

Major Environmental Policies

May 2021

1. Feature Article: Marine Waste Control Strategies

Since the Taiwan Marine Debris Management Platform was jointly set up by the EPA along with civic environmental organizations in July 2017, Taiwan's management strategies for marine waste have progressed much and matured. The *Taiwan Marine Debris Governance Action Plan* has four focuses: source reduction; prevention and removal; research and investigation; and expansion of collaboration and participation. Combining with the "Salute to the Ocean" policy, the public and private sectors work together to thoroughly clean up marine waste.

Marine waste is a major ongoing marine environmental problem of concern to all nations. In particular, marine plastic waste has a profound impact because of its slow decomposition in the environment. In September 2020, the Taiwan-US Environmental Protection Technological Collaboration Agreement was signed, and its No. 13 Executive Plan targets marine waste as requiring cross-departmental collaboration. This reflects the significance and urgency of the marine waste problem.

Taiwan Marine Debris Management Platform, a result of joint efforts by the public and private sectors

In July 2017, the EPA and civic environmental organizations set up the Taiwan Marine Debris Management Platform (hereinafter the Platform). and drafted the *Taiwan Marine Debris Governance Action Plan* (hereinafter the Plan). The Plan's second amended version was completed at the 12th Platform meeting on 30 August 2019. All the Platform members will work on the Plan's four social aspects, covering 76 measures based on the collaboration of both the public and private sectors. The second aspect, prevention and removal aiming to stop garbage from entering oceans, has 33 ongoing and future projects.

As for the source reduction strategy, it has 18 ongoing and future projects. Currently, the number of participating civic environmental organizations has reached 12, up from the original eight, while participating government agencies include the Ocean Conservation Administration (OCA), the Fisheries Agency (FA), and the EPA. However, the marine waste issue is complex, and individual agencies or organizations have limited capabilities. With the urgent need to launch conservation work across all aspects, the Platform plans to invite relevant agencies and organizations to its meetings to further influence marine waste stakeholders. It hopes to raise social awareness so everyone can shoulder their responsibility to safeguard the environment by reducing the generation and impact of marine waste. The *Taiwan Marine Debris Governance Action Plan* has the following four focuses:

1. Source reduction
2. Prevention and removal
3. Research and investigation
4. Expansion of collaboration and participation

Action Plan

I. Source reduction

Strategy 1: Policy planning

(1) Ongoing projects

1. The policy to limit plastic shopping bags and plastic disposable utensils was first formulated in 2002 and expanded in 2017.
2. Measures were formulated in 2005 to limit over-packaging.
3. Measures were formulated in 2007 to limit plastic trays, packaging, and containers.
4. Measures have been implemented since 2011 to reduce single-use beverage cups at source.
5. Measures were implemented in 2017 to limit cosmetics and individual hygiene products that contain microplastic beads.

(2) Future projects

1. To reach the goal of “no plastic” by 2030, measures with corresponding timetables and specific actions will be formulated to reduce or ban single-use plastic products. The public sector is not to use disposable utensils when organizing indoor and outdoor events. Other plastic reduction policies will also continue to be implemented.
2. The program of Green Mark hotels will be promoted to encourage hotel enterprises to get certified.
3. To help reduce plastic bottle usage, the EPA aims to enhance the functioning of public water fountains by supervising all city and county governments to maintain water fountains and appropriate equipment and adequately sample and inspect water quality. In addition, there are practical planning programs aimed at increasing water fountain usage. Afterwards, based on actual results, the EPA will formulate other programs to add water fountains in densely populated areas or spots with high potential needs.
4. There are plans to subsidize commercial spaces or night markets in all counties and cities that are designated plastic reduction demonstration spots.
5. Oyster farms are encouraged to replace their Styrofoam floating racks, and there are proposals to solve the problem of Styrofoam pieces breaking off from the racks or floating outside the farms and becoming marine waste.

Strategy 2: Corporations' extended producer responsibilities

(1) Ongoing projects: There are companies, such as organic food suppliers such as Leezen and Fuyah, that voluntarily reduce plastic or set up systems that demonstrate biodegradable packaging material decomposition.

(2) Future actions

1. In the future, the Platform will focus on applying the zero-waste principle in policies and incorporating the principle when designing single-use packaging materials or containers to achieve a circular economy for plastic. There will also be efforts to encourage research of alternative materials and promote relevant technology and regulations.

2. Corporations are urged to cut down packaging, and to organize events such as the Clean Ocean Industry Expo.

II. Prevention and removal

Strategy 1: Effective removal of wastes in hotspots

(1) Ongoing projects: Some harbors regularly clean up port garbage with machines or human cleaning crews.

(2) Future actions

Competent port authorities are in charge of cleaning and maintaining harbors and cleaning floating garbage by purchasing special machinery or employing a special workforce.

There will be programs to encourage vessels and boats to help collect floating garbage. A collection fleet of 2,500 vessels is expected to be assembled.

Programs will be in place to train volunteer divers and promote underwater collection of marine waste via correct and safe methods.

Strategy 2: Stopping waste from entering oceans

(1) Ongoing programs

Collection of river garbage interception data

- regular inspection of garbage treatment facilities and sites (landfills, transfer stations, etc.) along coasts and river banks, and supervising local governments to conduct the closing, equipment maintenance, waste and dumping management at landfills along riverbanks, coasts and areas under the standard flood submerge level

- assisting local governments with recycling

- totaling the amount of recycling in fishing (and commercial) ports in cities and counties

- supervising coastal and seaside environmental bureaus to conduct beach clean-ups

- urging competent authorities of fishing and commercial ports to clean and maintain harbor environments

- supervising local governments to set up inspection routines in hotspots for dumping coastal and floating garbage and install collection machinery
- strengthening supervision for local governments to properly inspect and manage environments and sanitation in commercial (and fishing) harbors as well as to study how vessels entering harbors dispose of waste

(2) Future programs

- calculating data on river garbage interception and removal
- conducting large-size garbage removal/interception programs
- enhancing plastic container recycling data
- transferring offshore island waste back to Taiwan

Strategy 3: Education and promotion for public participation

(1) Ongoing programs

Ongoing programs include the national adoption system for coastal maintenance, voluntary civic beach clean-ups, the beach currency system in Siaoliuqiu, Strawless March, and voluntary civic street cleaning events. In addition, the EPA conducts the national adoption system for coastal maintenance, supervising oceanside local environmental bureaus to conduct beach clean-ups, and publicizing well-performing beach adopters every season.

(2) Future actions

The EPA will designate target beaches for stricter management, set up a platform that investigates and announces beaches awaiting clean-ups, and facilitate clean-ups by coordinating civic organizations, adopting organizations or bodies, and city and county cleaning units.

Civic organizations continue to organize beach clean-up events in pollution hotspots plagued with marine waste.

III. Research and investigation

Strategy 1: Understanding coastal and marine pollution in Taiwan via research and monitoring

(1) Ongoing programs:

- monitoring and investigations by civic organizations on marine waste
- investigations of impacts of marine waste on wildlife (such as cetaceans)
- international investigation of land-to-ocean marine waste
- phased investigation and monitoring of significant coasts

(2) Future actions

- phased investigation and monitoring of sources and composition of major marine garbage
- the first rapid beach survey on waste across Taiwan in June 2018
- investigation of impacts on living organisms and ecosystems from marine waste
- investigation of impacts on human societies and economy from marine waste
- investigation and calculation of waste from rivers and large ditches
- Kuroshio's Voyage: Investigation of microplastic beads in Taiwan by sailing around the island

Strategy 2: Education and promotion for public participation

- Ocean Love Tour, held by the Taiwan Marine Waste Information Platform
- continuation and expansion of inviting the public to participate in marine waste monitoring
- Kuroshio's Voyage Plus: Expositions and speeches across Taiwan

IV. Expansion of collaboration and participation

Strategy 1: Expansion and strengthening of multilateral collaboration

(1) Ongoing programs: The Taiwan Marine Debris Governance Platform, and regularly experience exchanges on marine waste control inside and outside Taiwan, such as the 2017 Marine Waste Symposium

(2) Future actions

Exchanges on marine waste issues with Southeast Asia: Frequent international exchanges, forums, and visits on marine waste issues in Southeast Asia

Overseas visits: Participation in international marine waste forums or overseas tours, for example Greenpeace, Tse-Xin Organic Agriculture Foundation, and the Society of Wilderness went to the Sixth International Marine Waste Seminar in 2018, and the Wild at Heart Legal Defense Association participated in an international meeting on at-source plastic reduction and zero-waste

(3) Launch of conversations with China on marine waste management via economic platforms such as Asian Pacific Economic Cooperation (APEC) and Regional Comprehensive Economic Partnership (RCEP), city-to-city memorandums, and exchanges and visits among civic organizations

(4) Strengthening marine waste awareness, training for government officials and civil servants to understand better the severity and urgency of marine waste.

Strategy 2: Expansion of public awareness and social concerns

(1) Ongoing programs: Puppet show tours depicting plastic waste in the oceans, garbage discovery tours, and avant-garde beach clean-ups

(2) Future actions:

All organizations' environmental education programs that focus on marine waste are eligible to apply for the EPA's Subsidization and Recruitment Plan for Civic Organizations and Schools to Organize Environmental Education.

"Salute to the Ocean," an interdepartmental effort

(1) Clear designation and delegation of coordination and execution responsibilities for coastal cleaning and maintenance to ensure garbage-free beaches

The Executive Yuan approved the "Salute to the Ocean" Coastal Cleaning and Maintenance Plan (2020 to 2023) on 7 May 2020. The program is jointly carried out by nine government agencies, including the Ministry of the Interior (MOI), the Ministry of Transportation and Communication (MOTC), the Ministry of Economic Affairs (MOEA), the Ministry of National Defense (MND), the Ministry of Finance (MOF), the Council of Agriculture (COA), the Ocean Affairs Council (OAC), the Ministry of Education (MOE), and the EPA. The participating agencies: take inventory of work items in the program such as coast clean-ups and source control;

collaborate with local governments; and, establish a system consisting of regular, immediate, and emergency clean-ups. It is hoped that every inch of the entire 1,988 square kilometers of coastal lands in Taiwan can be cleaned up via such a system. Both the central and local governments have since 2020 invested labor and budgetary resources to maintain coasts under their respective jurisdiction, resulting in the collection of over 89,000 metric tons of garbage.

(2) Gradual reduction of coastal garbage via source reduction

Waste reduction from source includes incentives for recycling fishing nets and tools, reuse of Styrofoam, interception and removal of river waste, etc. The EPA is currently drafting a contract to jointly supply used Styrofoam as oyster racks. It is also setting up channels and mechanisms for proper recycling and reuse (for example making a keyboard and mouse with waste Styrofoam). So far, 5,103 collection spots in artificial facilities, such as pumps, interception gates, bridge piers, and drainage outfalls, have been set up at river sections before waterways join, along with pollution interception ropes in 62 spots in different river sections. In these locations, the EPA has been intercepting and removing garbage and pollution from rivers, resulting in collection of 11,209 metric tons of garbage in 2020, and setting a great example of cutting down marine waste at source.

2. National Disinfection Crew Intensifies Efforts as COVID Cases Skyrocket

The Central Epidemic Command Center (CECC) recently raised the epidemic alert level to Level 3. In response to the increasing severity, the EPA noted that regional environmental bureaus from 22 cities and counties were called to a video conference on disinfection. Crews are ready at all times and have launched massive and thorough disinfection measures to safeguard public health.

To date, environmental bureaus across Taiwan have assigned a total of 3,000 personnel to conduct disinfection tasks. Since the pandemic started, disinfection work has continued in public venues where crowds gather. The crews can be seen

carrying disinfection equipment, especially during holidays such as Lunar New Year when people travel to their hometowns, or before the start of school and after entrance exams for technical and vocational schools.

The COVID pandemic has been on the rise recently, with local cases with unknown sources popping up in several counties and cities. In light of this, the crews dare not let their guard down, doubling disinfection efforts at locations where the known infected cases have been to, in New Taipei City, Taipei City, Yilan County, Kaohsiung City, Changhua County, and Keelung City. Additionally, the Taipei City Environmental Bureau has increased the disinfection frequency from once a week to twice a week. The statistics up to 28 May show that there are 8,065 sites on the list of crowded places under control. Aside from intensified disinfection efforts from local environmental bureaus, the EPA also urges the public to follow the CECC's instructions in this period of heightened pandemic alert.



The crews doubling disinfection efforts at locations where the known infected cases have been to.

3. Ammonium Nitrate and Hydrofluoric Acid Listed for Control as Harmful Concerned Chemical Substances

The EPA preannounced in early April 2021 that ammonium nitrate and hydrofluoric acid have been added to the list of concerned chemical substances. Relevant controls concerning handling were announced based on the substances' characteristics and uses in the nation. In addition to listing them as concerned chemical substances with harmful effects, the preannouncement also signals the start to strengthened controls over potential risk areas where accidents may occur, such as the import, manufacture, use, storage, transportation, and sale of these substances.

The EPA pointed out that with different agencies responsible for managing ammonium nitrate and hydrofluoric acid, tracking of the flow of these substances and accident prevention and response is not well-regulated. After listing the two substances for control, the EPA will track them properly and gather complete data on their importation, transportation after they enter the country, storage, manufacture, use and management by enterprises. The aim is to have all departments working together, with individual delegated responsibilities, to manage the two substances.

Ammonium nitrate is often used in the production of agricultural fertilizers, dynamite, and explosives for mining. But improper storage and management can lead to accidents, such as the large blast in the port of Beirut, Lebanon in August 2020. Ammonium nitrate is also a raw material for nitrous oxide (laughing gas), the first concerned chemical substance announced and listed for control. Highly pure laughing gas can be generated after ammonium nitrate goes through thermal decomposition, so proper management of ammonium nitrate simultaneously constitutes proper management of a main precursor substance for laughing gas production.

Hydrofluoric acid can be made by adding water to hydrogen fluoride. Due to its corrosive properties, it is widely used in the etching and washing of semiconductor chips and other industrial uses. The solution is also commonly called "bone-melting water" or "white bone acid," which erodes and irritates the skin. Dermatological reactions such as pain, whitening, and reddish swelling occur when

highly concentrated hydrofluoric acid contacts skin, while more severe effects include blistering and sloughing from skin. In Taiwan, besides injuries caused by improper use, there have been multiple incidents where highly concentrated hydrofluoric acid was intentionally used in attacks. Once hydrofluoric acid is listed for control, besides the factories that use it, chemical raw material retailers and other channels that sell hydrofluoric acid shall be required to obtain approval documents to handle it in their operations, and thus risks will be reduced.



Director General Yen-Ju Hsieh of Toxic and Chemical Substances Bureau explained the Control of Harmful Concerned Chemical Substances

4. Label Certifying Products Using Recycled Marine Debris Officially Launched

With marine waste intensifying as a global issue in recent years, the EPA implemented the 2020 Demonstration and Promotion Plan for Marine Waste High-Quality Recycling and Reuse. Collaboration with local environmental bureaus, civic organizations, industries, and the certification institute will demonstrate the procedures (such as tracing through documents and records) that certify products as containing recycled waste from marine environments. Relevant legislation is also on the way, as the Operation Directions for Recycled Marine Debris Product Label,

Environmental Protection Administration, Executive Yuan (the Directions) has been announced on 9 April 2021 to serve as explicit reference for mechanisms that certify products using marine waste and for related labeling regulations. It is suitable for domestic and international companies to apply for the Recycled Marine Debris Product Label, demonstrating active actions and support for preventing the impact of marine waste on the environment.

In response to international concerns about marine waste issues, the EPA promotes a Recycled Marine Debris Product Label system, and grants official certification marks to raw materials and products made from recycled marine waste, so that the public is aware of the importance of reducing marine waste. All companies or organizations are welcome to apply for label certification and do their best to fight against marine waste!

The EPA has established a recycled marine waste product verification mechanism and labeling specifications. On 9th April 2021, it issued the Operation Directions for Recycled Marine Debris Product Label, to promote the Recycled Marine Debris Product Label (figure 1). The collection, classification, treatment, and production of marine waste products shall establish traceable records. After the certification institutes have issued verification statements and verification reports, the weight of marine waste has reached more than 20%, and an application shall be submitted and a label shall be given after review. There are 16 points in the Directions, which detail the application procedures, evaluation, and management of Recycled Marine Debris Product Label. The primary application documents are audit claims and reports issued by certification institutes which ensure that recycled materials come from coasts or marine environments (figure 2 and 3). Applicants that are initially approved to use the label must then comply with all the Directions and pass the evaluation. The label has been registered after being approved by the Intellectual Property Office (IPO). In its design, waves symbolize the ocean while a plastic bottle, the most iconic marine waste item, symbolizes its dual nature as waste and at the same time as a reusable material that can be transformed into various products

after being recycled. The circular-shaped waves holding the plastic bottle portray a circular economy.

The EPA also noted that the multiple marine-waste-related labels in recent years were products of corporations and NGOs. What is unique about the EPA's label is that it will be the first in the world to focus on marine waste, that is supported by government agencies and that certifies strict procedures and protocols. The domestic and foreign certification institutes involved are required to comply with both ISO 17065 and ISO 17021 to certify and approve the label, for use in an open and free certification market.



Figure 1: Recycled Marine Debris Product Label



Figure 2: The certification institute audit onsite to ensure that recycled materials come from coasts or marine environments.



Figure 3: The certification institute audit onsite to ensure that recycled materials come from coasts or marine environments.

5. Indoor Air Quality Self-management Label to Be Launched in June

The public was concerned about whether small and medium-sized premises such as kindergartens, postpartum nursing centers, childcare centers, long-term care institutions will be included in the third batch of announced indoor air quality management premises and how they should be managed. In response, the EPA held a press conference on 13 April 2021 regarding the progress of indoor air quality self-management promotion and explained to the public that the announcement of the third batch premises would be postponed. Instead, a “self-management” labeling system was to be adopted to encourage these premises to improve their indoor air quality.

The label will be launched in June this year, and will comprise two levels: excellent and qualified. Premises that are rated “excellent” will be awarded with extra points for evaluation, have their testing frequency lengthened and testing points halved, in addition to being publicly recognized and honored.

To improve indoor air quality and safeguard citizens’ health, Taiwan is the second country in the world that has legislated a law to govern indoor air quality. The EPA adopted a gradual control approach, announcing that the first and second batches of premises would be regulated in 2014 and 2017, respectively. Premises that are

frequently used by the public or attract large crowds such as train stations, libraries, stadiums, and hypermarkets were gradually regulated. More than 1,500 premises comprising 16 categories are now regulated, accounting for more than 80% of large premises in Taiwan.

In July 2010, the EPA started to review indoor air quality management operations, and simultaneously conducted research and analysis on the third batch of premises which consisted of small and medium-sized premises to be regulated as well as the promotion of a self-management labeling system. It also held several meetings to gather public opinions. Then on 11 Dec 2010, the EPA preannounced the draft of the regulations governing the third batch of premises that must comply with the *Indoor Air Quality Act*. In this draft, kindergartens with over 200 students, postpartum nursing centers with more than 20 beds and infant care centers hosting more than 35 infants were to be regulated. Approximately 2,200 premises in total would be affected.



Indoor Air Quality Self-management Label will comprise two levels: excellent (left) and qualified (right).

6. Earth Day Event Focused on Carbon and Plastic Reduction

While the world celebrated the 51st anniversary of Earth Day in 2021, excessive carbon emission and waste caused by humans' overproduction and consumption is still suffocating the Earth. In the last year, the demand for single-use products also surged due to the impact of Covid-19. To echo the theme of Earth Day 2021, "Restore Our Earth," the EPA held a press conference on "Waste Reduction, Carbon Reduction, and Green Living for Everyone: Plastic Source Reduction and Recycling" , and invited the American Institute in Taiwan to participate.

Taking care of the Earth is the responsibility of every citizen in the world. Everybody is duty-bound to protect the Earth' s environment. All countries are urged to work together to cool down the planet and give the planet a breather by confronting the global warming crisis and taking actions to mitigate climate change. Due to the impact of Covid-19, people' s consumption behavior has changed, and the demand for online shopping, food delivery and takeout has surged, resulting in rapid growth of single-use products. In particular, plastic waste has a huge impact on the ecology and the ocean; the EPA is therefore urging "plastic source reduction".

A creative road running (walking) event was organized during the press conference to promote "C" and "R" . C stands for cycle and circular and R for restore, reduction, reuse, recycle, recovery and redesign. The event was to encourage enterprises, organizations, and the public to take actions together to accelerate plastic source reduction and recycling. It was broadcast live online and netizens were allowed to interact online.

Representatives from environmental enterprises and organizations attended the event to echo "Waste Reduction, Carbon Reduction, and Green Living for All" . They also set up booths to showcase the achievements of implementing plastic source reduction and recycling.

McDonald' s restaurant replaced all their tableware with FSC (Forest Stewardship Council)-certified sustainable paper containers and phased out plastic McFlurry cup lids. The measure can reduce nearly 32 metric tons of plastic waste per year.

Momo Shop launched the second wave of “reusable bags” for online shopping on 19 April 2021 in conjunction with post offices. Users can drop the bags off in designated mailboxes or i-boxes after using to recycle them. The website BuyDirectlyFromFarmers also launched “reusable boxes” . Foodpanda launched a trial environment-friendly delivery service in November last year. The service resumed on April 22 this year in Tainan City. ECOCO has set up smart recycling stations. Da Fon Environmental Technologies has obtained a number of certifications in plastic recycling and material application, and is committed to the development of resource recycling. Mangodan features 100% recycled plastic PC and PS reusable display cabinets. ChingPiao offers reusable cup rental services.



A press conference on “Waste Reduction, Carbon Reduction, and Green Living for Everyone: Plastic Source Reduction and Recycling” held

7. Build A Simple, Green Lifestyle with More Energy-Conserving Offices and Households

Earlier this year the EPA worked with the Test Rite Group Shilin Branch, mounting a display in the store to demonstrate how to live an environmentally-friendly life.

The branch has been rated excellent on the EPA's Green Store and Green Marketing Evaluation. It allows consumers, while on their shopping trips, to learn about environmentally-friendly behaviors that can be incorporated easily into day-to-day life.

The EPA and Test Rite Group joined hands on 7 April 2020 to promote the idea of "Just a Little More Green," which improves the living environment through small acts in day-to-day life.

"Make a green lifestyle the new normal!" said the EPA's Executive Secretary, Nien-Ho Ma, encouraging the public to continue building an environmentally-friendly living environment with the EPA via various measures. They include recycling, reducing plastic, carrying one's own utensils, replacing old motorcycles, cleaning up and greening environments, and buying products with the Green Mark. This year, efforts have been intensified to bring in the public sector at all levels to join in and push for a green lifestyle by encouraging and mobilizing the public.

The display section in Test Rite Group Shilin Branch demonstrates what environmentally-friendly offices and households can look like and displays dozens of green products for consumers to choose from. For a green household, one can use products with the Green Mark, pay attention to how much is stuffed in refrigerators, clean air conditioner filters, and properly recycle. Also, clean air and a pleasant indoor environment are easily available by first choosing and then correctly watering and fertilizing plants that purify indoor air. Furthermore, the public is encouraged to support renewable energy, use low-carbon products and those with high energy efficiency, reduce idling time of appliances, and maintain appliance efficiency via constant cleaning. There are other good habits of electricity usage that lower energy consumption and cut utility bills, including replacing old household appliances with more energy-conserving ones, sun- or air-drying laundry instead of using machines, and cooking food after it is thoroughly thawed. Seeing itself as an advocate of green consumption, Test Rite Group has been actively introducing various green products for years and in 2009 began applying to become a Green Store, starting by implementing energy conservation in the air

conditioning and lighting of its stores. Various environmentally-friendly and energy-saving products are also continuously introduced to consumers, now accounting for 10.2% of total sales revenues.



B&Q Green Office Display Area

8. 2020 Waste Paper Tableware Amount Hit a Record High Nearly 90%

The EPA has been working to improve the effectiveness of paper tableware recycling through a series of policy measures and public information campaigns. In 2020, 159,897 metric tons of waste paper tableware was recycled, which was nearly double the amount recycled in 2019. The recycling rate increased significantly from 48.31% in 2017 to more than 89% in 2020, reaching a new annual high in the past three years.

(1) Put green diet, recycling and sorting into practice

In 2020, the EPA implemented the Paper Tableware Recycling Friendly Store Program in conjunction with all local environmental bureaus. The program assists and subsidizes buffet and lunch box store operators to set up dedicated waste paper tableware recycling facilities, place garbage bins and food scrap bins alongside recyclable bins, install automated voice equipment to remind customers, and post awareness-raising posters. The measures guide operators on ways to

improve dining environments and increase the quality of collected paper tableware for better recycling. After receiving assistance, 2,900 buffet and lunch box stores (about 80% of the assisted) completed the installation of the equipment.

To make paper tableware recycling more practicable, on 4 January 2021, the EPA preannounced the draft of relevant regulations, specifying that buffet and lunch box stores shall install a dedicated recycling area for paper tableware. The regulations are expected to become effective on 1 July 2021. At present, assistance is provided so operators can respond early.

(2) Caring for the base-level recyclers and enhancing the recycling system

To care for self-employed recyclers, the EPA subsidized local governments to implement the Warm Care Recycling Program, registering self-employed recyclers that collect recyclables. From 1 Aug 2019, the maximum subsidy for each self-employed recycler was raised from NT\$2,000 to NT\$3,500 per month. As the recycling rate for paper tableware had been low, the unit price for collected paper tableware was increased to NT\$18/kg, much higher than the price for general recyclables (lower than NT\$2/kg), to increase the incentives to boost the recycling rate. In July 2010, self-employed recyclers were matched with buffet and lunch box stores to collect paper lunch boxes. The measure was quite effective, which also helped meet the welfare needs and rights of self-employed recyclers.

(3) Providing guidance to expand processing capacity and raising processors' incentives

The EPA successfully assisted Cheng Loong Corporation (Zhubei Mill) and Chung Hwa Pulp Corporation (Taitung Mill) to join as waste paper tableware processors in December 2018 and July 2019, respectively. The EPA will continue to provide guidance to add more processors in other counties and cities in order to expand the distribution of operators in the recycling system. Currently, there are three subsidized waste paper container processors in Taiwan. With a total designed processing capacity of 249,600 metric tons per year, they are capable of processing all waste paper tableware collected in the nation.

In addition, to encourage recycling and sorting, a subsidy rate increase (from NT\$7.25 to NT\$7.86 per kilogram) for the recycling and processing industry was phased in between 1 May to 31 October 2020. This also helped to raise the recycling volume for paper tableware.

(4) Organizing promotional activities to strengthen the concept of recycling

The EPA organized a disposable tableware and beverage cup recycling promotion flash event and a press conference on paper tableware cleaning, sorting and stacking, and invited internet celebrities to shoot promotional videos to be broadcast on online media. In addition, promotional posters were made and sent to all local governments and pre-recorded interviews were broadcast through radio stations to urge people to put “cleaning, sorting and stacking” of paper tableware into practice, raising public awareness of paper tableware recycling. Moreover, the EPA also publishes an online resource recycling newsletter (R-paper), which has about 40,000 subscribers.

9. Vehicles Handed Over to Tainan to Aid Transport of Digestate from Manure Reutilization

The EPA subsidized the Tainan City Government to purchase digestate-collecting and transporting vehicles in 2020. The vehicles will assist livestock enterprises and farmers with the use of anaerobically-fermented livestock manure as farmland fertilizer, helping them to overcome difficulties arranging crop fertilization schedules when these types of vehicles are lacking. On 15 April 2021, two digestate-collecting and transporting vehicles were officially handed over to Tainan City Government to join its fleet of digestate-fertilizing vehicles.

The EPA has been promoting the use of livestock manure fermentation digestate as farmland fertilizer. As of March 2021, nationwide there were 1,263 livestock farms permitted to use digestate as fertilizer, 163 farms permitted for agricultural waste reuse and 492 farms with digestate compliant with the *Effluent Standards* that were

allowed to irrigate. The total amount of irrigation water used on farms with digestate has reached approximately 7,600,000 metric tons per year.

In addition, in 2018 the EPA began to subsidize local governments to purchase agricultural equipment and storage tanks as well as collection and fertilizing vehicles in order to provide better digestate handling services to livestock enterprises and farmers. Livestock enterprises, farmers, or non-governmental organizations can apply to purchase these vehicles and storage tanks to transport and store digestate for farmland fertilization and operate them according to crop fertilization needs. As of March 2021, the EPA had subsidized nine counties and cities, including Yunlin County, to purchase 42 collecting and transporting vehicles, 18 fertilizing vehicles or machines and 103 storage tanks.

10. Building Diverse Food Waste Processing Channels and Reducing Swine Flu Risks

The EPA has been working to build diverse food waste processing channels. In addition to permitting 694 pig farms to use food waste as pig feed, it has provided over NT\$130 billion in subsidies to local governments to install food waste shredding, drying, and high-efficiency composting facilities; establish food waste bioenergy plants; enhance the efficiency of established composting facilities; and purchase collection and transport vehicles. These measures were aimed at making food waste processing more diverse and more effective.

The EPA pointed out that to satisfy the needs and development of the pig farming industry, it had approved 694 pig farms to use food waste as pig feed, allowing the traditional practice of using food scraps to feed pigs to continue. However, to prevent the spread of African swine flu via food waste, the EPA is still making every effort to supervise and urge pig farms to implement high-temperature cooking of food waste. According to the EPA' s statistics, 9,279 pig farms have been inspected since 1 Feb 2019, when environmental authorities across the country started

vigorous inspections of pig farms to ensure the safety of using food waste as pig feed.

In addition, after a recent floating dead pig incident in New Taipei City, environmental authorities across the country immediately began to carry out the instructions that the Central Emergency Operation Center ordered in response to the risk of African swine flu, and restarted inspections of the 694 pig farms permitted to use food waste, so as to reduce the risk of disease spreading through food waste.

The EPA reminded restaurants and enterprises to hand their food waste over to cleaning squads or legal pig farms to be made into pigswill or compost. They are not to hand food waste over to illegal pig farms or discard it randomly. Violators will be punished severely in accordance with the *Waste Disposal Act*.



Minister Tzi-Chin Chang inspects food waste cooking equipment on pig farms

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Tzi-Chin Chang, Minister

Editor-in-Chief

Shyh-Wei Chen

Executive Editors

Shiuan-Wu Chang; Tsu-Shou Cheng; Chun-Wei Yang;
Shaowen Chang; Jason Hoy; Ken Lee

For inquiries or subscriptions, please contact:

Major Environmental Policies

Office of Sustainable Development

Environmental Protection Administration

83, Sec. 1, Jhonghua Rd., Taipei 100, R.O.C. (Taiwan)

tel: 886-2-2311-7722 ext. 2217

fax: 886-2-2311-5486

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