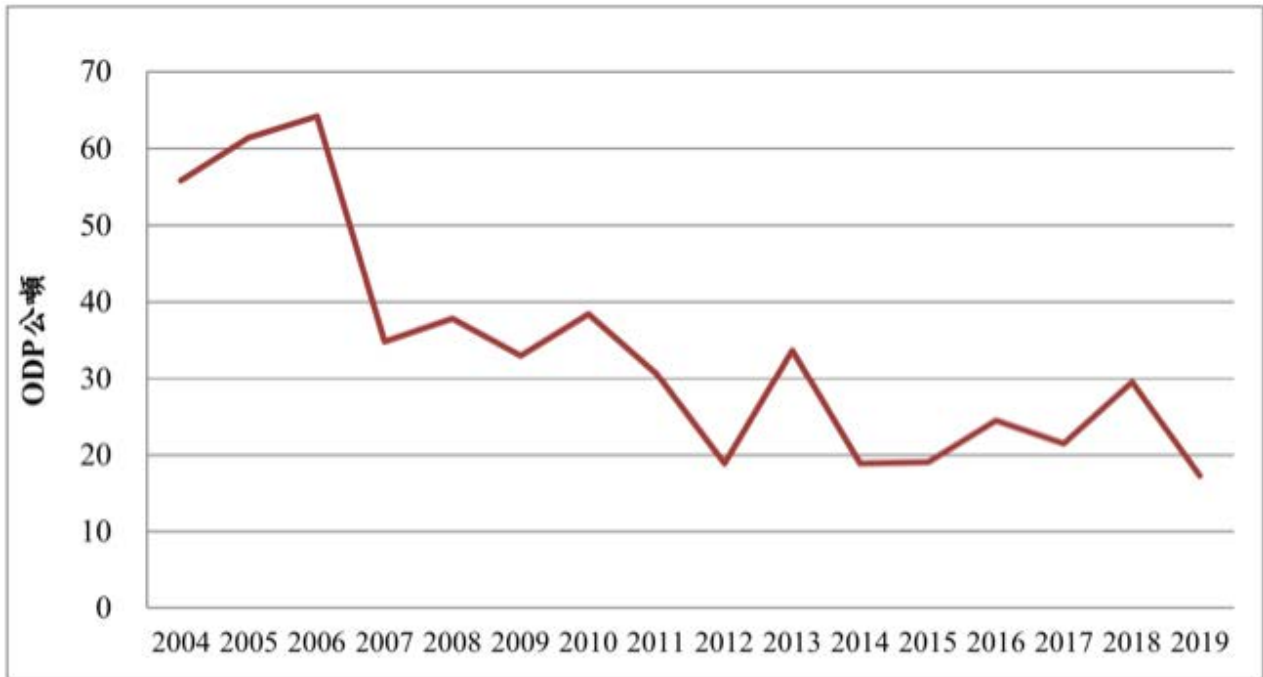


Image 2: Taiwan's annual imports of methyl bromide

2. Environmental Impact Assessment and Environmental Education

(1) In March, one environmental impact assessment (EIA) review committee meeting and 17 project group preliminary review meetings were held. In addition, explanations, and determinations on whether EIAs shall be conducted were issued for eight cases. Moreover, in accordance with Article 36, paragraph 2 of the *Environmental Impact Assessment Enforcement Rules*, one case was approved and one was rejected for EIA document modification and filed for reference.

(2) The EPA cooperated with Daojiang High School of Nursing and Home Economics to integrate food-cherishing teaching materials (draft) into the "Zero Waste Cooking Course" for trial teaching. In addition, on 22 March, the EPA held the "Food-Cherishing Cooking Achievement Competition" to enrich the views and capabilities of the students in catering-related majors on the concept of food-cherishing. The teaching materials will be revised on a rolling basis.

(3) On 27 March, the EPA held the final competition for the 2020-2021 Caring for the Environment Design Competition. Among the 20 teams qualified for the final competition, top three winners were chosen with five additional designs selected for their excellence. The award ceremony and the tour exhibition of the works were set to start from 12 April.

3. Air Quality Improvement

(1) Regarding the air quality forecast information released at 10:30 a.m. daily by the EPA, a total of nine notifications were issued on 11, 13, 14, 15, 16, 17, 19, 21, 22 March, initiating controls on air-polluting behaviors during the specified deteriorated air quality advisory periods in the northern, central, Yunlin, Chiayi, Tainan, Kaohsiung and Pingtung areas, respectively.

(2) From 8 to 10 March, the EPA's Central and Southern Branches of the Bureau of Environmental Inspection along with the environmental bureaus of 10 Counties/Cities in the central and southern regions held joint inspections on the control of fine particulate matter and large pollution sources. A total of 72 persons were mobilized and 27 public and private premises were inspected. In addition, in response to the forecasts showing poor atmospheric diffusion conditions and poor air quality in the western half of Taiwan, a press conference was held on 12 March regarding the EPA's establishment of a command center in the Central and Southern Regions to coordinate response to deteriorating air quality in western counties and cities. In the afternoon of the same day, the EPA took command in the central and southern regions and coordinated and supervised response actions nearby for the following eight days.

(3) The EPA coordinated with the Ministry of Economic Affairs and Taipower to reduce power output and carbon emissions at Xiehe, Linko, Taichung, Mailiao, and Hsinda Power Plants. Throughout March, power output was lowered by 3,247,190,000 kWh, cutting SOx emissions by 735.7 metric tons, NOx by 752.4 metric tons and TSP by 29.2 metric tons.

(4) Local governments' response to poor air quality is summarized as follows:

1. A total of 725 enterprises were inspected or notified to carry out voluntary management and comply with emission reduction.
2. A total of 546 instances of open-air burning were found during patrols.
3. Airborne dust control measures such as covering building materials in construction sites and water sprays were carried out in 727 sites.
4. A total of 28,200 kilometers of major arteries and roads with heavy traffic were swept and cleaned.
5. Patrols (including notifications) were conducted in 1,194 food and beverage businesses.
6. A total of 135 patrols (including notifications) were conducted in areas with exposed riverbeds.
7. A total of 188,164 vehicles and motorcycles underwent roadside inspections (including catching engine idling and determining exhaust by sight)
8. A total of 45 measures were carried out to discourage the public from using private transportation.
9. A total of 1,053 measures were implemented to promote various protection methods.

4. Water Quality Protection

(1) On 5 March, the “Non-point Source Pollution Prevention for Agricultural Environment Protection” promotion event was held in Fuxing District, Taoyuan City. The environmental bureau of Taoyuan City, local agriculture production and marketing groups and farmers were invited to attend the event and promote agriculture-friendly environments. Through this activity, farmers were familiarized with the concept and actions of reasonable fertilization and water quality protection. They were encouraged to reduce the use of fertilizers and pesticides in the upper reaches of reservoirs, to reduce non-point source pollution and improve the water quality of the reservoirs. This echoed Europe’s latest green policy “Farm to Fork”, which is to cut down the use of agrochemicals and antibiotics.

(2) On 29 and 30 March, the EPA held the Seminar on Livestock Manure and Biomass Energy Utilization Technologies, which was attended by representatives from the Council of Agriculture of the Executive Yuan, special municipalities, counties (cities), environmental bureaus, agricultural bureaus (divisions) and Taiwan Sugar Corporation. In the seminar, the representative from the Council of Agriculture explained the council’s policies and the subsidies for livestock manure utilization. Experts and scholars also gave speeches and exchanged ideas on topics such as anaerobic digestion of livestock wastewater, biogas power generation (reutilization), and water quality improvement evaluation. A tour was also arranged for the participants to visit Hualien County Pushige Livestock Biomass Energy Center, the first centralized livestock manure treatment facility in the country subsidized by the EPA. The purpose of the seminar was to enhance the understanding of base-level personnel working in environmental and agricultural agencies towards inter-ministerial strategies and measures and strengthen their consensus for cooperation and policy implementation.

(3) In light of the continuing drought, the EPA reviewed the environmental bureaus of all counties and cities to strengthen the sampling inspection of tap water, in particular, in areas where water supply resumed after it had been cut off. The EPA also designed online courses for environmental bureau personnel on methods for sampling inspections, sample preservation and precautions for sample delivery. In addition to enhancing the personnel’s familiarity with their duties, the courses aimed to ensure the accuracy of their operations to safeguard drinking water safety. As of March 2021, a total of 2,127 sampling inspections had been carried out on tap water quality. The acceptance rate reached 99.72%.

5. Waste Management

(1) On 10 March, the EPA announced the removal of the *Restrictions on the Import and Sale of Mercury Thermometers*. Considering that new regulations have been formulated to control the manufacture and import of mercury (Hg) at source and that no mercury thermometers from new sources would be sold on the market as a result, the EPA removed the regulations in accordance with Article 20, paragraph 4 of the *Central Regulatory Standards Act*.

(2) On 18 March, the EPA announced revisions to Article 2 of the *Regulations for Determination of Fines for Violations of the Waste Disposal Act*. The revisions added that if penalized entities are publicly listed businesses, their financial capacities can be included as factors for the calculation of the fines, which could be 10 to 20 times higher, for example. Additionally, considering the impacts and damage, which are often substantial, caused to the environment and ecology by illegal dumping of waste in agricultural land or other environmentally sensitive areas, the revisions also added the types of waste prone to illegal dumping and the types of violations, including violation types often seen recently, to Table 2 and Table 3 of the regulations. Fines were also raised to further deter illegal behavior.

6. Environmental Sanitation and Greenhouse Gas Reduction

(1) On 24 March, in conjunction with the "Smart City Forum and Exhibition", the "Climate Action towards a Zero Carbon Future - Carbon Reduction of Buildings and Smart City Forum" was held. The forum, presided by Tze-Luen Lin, the deputy executive manager of the Office of Energy and Carbon Reduction of the Executive Yuan, invited ambassador-at-large Eugene You-hsin Chien to give a keynote speech. Experts and scholars at the forum communicated with all participants on matters such as the global pursuit of net-zero emissions, the current status of the assessment of domestic carbon reduction pathways, smart cities, and carbon reduction of buildings. The dialogues aimed to enhance public awareness of the matters and help the country move towards the goal of sustainable development.

(2) On 26 March, the EPA held a workshop on the research results of "Carbon Pricing Options for Taiwan". Experts, scholars, and civic groups were invited to participate in the remote video conference with the author of this research report, Josh Burke, who is a senior policy researcher at the London School of Economics and Political Science. Participants discussed the report along with Taiwan's carbon pricing practices and response to carbon taxes, and gave their comments and suggestions.

7. Evaluation and Dispute Resolution

On 5 March, *Revisions to the Green Mark Standards for Products Using Agricultural Resources* were promulgated.

8. Environmental Monitoring and e-Government Promotion

(1) The EPA and the environmental bureau of the Taoyuan City Government jointly carried out a water quality sensing test project. Through analyzing the data from the Internet of Things for Water Resources, the EPA ascertained the frequency and timing of water quality abnormalities. On 11 March, with the help of real-time water quality monitoring equipment, the EPA acted in conjunction with the bureau and caught a beverage company in Guishan Industrial Park discharging strong alkaline wastewater. Samples were taken immediately at the scene which showed the limits listed in the *Effluent Standards* had been exceeded. The company was therefore

penalized in accordance with the relevant provisions in the *Water Pollution Control Act*.

(2) The Changhua Dacheng air quality monitoring station was established. In addition to items monitored by general air quality monitoring stations, this station is also capable of monitoring items for photochemical assessment. The addition of this station will ameliorate the lack of monitoring stations in the southern part of Changhua County.

9. Garbage disposal and cleaning crew

(1) Implementation of the Garbage Disposal Diversification Program will continue until the end of 2022. To have thorough understanding of the waste disposal frameworks of local governments and their budget needs for 2021-2022 and into the future (2023-2028), a strategic workshop on 10-11 March was held on the planning and prospects for the Program's implementation. Besides talking about future policy directions and guidelines for follow-up implementation, the EPA promoted communications and collaborations between the central and local governments via experience exchanges to enhance the Program and understand local needs. The goal is to help map out the Program's second-stage details.

(2) Four meetings were held in March to improve the occupational safety of cleaning crews, with experts, scholars, and crew members invited to speak and discuss regulations concerning occupational safety and sanitation, management, and actual work conditions. It aimed to enhance front-line personnel awareness of work environments and operational safety as well as lower the chance of occupational incidents.

10. Recycling management

(1) On 10 March, a meeting was held to discuss the draft *Guidelines Concerning Sales, Installation, Specifications, and Other Matters for Retailers Required to Have Paper Tableware Recycling Facilities* (應設置紙餐具回收設施之販賣業者範圍、設施設置、規格及其他應遵行事項). The EPA talked about the focuses of this legislation and plans for future stages. Other participants included representatives from self-service restaurant and bento shop associations, municipal, county, and city environmental bureaus, and the press (Apple Daily and Liberty Times), all of which expressed support after thorough communication.

(2) On 24 March, the EPA held a seminar to promote applications for the label on products using recycled marine waste and also to plan out label certification for products and materials verified to have complied with source requirements. Other organizers included 37 enterprises, in technology, sportswear, food, restaurants and textiles, along with 14 domestic and international certification bodies that meet both ISO 17065 and ISO 17021. All came together to discussed corporate needs and expectations for products made of recycled marine waste and offered suggestions for establishing a certification system and promotion of the labels.

(3) The EPA assisted Lianchiang County with the installation of containers and facilities to help largely decrease the volume of Styrofoam used and also worked with Qi Hui Recycle, the facility manufacturer, on the current Styrofoam recycling and disposal model and technology. It is hoped this will quickly facilitate recycling and reuse of marine waste Styrofoam.

11. Toxic and Chemical Substances Bureau

(1) The first meeting of the Environmental Protection and Food Safety Coordination Meetings for 2021 was held on March 10 to report the Administration's "Implementation Results of the Dioxin and Dioxin-like PCBs Monitoring Program in 2020" and confirm the adoption of the "Operating Principles for the Monitoring, Testing and Reporting of Environmental Dioxins and Heavy Metals (Draft)" proposed by the Administration.

(2) At the 42nd meeting of the Food Safety Joint Inspection Task Force of the Food Safety Office of the Executive Yuan on March 25, the Administration reported on the "Implementation Results of the Joint Inspection Project on Chemical Raw Material Manufacturers Concurrently Selling Food Additives in 2020". The Administration then discussed the "Proposed Items for Joint Inspection of Food Safety by Ministries and Agencies in 2021" and resolved to include the "Manufacturers of Semi-Finished Food Ingredients for Business Use" in the 2021 Joint Inspection Project. A working group meeting will be scheduled to discuss implementation details.

(3) At the 40th meeting of the Central Disaster Prevention and Response Council of the Executive Yuan on March 31, the Bureau reported on the project "Value-Added and Innovative Applications of ChemiCloud (Information Service Platform)".

12. Soil and groundwater pollution management

(1) On 3 March, the EPA held a meeting on butachlor and perfluorinated compounds (PFCs), such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonates (PHOS), in groundwater. Members of the Executive Yuan's Social Welfare and Environmental Hygiene Committee (SWEHC), scholars, experts, environmental organizations, and relevant trade associations were invited to provide suggestions.

(2) The 2021 research and model trial subsidization program on soil and groundwater pollution remediation approved 47 projects as of 16 March. A total of NT\$64.98 million will be used as subsidies for 30 academic research projects and 17 experimental trials. The goal is to enhance research and development capacity, nurture soil and groundwater professionals, optimize local technological development, and expedite pollution site remediation.

(3) The EPA has organized 14 meetings in environmental bureaus in Taichung City,

Penghu County, Taoyuan City, Nantou County, Miaoli County, Hsinchu County, Kinmen County, and Hsinchu City. Details of the *Regulations Concerning Storage System Pollution Prevention Facilities for Groundwater Bodies and Monitoring Facilities* (防止貯存系統污染地下水體設施及監測設備設置管理辦法) were explained to help enterprises better understand new additions to the regulations. Attendance amounted to approximately 800 people.

13. Environmental analysis management and assistance for environmental analysis in major programs

(1) There were six applications for new environmental analysis organizations, additions of two new categories, and 27 new signatories on environmental analysis reports. The EPA also organized 21 evaluations for environmental analysis permits and evaluations of seven signatories of reports. To date, 111 environmental analysis organizations (119 laboratories) and 18 motor vehicle testing organizations (21 laboratories) have obtained permits and are in operation.

(2) Two testing and analysis methods have been announced: one for glyphosate and its metabolites in water via liquid chromatograph tandem mass spectrometer (LC-MS-MS) (NIEA W548.50B); and one for microorganisms from groundwater samples taken from monitoring wells.

14. Staff training

(1) Environmental personnel training: to upgrade the skills of personnel in all environmental authorities and enterprises, the 19th environmental personnel training session was held, with 808 people attending courses on technology, policies and regulations, data applications, administration, and management.

(2) Environmental license training: The EPA conducted air pollution control and wastewater disposal personnel training for 1,355 people and issued 438 environmental protection certificates in seven categories. Orientation was conducted for environmental protection personnel and technicians, to enable those with certificates who have not used them for over three years to catch up with the latest regulations. A total of 91 people participated the orientation.

(3) Evaluations for environmental education certification continues: So far, a total of 11,298 people (including 5,041 people certified by the Ministry of Education), 26 institutes, and 209 venues have been certified.

15. Appeals and arbitration

(1) A meeting was convened on 3 March concerning damages and compensation over a public nuisance dispute between a Mr. Wu and a printed circuit board (PCB) company. The two parties reached a settlement outside the civil procedure, and the party that requested the meeting retracted its demands.

(2) On 5 March, a meeting was convened concerning damages and compensation over a public nuisance dispute between a fishery and a power generation company.

(3) Law professor Chien-Wei Wang of National Chengchi University spoke at seminars on 10 and 19 March titled “Liabilities of Infringement Acts over Environmental Pollution”.

(4) The Appeal Panel conducted its 707th and 708th meetings respectively on 12 and 26 March, completing evaluations of 50 appeals. Nine were rejected, 33 dismissed, and 8 withdrawn. The withdrawal rate reached 16%.

(5) The Public Nuisance Dispute Arbitration Panel held its 140th meeting on 17 March.

16. Regulation revisions

On 18 March, an official document (EPA Waste 1101025610) was issued, ordering to commence revision of the *Fine Determination Criteria and Fine Rates for Public and Private Premises that Violate the Waste Disposal Act* (違反廢棄物清運法罰鍰額度裁罰準則).

Major Environmental Policies R. O. C. (Taiwan)

Publisher

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