



# Major Environmental Policies

Environmental Protection Administration R. O. C. (Taiwan)

<http://www.epa.gov.tw>



## International Cooperation

## International Environmental Collaboration

**W**ith support from the Ministry of Foreign Affairs (MOFA), the EPA has actively facilitated environmental diplomacy and promoted regional bilateral and multilateral cooperation. Programs such as seminars and exchanges are regularly organized under the International Environmental Partnership (IEP), building up Taiwan's experiences and capacity in regional environmental services. The IEP programs that are currently being carried out mainly deal with environmental issues that are of global concern as well as areas where developing nations can benefit from the Taiwan experience.

### Recent implementation results

#### 1. Bilateral Taiwan-US collaboration

(1) Signing of the Implementing Arrangement #13 to the Agreement between the Taipei Economic and Cultural Representative Office in the United States and the American Institute in Taiwan for Technical Cooperation in the Field of Environmental Protection.

Arrangement #13, signed in September 2020, expands the bilateral cooperation scope between Taiwan and the US. Several emerging regional environmental issues that span across jurisdictions of different

departments, such as renewable energy certification, ecological health for children, and marine waste, are covered in the latest Regulations.

#### (2) Taiwan-US atmospheric monitoring

The Taiwan EPA and USEPA jointly established the Asia-Pacific Mercury Monitoring Network (APMMN) in 2019. It has assisted partner nations such as Thailand, Indonesia, Vietnam, the Philippines, Sri Lanka, Fiji, Mongolia, Nepal, Borneo, and India with mercury wet deposition sampling techniques and mercury analysis of rainwater samples.

Taiwan also works with Japan on comparing wet deposition samplers. The Taiwan EPA has also continued working with NASA on the Light Detection and Ranging (Lidar) Monitoring Network and Aerosol Automatic Monitoring Network Cooperation Agreement. The NASA-certified lidar station in National Central University is the only standard Lidar station in Asia. Taiwan also joined the National Oceanic and Atmospheric Administration's (NOAA) Carbon Circulation Greenhouse House Monitoring Network, conducting greenhouse gas monitoring on Lulin Mountain, the Pratas Islands, and the Spratly Islands.

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## International Environmental Collaboration



Taiwan and Japan signed the environmental protection exchanges and cooperation memorandum



The EPA and Finland Trade Center jointly promote the use of solid recovered fuel (SRF) on 27 November 2020.

### 2. Taiwan-Japan environmental exchanges and cooperation

The "Taiwan-Japan Environmental Forum" is an official platform for dialogue, negotiation and negotiation between Taiwan and Japan. Since 2006, it has been taken turns held in Taipei and Tokyo regularly. The 9th Taiwan-Japan Environmental Symposium was intended to be held in Taipei. Finally, it was conducted on 4 December 2020 in a video-conference format due to the COVID-19 pandemic. The following are four topics highlighted in this event: collaboration in promoting environmental education; implementation of laws and regulations related to climate change; air quality monitoring of pollutants from transboundary long-range transmission; principles for streamlining and updating the EIA process for wind turbines.

### 3. Taiwan-EU environmental exchange

(1) Participating in the European Commission's National Experts on Professional Training (NEPTs)  
Under the bilateral talks' framework between Taiwan and the EU, the European Commission's NEPTs helped Taiwan obtain the EU's approval for Taiwan's participation. Taiwan was one of the very few non-EU member states that took part in the program.

The EPA in 2020 had chosen delegates to attend NEPTs. These recommended delegates were also reviewed and approved by the European Union's Directorate-General for Research and Innovation (DG RTD). The objective is to set up a liaison relationship between the EPA and the EU and conduct various environmental collaborations or exchanges.

(2) Taiwan-Germany cooperation and exchange on climate change

In October 2020, the Taiwan-Germany Carbon Market Capacity Building Workshop was held in a video-conference format, featuring delegates from the German Environment Agency (Umweltbundesamt – UBA) and German Emissions Trading Authority (DEHSt), along with related experts and scholars. The exchanges and discussions were shared on the implementation and development of the carbon market mechanism in Taiwan and Germany.

(3) Taiwan-UK exchange during the carbon pricing mechanism workshop

Mr. Josh Burke, an expert on carbon pricing from the Grantham Research Institute on Climate Change and the Environment of the London School of Economics

and Political Science, was invited by the British Office Taipei to speak at the Taiwan-UK Carbon Pricing Mechanism and Exchange Workshop, held by the EPA on 25 February 2020. Burke shared the UK's experiences on formulating carbon pricing policies and actual implementation and exchanging with Taiwan's leading scholars, experts, and think tanks concerning greenhouse gas reduction and control policies.

(4) Environmental cooperation and exchanges with other European nations

The EPA's other endeavors with other European countries include collaboration with the Trade Council of Denmark on the INDEX Award, a Danish contest on environmental education innovations and environmental designs; working with the Swedish Trade and Invest Council to promote and exchange electric vehicle technology and garbage collection systems, and; an exchange on carbon pricing with the British Office Taipei. All of the above have greatly benefited

the development of environmental protection in Taiwan and cemented Taiwan's partnerships with these European countries through collaboration and experience sharing in various environmental fields.

#### 4. Environmental exchanges between Taiwan and Israel

As the 25th Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP25) had its bilateral talk with Israel, the EPA used this opportunity to hold an environmental exchange with Israel via video conference. The two sides exchanged ideas on their respective environmental policies, new green deals, and technology.

#### 5. Keeping up with the New Southbound Policy

The EPA has actively promoted exchanges with the New Southbound Policy's target nations, such as Vietnam, the Philippines, Malaysia, Thailand, and Indonesia. Of these nations, Taiwan has the most frequent exchanges

with Vietnam, with which two environmental collaboration agreements have been signed.

#### Future efforts

Years of promotion efforts have increased the exposure of Taiwan's environmental protection achievements in the world. Taiwan has also strengthened its bilateral ties by helping regional partners improve their environmental quality and has steadily built-up beneficial interactions with these partner countries' top officials.

To develop local environmental industries, the EPA will carry out various projects in the future in line with the New Southbound Policy, including gathering information on environmental quality for the last five years in the focus nations (Vietnam, Thailand, the Philippines, and Malaysia). Data collection will target air quality, waste management, surface water body quality, soil and groundwater pollution, and marine pollution to understand critical environmental issues in these countries better.

### General Policy

## New Measures Effective in January 2021

**A** number of environmental policies and regulations have taken effect since 1 January 2021, including the use of acoustic cameras for noise violation crackdown, more stringent Effluent Standards, addition of above-ground storage tank control regulations, more stringent controls on mercury-containing products, and adjusted clearance and disposal rates for certain recyclables.

Table: Major policies and measures implemented in January 2021

	Item	Description
1	Enhancing controls on vehicle noise via acoustic camera technologies	Control on motor vehicle noise is strengthened by using acoustic cameras to catch violating vehicles. Since 1 January 2021, acoustic cameras have been employed by law enforcement to increase control efficiency.

2	Tightening the <i>Effluent Standards</i>	<p>The <i>Effluent Standards</i> were tightened on 1 January 2021 with newly added regulations:</p> <ol style="list-style-type: none"> <li>1. Control standards for nine substances used in wafer manufacturing, semiconductor manufacturing, and petrochemical industries, including acrylonitrile and N-methyl-2-pyrrolidone (NMP), were newly added.</li> <li>2. Control standards for ammonium nitrogen were added for five industries including metal finishing and electroplating, as well as for sewerage systems in industrial parks other than petrochemical industrial parks.</li> <li>3. Control standards on ammonium nitrogen and total nitrogen were added for public sewage systems.</li> <li>4. True color standards were tightened and standards on free residual chlorine were newly added for 23 industries including tannery and industrial park sewage systems.</li> <li>5. Standards on nine heavy metals including cadmium, lead, total chromium, hexavalent chromium, copper, zinc, nickel, selenium, and arsenic were tightened, and standards on tin have been added for seven industries including wafer manufacturers that handle heavy metals and whose effluents reach a certain scale, and for sewage systems in science parks, petrochemical industrial parks, and other industrial parks.</li> </ol>
3	Adding controls for above-ground storage tanks to strengthen soil and groundwater pollution prevention	<p>The <i>Installation and Maintenance Regulations Concerning Facilities that Prevent Storage Systems from Polluting Groundwater and Monitoring Facilities</i> () have been revised to enhance upstream pollution prevention for above-ground storage tanks. Provisions were added for pollution-preventing facility installation, regular monitoring, and reporting and reference procedures. Enterprises can conduct the monitoring themselves and reporting the responses to protect soil and groundwater resources. All were effective from 1 January 2021.</p>
4	Strengthening controls on nine types of mercury-containing products	<p>The manufacturing and import of nine types of mercury-containing products are banned as of 1 January 2021. These include certain batteries, switches, relays, common-use compact fluorescent lamps (CFLs), common-use straight-tube fluorescent lamps, common-use high-pressure mercury-vapor lamps, fluorescent lamps used in electronic monitoring, cosmetics, insecticides/bactericides/partial antibacterial agents, and non-electronic gauging instruments.</p>
5	Adjusting clearance and disposal fee rates for recycling televisions and air conditioning systems	<p>Television set clearance and disposal fee rates will be adjusted as of 1 March 2021. As an example, the fee rates for liquid-crystal-display (LCD) televisions over 27 inches will be increased from NT\$275/unit to NT\$317/unit. And the fee rates for air conditioners will be increased from NT\$297/unit to NT\$353/unit.</p>



## Recycling

## EPA Project Develops Fabrics Made with Plastic Bottles from Beach Cleanups

**T**he issue of marine waste has attracted international attention in recent years. Since Taiwan is an island nation surrounded by ocean, the EPA has been working hard to mitigate marine pollution. On 28 December 2020, the EPA presented Shiun Bao Yishirts, which had 96% content made from marine waste plastic bottles, to display the concerted efforts of the national team formed by members of domestic recycling and textile industries. It was also to demonstrate the synergies achieved by industry-government cooperation and cross-industry alliances as well as Taiwan's resolve to protect the ocean.

In 2020, the EPA implemented the *Demonstration and Promotion Project for the High-Quality Recycling of Marine Wastes*, putting out a challenge to completely use the waste plastic bottles collected from beach cleanups all over Taiwan and produce clothing fabrics using the highest quality recycling technologies. This project was led by the EPA, which invited local environmental agencies, eight enterprises involved in recycling and disposal, textile industries, and international certification companies to join the efforts.

The EPA stated that the shirts are called Shiun Bao Yi, a name that carries the meaning of recycling and reuse and emphasizes that the materials come from the ocean or seaside. Except for the necessary elastic fabrics, 96% of the materials used are made from waste plastic bottles collected from the ocean and beaches. They were manufactured with the most advanced technology in the world.

The project was launched to allow Taiwan's recycling and textile industries to take on and employ more advanced technology currently available. Another reason was to use the credibility of the EPA's Recycling Fund

Management Board to establish the world's first marine recycling certification system. The system will allow textile enterprises around the globe to purchase from Taiwanese manufacturers certified recycled materials made from marine waste, or inspire others to use Taiwan's certification standards as a model and join the efforts to protect the ocean. The Shiun Bao Yi certification system entered the review process in November 2020 and is expected to be officially launched in mid-2021.

Companies that participated in the research and development included Oriental Green Materials, True Young Textile, Tung Ho Textile, and Super Textile, all of which collaborated with German certification institute TV Rheinland. From beach cleanups to storing, sorting, breaking, spinning, and weaving, the Shiun Bao Yi R&D team worked to ensure the input and output records of all stages and the standard operating procedures were compliant with the certification requirements to



↑ Shiun Bao Yishirts, which had 96% content made from marine waste plastic bottles

ensure that the end products were made almost completely with waste plastic bottles sourced from the marine environment.

Except the elastic yarns added to increase their durability, 96% of the content of the shirts was made from marine waste plastic bottles. The success of the project was mainly due to the collaboration and

strength of the recycling and textile industries. The collection of marine waste plastic bottles had become difficult as local governments had fewer beach cleanup events in the first half of 2020 due to the COVID-19 pandemic. However, the project was made possible thanks to the environmental bureaus in seven offshore islands, including Lienchiang and Kinmen, those of

the seaside counties and cities who cooperated and continued hiring workers for coastal cleanups, and the coastal watch or patrol volunteers who kept up their cleanup efforts. The marine wastes were collected and handed over to professional processors for crushing.

#### International Cooperation

## Taiwan and U.K. Join Hands to Launch First Report on Carbon Pricing

**T**he EPA cooperated with the British Office in Taipei in July 2020 to commission the Grantham Research Institute on Climate Change and the Environment, an internationally renowned think tank specializing in climate policy research, to assess and give suggestions on Taiwan's greenhouse gas (GHG) reduction policies and carbon pricing system. The Institute prepared a report titled *Carbon Pricing Options for Taiwan*, and published it on the website of the London School of Economics and Political Science (<https://www.lse.ac.uk/granthaminstitute/publication/carbon-pricing-options-for-taiwan/>).

The EPA explained that the cooperation with the international research think tank directly represents Taiwan's stance on climate change and allows joint evaluation of feasible reduction measures. The EPA will continue promoting future international collaboration based on the foundation of this experience. The report adopted a qualitative research approach and covers a comprehensive analysis of Taiwan's economy and greenhouse gas emissions. The report also evaluates the carbon market readiness of Taiwan's government and industries, and analyzes the most affected industrial sectors.

According to the report, carbon pricing instruments should be gradually implemented as a policy tool in the face of GHG reduction

challenges. The report estimates that carbon pricing can contribute to reaching national GHG emission reduction goals and support green growth and transition. The report also indicates that Taiwan can start developing its carbon pricing policies by implementing a carbon levy. It recommends setting a relatively low carbon levy level in the beginning and gradually increasing the price with a clear trajectory to ensure incentives for emission reduction.

In addition, the report points out that carbon pricing has been widely adopted all over the world. Currently, there are more than 60 countries that are implementing a carbon pricing instrument. If Taiwan was to adopt the policy design for implementing an emissions trading system (ETS) at this juncture,

Taiwan may face challenges such as insufficient market liquidity or reduced market competitiveness. On the other hand, imposing carbon levies is comparatively simple and can be executed based on Taiwan's experiences in energy and environmental taxes.

The collaboration on the report between Taiwan and the U.K. was brought about by the British Office in Taiwan. Josh Burke, author of the report, was invited to visit Taiwan early this year to share the U.K.'s policy making experiences in carbon pricing, which could allow Taiwan to learn and improve its own carbon pricing policies. The EPA anticipates a long-term collaboration between Taiwan and the U.K. on climate change.

Environmental  
ManagementGreenhouse Gas Reduction and Management Act  
to be Amended

Since the *Greenhouse Gas Reduction and Management Act* was promulgated in July 2015, the relevant authorities have been gradually establishing the legislation for greenhouse gas (GHG) reduction in accordance with the Act. The competent authority has set GHG reduction goals in five-year phases, formulated GHG reduction implementation plans, developed a system for the inventorying, registration, and verification of industrial GHG emissions, and encouraged businesses to implement off-set projects.

As climate change continues to escalate, the United Nations has requested all member nations to speed up their GHG reduction to achieve the long-term goal of carbon neutrality as soon as possible. After evaluating the implementation of the *Greenhouse Gas Reduction and Management Act*, the EPA has decided that adjustments are needed to enhance regulatory tools, economic incentives, and integration of GHG mitigation tasks.

To keep in line with international trends and strengthen the implementation of GHG reduction measures, the EPA is amending the Act to include stipulations regarding

carbon reduction measures that are to be implemented by different agencies and their climate change adaptation responsibilities. Additionally, the EPA is establishing a central climate change adaptation reporting mechanism, imposing GHG emission management fees after referencing international carbon pricing practices, and establishing an economic incentive system. The EPA will also develop low-carbon technologies with the GHG Management Fund to promote a low-carbon economy. Other amendments to the Act include: revising the GHG emission performance standards (EPS) to enhance regulatory quality, adding new regulations on climate

change adaptation and the required adaptation measures, and establishing climate resilience systems for governments at all levels.

Climate change adaptation involves a wide range of fields. Not only is it an environmental issue, it is also closely related to future economic development and industrial competitiveness. The EPA will speed up the efforts to implement climate change adaptation tasks by continuing to communicate with all sectors, collect public opinions and actively seek social consensus on relevant matters.

## Chemicals

## Improving Chemical Safety

To foster an environment with low chemical hazards, the EPA has announced nitrous oxide as a concerned chemical substance, and will continue to focus its efforts on integrating documents for toxic chemical substance management, promoting collaboration among industries, government agencies, and academia on chemical substance information registration, evaluating and listing toxic and concerned chemical substances, strengthening interdepartmental government response capabilities, and enhancing training capacities for toxic chemical substance disaster prevention and response. All of the above will be carried out in stages with corresponding indicators and targets set up every year.

## Background

In light of the disastrous fire that broke out at Jing Pung Factory in Taoyuan City on 28 April 2018, the

EPA formulated Building a Safe Chemical Environment Initiative (2020-2023) based on the vision stated in the *National Chemical*

*Substances Management Policy Guidelines*". The initiative was approved by the Executive Yuan on 17 May 2019.

## Recent achievements

In response to the newly stipulated controls in the UN's Stockholm Convention on Persistent Organic Pollutants, the EPA announced dicofol as a Class 1 and Class 3 toxic chemical substance on 8 September 2020, and has tightened the control concentrations, bans and limits of several currently listed substances, including perfluorooctanoic acid (PFOA), perfluorooctane sulfonyl fluoride (PFOSA), perfluorooctane sulfonic acid (PFOS), lithium perfluorooctane sulfonate, and polybrominated diphenyl ethers (PBDEs), to keep up with global trends and to strengthen toxic chemical substance management in Taiwan.

In accordance with the *Toxic and Concerned Chemical Substances Control Act* (毒性及關注化學物質管理法), which authorizes the regulation and listing of concerned chemical substances, the EPA preannounced on 21 July 2020 that nitrous oxide was to be listed as the first concerned chemical substance, and officially announced the listing on 30 October. Thereafter, the EPA joined hands with the Ministry of Economic Affairs (MOEA), the Ministry of Health and Welfare (MOHW), and the police authorities to carry out controls, requiring enterprises to acquire permits and also register handling information for production, import, sale, use, and storage of nitrous oxide. Buying and selling nitrous oxide online is also prohibited to enhance its control and to deter the improper use or consumption of the substance.

In accordance with the revised

*Permit Registration and Approval Regulations for Toxic and Concerned Chemical Substances* (毒性及關注化學物質許可登記核可管理辦法) announced on 15 January 2020, the EPA adjusted the way permits and registration documents are issued. Enterprises were previously required to obtain permits separately for handling every single chemical substance, but after the revision, they can handle multiple substances with just one permit. This has saved enterprises the trouble of repeatedly submitting the basic information on their handling staff and sites for review, and streamlines permits with different validity periods and paying multiple fees for the permits. The revision has substantially reduced handlers' administrative burden from permit application and streamlined local environmental authorities' review procedures.

Document integration began on 1 May 2020. By the end of December 2020, 4,176 enterprises (99.7% of all 4,224 currently listed for control) had completed the renewal of their permits (with 26,388 permits integrated into 4,827 permits). In response to the newly implemented Standard Registration for Existing Chemical Substances, the EPA has designated 106 chemical substances that are widely circulated in Taiwan, have higher potential to cause harm, and whose information is lacking. It also required enterprises that manufacture or import over one metric ton of these substances to submit standard registration information within two to three years.

A Help Desk was set up by the

EPA in October 2019 to assist individual enterprises. By the end of December 2020, the Desk had conducted three online and eight in-person explanatory meetings, and assisted 107 enterprises and six relevant organizations. Four of the enterprises have already submitted the standard registration information.

## Key areas

### 1. Continuing to assess and list toxic and concerned chemical substances and strengthen control of their circulation

The EPA announced nitrous oxide as a first concerned chemical substance at the end of October 2020, and will continue to carry out joint inspections with the Industrial Development Bureau (IDB) and the Bureau of Foreign Trade (BFT) of the MOEA, the Food and Drug Administration (FDA) of the MOHW, the National Police Agency of Ministry of the Interior, the Customs Administration (CA) of the Ministry of Finance (MOF), the Occupational Safety and Health Administration (OSHA) of the Ministry of Labor (MOL), along with local governments, so as to stop the improper use of nitrous oxide. Listing of hydrogen fluoride (HF) as a hazardous concerned chemical substance is also underway to tighten source management and circulation control.

Aside from the two concerned chemical substances above, the EPA will keep evaluating whether to list for control the following: Substances that pose risks to food safety; narcotic precursor substances; explosive precursor substances; substances that pose higher risks to human health or the



environment; substances that are listed as being of high concern, or controlled substances by the EU, other countries, or international conventions.

By the end of 2021, the EPA expects to complete preliminary investigations of more than 1,000 chemical substances with respect to their physical and chemical characteristics, uses, exposure routes, current handling status in Taiwan, and their status in other countries or in international conventions. The EPA will then gradually implement the follow-up announcements and listings for control.



↑ Nitrous oxide was announced as a concerned chemical substance in a press conference

## 2. Integrating documents for handling toxic chemical substances to simplify application and reporting procedures and reduce administrative burdens

Document integration, where “one permit for one substance” is replaced by “one permit for multiple substances”, is expected to be completed by the end of 2020. The number of issued permits will be reduced from the current 26,388 to approximately 5,000, an 81% reduction. This will effectively cut down the administrative costs for substance handlers and local governments.

It is often the case that a single substance appears on the control lists of different government agencies at the same time. To facilitate the reporting process, the EPA is currently evaluating the feasibility of setting a single portal through which enterprises can report all handling records while those that are required to

regularly report can be provided with integrated information, such as definitions of data to report, reporting fields and frequencies of different agencies. The agencies will then be able to regularly extract needed data from such database.

The EPA, MOEA, MOL, Ministry of Education (MOE), and MOI have reached a preliminary consensus to continue to collaborate on harmonizing regulations concerning the single reporting portal.

## 3. Launching an assistance mechanism and collaborating with industries, governments, and academia on the registration of chemical substances information

In addition to continuing to assist individual enterprises through the Chemical Substance Registration Help Desk, the EPA will also collaborate with relevant organizations to gradually complete the information collection on 106 chemical substances. Moreover,

in light of the major impacts the COVID-19 pandemic has brought to industries in Taiwan and around the world, the EPA will hear from all stakeholders and use their input to evaluate whether to extend registration deadlines and modify how registration is carried out. The EPA will also provide a discount on fees to encourage using non-animal testing to obtain data for the registration.

## 4. Improving and maintaining a central technical consultation center for toxic chemical accidents and establishing more regional technical teams for accident response

The technical team in Mailiao, Yunlin County began with two full-time personnel in April 2020 and has been expanded to three full-time personnel as of October 2020. Staff from the Yunlin County Environmental Bureau has also been stationed in the technical team's office and working with the team since January 2020. The

Taoyuan technical team was also established in 2020.

#### **5. Enhancing interdepartmental disaster response capacity**

The construction, staffing and application for the building use permit for the northern resource and materials coordination center is expected to be completed by 2021, and the planning for the subsequent needed resources and materials is also underway.

#### **6. Enhancing the training capacity for toxic and chemical substance disaster prevention and response**

The construction of the Southern Professional Training Site and Resource Coordination Center

was completed on 22 Jan 2020 and was checked and accepted on 19 May 2020. After operation, the site will become the first toxic and chemical disaster response training site in Taiwan and can host training courses for about 2000 people per year, significantly enhancing Taiwan's toxic and chemical disaster response capabilities. In addition, after the procurement of petrochemical disaster leakage scenario training facilities, the construction of the Central Professional Training Site and Resource Coordination Center was also completed on 26 Oct 2020 and was checked and approved on 13 Nov 2020. The site will be used first to conduct demonstration training for government agencies

in 2021.

#### **Future prospects**

Through the implementation of the Building a Safe Chemical Environment Initiative over the years, the EPA expects to achieve the following visions: comprehensive management capability building, improvement of a smart disaster prevention system, and response system integration via technology. And ultimately, the goals of strengthening the capabilities for the control, inspection and testing of chemical substances and enhancing the professional capabilities of environmental disaster response personnel can be achieved.

### **Waste Management**

## **Conference Held to Present the Achievements of Cross-ministerial Collaboration in Implementing the Minamata Convention on Mercury**

**O**n 2 December 2020, the EPA, the Ministry of Health and Welfare (MOHW), the Council of Agriculture (COA), and the Ministry of Labor (MOL) jointly held a conference to present the achievements of cross-ministerial collaboration in implementing the Minamata Convention on Mercury. During the conference, experts, scholars, and representatives of businesses and non-governmental organizations (NGO) gathered together to share their experiences in mercury pollution control and to exchange information.

High levels of mercury, commonly known as quicksilver, can cause damage to the brain, the nervous system and organs. To protect human health and the environment from the adverse effects of mercury, the Minamata Convention on Mercury was developed by the United Nations and entered into force on 16 August 2017. Before the convention took effect, the EPA had already started to carry out the cross-ministerial Implementation Plan for the Minamata Convention

on Mercury, which was passed by the Executive Yuan on 27 June 2016 to reduce the mercury levels in the environment.

According to the convention, the control for the following nine mercury-containing products is to be tightened as of 1 January 2021. They include certain types of batteries, switches, relays, compact fluorescent lamps, fluorescent tube lamps, high-pressure mercury lamps, digital

fluorescent lamps, cosmetics, insecticides/fungicides/antibacterial agents, and non-electronic measuring instruments. With the joint effort of several government agencies, relevant regulations have been amended accordingly to ban the manufacturing and import of these nine products starting from 1 January 2021, which is in line with the stipulation of the convention.

The cross-ministerial conference started with the EPA introducing

the Implementation Plan for the Minamata Convention on Mercury. It was then followed by the MOHW, the COA and the MOL sharing their respective management experiences on topics of public concern. The topics included dental amalgams and mercury in Chinese medicines, mercury management and testing in agriculture, and occupational safety and mercury management in the workplace. Lastly, the EPA gave a report

on the implementation progress regarding reduction of mercury-containing products, remediation of soil and groundwater pollution control sites, reduction of stationary source emissions, environmental monitoring, development of testing methods, and effluent and water body management.

The EPA stated that part of the 2030 Agenda for Sustainable Development, which is created by

the UN in 2015, is to assess global trends in chemical management. Taiwan has made early progress on implementing the Minamata Convention on Mercury, and the EPA will continue collaborating with other government agencies, businesses, academia and research institutes to strengthen chemical safety. For more information, please check the EPA website: <https://topic.epa.gov.tw/hg/mp-3.html>.



➡ Ministry of Health and Welfare (MOHW), the Council of Agriculture (COA), and the Ministry of Labor (MOL) jointly held a conference to present the achievements of cross-ministerial collaboration in implementing the Minamata Convention on Mercury

## Environmental Management

# EPA Works with Finland and Private Companies to Promote SRF

**T**o promote the use of solid recovered fuel (SRF), the EPA held the Turning Waste to Energy: Solid Recovered Fuel press conference on 27 November 2020. EPA Deputy Minister Chih-hsiu Shen, Representative Mikko Antero Karppinen of the Finland Trade Center, and representatives of businesses, other government agencies, academia and research institutes attended the conference.



The EPA indicates that waste-to-fuel policies help utilize high calorific value waste and reduce the use of fossil fuels. Take power generation for example, when waste is burned in an incineration plant, the power generation efficiency is roughly 20%. However, when waste is converted to SRF and burned in a specialized furnace, the power generation efficiency can reach more than 30%, which is more energy and economically efficient.

SRF is produced from recycled plastic and biomass (such as waste paper and wood) and other kinds of non-hazardous and combustible materials. SRF has low environmental impacts, costs less, and can be used in high-efficiency boilers and combustion facilities. Compared to coal, SRF as a fuel can also reduce carbon emissions. Moreover, separating combustible waste and turning them into SRF reduces the burden on incinerators. Thus, the EPA formulated the Solid Recovered Fuel Manufacturing Guidelines and Quality Standards to ensure the manufacturing quality of SRF. The EPA also set the Waste-to-Fuel Implementation Goals, with the amount of waste turned into fuel expected to reach 390,000 metric

tons in 2021.

Currently, the SRF industry in Taiwan mainly consists of the paper manufacturing industry, textile industry and cement industry. Participants of the conference included experts from the Industrial Development Bureau, Green Energy and Environmental Research Laboratories of the Industrial Technology Research Institute, Taiwan Bio-Energy Technology Development Association, and Professor Chiung-fen Chang of Tunghai University. Companies that have been involved in the promotion of SRF were also invited, including Yuen Foong Yu (YFY), Cheng Loong Corporation (CLC), Kuan Yuan Paper (KYP), Dakim Environmental Protection Enterprise, and Li Peng Enterprise.

The SRF industry in Taiwan currently includes source suppliers, manufactures, equipment providers (boilers/power plants), and bottom ash reuse organizations. Taiwan has established a supply and demand chain within the domestic SRF industry and created new business opportunities. Businesses involved include paper manufacturing companies, such as YFY, CLC and KYP, and textile

companies such as Lealea Group, and cement companies such as Taiwan Cement. Some of these companies produce combustible waste with high calorific value in the operation process and have a demand for boilers, while others are conveniently equipped with cement kilns and readily reuse bottom ash. Aside from the companies that are self-supplied with SRF, there are also companies that professionally manufacture SRF. For example, Dakim Environmental Protection Enterprise uses waste treatment equipment manufactured by the Finnish company BMH Technology. Long-Shun Green Energy Technology, Wanji Technology, and Yong Mao Environmental Tech are also SRF manufacturers that have become source suppliers for companies such as Taiwan Cogeneration Corporation and Ta-Yuan Cogeneration Corporation.

To encourage domestic businesses to use SRF, the EPA is providing incentives for using renewable energy and reusing bottom ash. Through the conference, the EPA aims to inspire businesses to go green and work jointly with the government towards a circular economy to reduce environmental impacts from industrial development.

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