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Feature Article

Taiwan-US Environmental Protection Cooperation Enters Third Decade

The year 2013 marks the 20th anniversary of the signing of the Taiwan-US environmental protection cooperation agreement. Within the framework of this agreement, cooperation regarding environmental protection policies and technologies between Taiwan and the USA has become increasingly closer, creating a fruitful and mutually beneficial environmental partnership. Both sides convened in Taipei in June 2013 for an exhibit to reflect on past experiences and celebrate this momentous occasion.

The Agreement between the American Institute in Taiwan and the Coordination Council for North American Affairs for Technical Cooperation in the Field of Environmental Protection was signed on 21 June 1993. The government agencies charged with implementing the agreement were the Taiwan EPA and the USEPA. The agreement has been extended three times: in 1998, 2003, and 2008.

To celebrate these past 20 years, both sides met in Taipei to jointly hold the “Twentieth Anniversary of Taiwan-US Cooperation in Environmental Protection” exhibition. The opening ceremony was kicked off with the cutting of a ribbon by key people, including Taiwan

EPA Minister Stephen Shu-hung Shen, American Institute in Taiwan Director Christopher Marut, USEPA International Affairs Asian Region Senior Advisor Mark Kasman, as well as Legislative Yuan Social Welfare, Health and Environment Committee Convener Su Ching-Chuan and Deputy Minister of Foreign Affairs Vanessa Shih.

Four Cooperative Models in Twenty Years of Working Together

Over the past 20 years, Taiwan-US environmental cooperation agreements have followed four different models. The four models used prior to 2010 are

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outlined below:

Type 1: The Taiwan EPA sent personnel to the US on study tours, or to observe US environmental personnel working in the field to acquire hands-on experience. The USEPA used an open selection to commission NGOs to conduct the activities for this type of cooperative model.

Type 2: American experts were invited to Taiwan to participate in workshops so that they could share their knowledge and offer technological assistance.

Type 3: Designated US research organizations were asked to implement plans drawn up in accordance with the requirements of the Taiwan EPA. For example, the USEPA's Office of Research and Development assisted the Taiwan EPA in establishing one of its air pollution models (Model 3).

Type 4: This type involved joint implementation of cooperative projects that fit the environmental interests of both nations.

Over the years, the framework of the agreement has allowed Taiwan to successfully adopt American pollution control technologies and environmental management strategies. These include initiatives related to the US Energy Star Program, MARKAL Model research exchanges, greenhouse gas reduction, watershed management, waste management, toxic chemical substance management, risk assessment, the establishment of regional air quality monitoring and early warning models, and the introduction of state-of-the-art monitoring equipment. As of the end of 2012, Taiwan and the USA have implemented 190 plans that have been of great benefit in building Taiwan's environmental management capabilities and introducing technologies that improve environmental quality.

Regional Programs on Key Issues Deepens Cooperation

Seeing that scientific evidence concerning cross-boundary environmental pollutants become clearer by the day and that regional trade continues to flourish, in 2009 the Taiwan EPA and the USEPA started working together to update relevant cooperative strategies. Taiwan EPA Minister Stephen Shu-hung Shen outlined the key issues for regional partnership

plans at the 2010 International Workshop on the Remediation and Management of Polluted Soil and Groundwater Sites. These included:

- Establishing remediation capabilities to remediate polluted sites
- Working to bring about cleaner air in port areas
- Strengthening greenhouse gas reduction plans
- Reinforcing the enforcement of and compliance with environmental regulations
- Raising environmental monitoring and data management capabilities
- Increasing the monitoring of mercury in the environment
- Establishing low-carbon communities
- Enhancing global partnerships in order to alleviate global e-waste problems

On 11 August 2011, Minister Shen met with his American counterpart Administrator Lisa Jackson at the USEPA headquarters in Washington, D.C. The two parties reached consensus on cooperative measures regarding new directions in regional and international cooperation and agreed that the above issues be included in the 9th Implementation Agreement and the project plans for the 2011-2013 period.

The regional partnership plans emphasize the importance of good environmental governance that seeks to involve the cooperation of both corporations and local communities. Increased involvement will not only enhance environmental protection but will also benefit economic development and job creation. The scope of partnership can be nation to nation, or region to region, and can extend all the way down to the level of schools and local communities. The meeting was also an opportunity for the two parties to reiterate their commitment to strengthening their bilateral and regional partnerships and to employ their combined power to protect regional environmental quality and human health.



▶ “Twentieth Anniversary of Taiwan-US Cooperation in Environmental Protection” exhibit – EPA Minister Shu-hung Shen (middle) kicked off the opening ceremony with the cutting of a ribbon

The two EPAs will continue to actively develop their regional partnership during the 2011-2013 period by promoting exchanges of knowledge and technical experience in the fields of environmental protection and sustainable development. As of May 2013, environmental protection personnel from 18 nations in the Pacific Rim, Central and South America, the Middle East, and Africa have visited Taiwan to participate in regional partnership programs. The topics have included: establishing remediation capabilities to remediate polluted sites; reinforcing the enforcement and compliance of environmental regulations; improving environmental monitoring and data management; improving the monitoring of mercury in the environment; and preventing, managing and reusing e-waste. Both EPAs believe that concerted and cooperative action at both the regional and global levels is the best way to protect the environment.

During the 20th anniversary event, Minister Shen highlighted the fact that regional partnership cooperation models have already succeeded in establishing regional working groups or Internet projects focused on the issues of pollution remediation, environmental information, mercury monitoring, and e-waste recycling and management. These efforts contribute to environmental protection in neighboring developing countries and are an important key to protecting human health. This is especially true regarding the transshipment of waste and the cross-boundary movement of pollutants including air pollutants, soil and water pollution and other regional pollutants that may affect the health of Taiwan's residents if transmitted via international trading of agricultural, forestry, fishery and livestock products. Only through diligence in regional and international cooperation can we achieve the goals of protecting human health and the environment.

Taiwan and US Exchange Experiences in Environmental Law Enforcement

For a period of four and a half days starting 24 June 2013, the Taiwan and US EPAs jointly held a program that employed simulations to train environmental law enforcement officers from Taiwan and neighboring nations in the auditing of factories. The participants were senior environmental auditors and inspectors from central and local government departments who are being trained as seed instructors. The program acted as a forum for sharing environmental law enforcement experiences and techniques to enhance environmental law enforcement capabilities in the region.

The Taiwan and US EPAs also agreed to make the abiding by, and enforcement of, environmental regulations two of the main points of the bilateral environmental cooperation agreement. In March 2013, the two parties held a regional training program for national environmental law enforcement officers and seed instructors to which Southeast Asian nations such as Indonesia, Thailand, the Philippines, Vietnam, and Singapore sent personnel to participate.

The training program focused mainly on full factory auditing, thus the trainees were taken to a petrochemical plant to practice techniques for

monitoring and inspecting pollution emissions. Bolstering environmental law enforcement capabilities is crucial for winning the fight against environmental crime and for controlling polluting activities. The Taiwan EPA has already formulated the *Enhancing Environmental Law Enforcement and the Levying of Penalties Plan* which aims to raise the overall inspection capabilities of environmental law enforcement personnel so that they can thoroughly root out illegal behavior. The establishment of a mechanism for calculating illegal gains and increasing fines accordingly also acts as a strong deterrent to breaking the law.



▶ Participants in the Taiwan-US environmental law enforcement training program



▶ On-site inspection demonstration

Cross-Strait Agreement Increases Opportunities for Taiwan's Environmental Service Industry in China

The ninth Round of Cross-Strait High-level Talks on 21 June 2013 saw the signing of the *Cross-Strait Agreement on Trade in Services*. The agreement accords with the highest guiding principle of Taiwan's government – “Putting Taiwan and the interests of its people first” – and is particularly beneficial to Taiwan's environmental services industry as it seeks to gain a greater share of mainland China's market.

The list of environmental services opened by the mainland China side included the following:

- Wastewater treatment services
- Waste disposal services
- Waste gas treatment services
- Noise and vibration control services
- Soil and groundwater remediation services
- Natural and scenic area protection
- Sanitation services

Mainland China pledged to allow the lengths of time that Taiwan service providers have been operating environmental pollution control facilities in either Taiwan or mainland China to be taken into account when authorities assess the providers' applications to operate corporate environmental pollution control facilities in China. China also pledged to allow Taiwan service providers to offer environmental services in China, either as sole proprietorships, joint ventures, or partnerships. Taiwan pledged to open

its market to mainland China's service providers, who will henceforth be able to establish offices and offer services in Taiwan as sole proprietorships, joint ventures, partnerships, or branch offices of companies. The five services opened by the Taiwan side were the same as those opened by mainland China, with the exception of natural and scenic area protection and sanitation services.

The environmental services industry has been divided into eight categories for the purposes of the agreement: disease vector control; wastewater treatment; waste clearance and disposal; resource recycling; environmental monitoring services; pollution control services; environmental consulting; and other environmental sanitation and pollution control. Except for disease vector control, the other seven categories fall under the jurisdiction of the EPA. Since 30 June 2009, the EPA has been announcing, in batches according to the above categories, which mainland China enterprises can invest in Taiwan. All of the items on the market-opening commitment list for the *Cross-Strait Agreement on Trade in Services* are in fact services that are already open to investment from mainland China's enterprises, and so implementation of the agreement is not expected to have a major impact upon local industry.

International Forum Helps Map out Future Carbon Reduction Pathways

The EPA recently held the 2050 Taiwan Greenhouse Gas Reduction Pathway Forum in order to gain a better understanding of assessment methods for low-carbon development strategies of other nations along with their experiences in planning for renewable energy power generation modules. Invited to the forum were experts from Germany, Australia and Japan, who spoke on topics such as research into renewable energy models, simulation parameters, calculating the costs of the technologies involved, energy storage, and a vision of a long-term low-carbon society. The foreign experts also engaged in fruitful exchanges of opinions with local academics.

EPA Minister Stephen Shu-hung Shen gave the opening speech at the forum and pointed out that the main objective for holding it was to share knowledge and experience about international low-carbon development strategies and assessment methodology, to give local experts a better understanding of the promotion of low-carbon societies overseas and the methods used in planning for renewable energy power generation modules. The knowledge will enhance the scenario setting proposed at the Necessity and Feasibility of 100% Renewable Energy and Zero Carbon Forum.

Head of the European Economic and Trade Office Mr. Frederic Laplanche, deputy head of the Deutsches Institut Taipei Mr. Mirko Kruppa, and Dr. Nicholas Rodgers, who represented the Australian Office Taipei, were invited to give presentations at the forum. They all pointed out that many nations have already set about planning for long-term carbon reduction targets. Although this development process will entail higher capital costs, it will also produce numerous green economic opportunities. The foreign delegates also expressed the hope that they will enjoy a closer cooperative relationship with Taiwan in the future.

Dr. Jih-Chang Yang, senior consultant at Taiwan's Industrial Technology Research Institute, talked about how planning for long-term carbon reduction pathways has to take account of cycles of reduction targets, the green economy, and technological innovation in order to produce tangible results. Dr. Carsten Pape, from Germany's Fraunhofer Institute for Wind Energy and Energy System Technology, and (via a video link) Dr. Michael Sterner, from Germany's Regensburg University of Applied Sciences, talked in detail about Germany's planning of energy targets to be achieved by 2050. The parameters involved include predicting power requirements, ratios of power generation from renewable sources, integration of supporting mechanisms, and designing power transmission networks. Macro conditions that also have to be considered when predicting future energy source distribution include climate patterns, geography, energy source distribution, economic development, and trends in the development of the power generation market.

In his keynote speech, EPA Deputy Minister Shin-Cheng Yeh mentioned that on 18 May 2013, the EPA held the Necessity and Feasibility of 100% Renewable Energy and Zero Carbon Forum in a

World Cafe format. He gave the delegates a cross-analysis of the opinions and ideas of the experts and 300 citizens from government, industry, and academia at the forum, saying that although there was consensus on the need for carbon reduction and increasing the proportion of renewable energy to reduce reliance upon fossil fuels, many people did not have a clear idea of a viable blueprint for Taiwan's future energy supply. Deputy Minister Yeh said that the main points of contention at the forum included:

- whether Taiwan's development of renewable energy sources is facing technological obstacles (in efficiency, energy storage, stability of power supply, etc.)
- whether Taiwan's deployment of renewable energy sources is proceeding quickly enough
- whether Taiwan's energy requirements are being effectively managed
- whether the levying of an energy or carbon tax would have a positive or negative impact upon industry and the livelihoods of Taiwan's populace
- whether Taiwan has the overall capability to run an intelligent power network, improve power transmission, and upgrade energy storage

Deputy Minister Yeh pointed out that the process of deciding upon an energy policy is a trade-off, as energy security, tariffs, carbon reduction, degree of difficulty for infrastructure construction, public health and safety must all be taken into consideration. He said that most Taiwan citizens who have participated in public forums imagine a low-carbon living environment for Taiwan that is either of the "intelligent city" type with more mass transportation, green building, eco-friendly use of land, and a complete set of climate change adaptation measures, or is of the "back to the village" type - a toxin-free living environment and organic, locally-grown food.

Dr. Shuichi Ashina from Japan's National Institute for Environmental Studies shared Japan's dual-faceted anime-inspired vision for a low-carbon society by 2050, citing a Doraemon-style techno-city as one aspect, and a Satsuki and Mei-style urban village as the other. He also used Japan's developmental experience as a starting point to discuss carbon

reduction responsibilities and future low-carbon development opportunities for the Asia region.

Mr. Paul Graham and Dr. Jenny Hayward of Australia's Commonwealth Scientific and Industrial Research Organisation, and Dr. Joel Gilmore from the Australian firm ROAM Consulting, in turn presented analyses of the unique features of Australia's electricity market. They applied renewable energy models that took demand, supply, and storage data as the starting point for the development of the models. They concluded that the main considerations in the development of a renewable energy structure are the poor stability of renewable energy sources, the increasing importance of technological research into energy storage, the costs of energy storage technologies, and the degree of interconnectivity and

reliability of power transmission networks.

In his closing summary, Deputy Minister Yeh spoke about an existing consensus regarding the concept of a low-carbon future, even though the long-term carbon reduction pathway models that various nations are developing have their own unique features. He expressed the hope that Taiwan's experts will have learned some things about how the planning and promotion of long-term carbon reduction pathways is undertaken overseas. He said that with the knowledge gathered through public participation, meetings of experts, and international exchanges, the so-called expert surrogate mechanism will be invaluable in strengthening Taiwan's capability to set carbon reduction scenarios.



▶ 2050 Taiwan GHGs Reduction Pathway Forum

Air Quality

Stricter Motorcycle Exhaust Emission Standards Expected to Take Effect as Early as 2017

The EPA has begun discussions into formulating drafts for the sixth and seventh stages of Taiwan's motorcycle (including scooters) exhaust emission standards, after examining new motorcycle exhaust emission standards announced by the EU in March 2013. Stricter standards are expected to come into effect sometime between 2017 and 2021, and will result in further improvement to the problem of motorcycle exhaust emissions.

Air pollutant standard values, testing methods, and specifications for durability tests and on-board diagnostics for the sixth and seventh stages of Taiwan's motorcycle exhaust emission standards will be revised after reference to EU standards. The EPA has also taken into account the time that Taiwan's motorcycle manufacturers will need to adjust their operations and establish necessary testing capabilities, and has decided that the new standards will come into effect one year after the EU's. Based on Taiwan's domestic requirements, an amendment to the standards will require local manufacturers that sell over 10,000 vehicles annually to ensure that a minimum proportion of their engine groups (sixth stage 20%, seventh stage 50%) meet idle testing emission standards of CO=0%, HC=

0 ppm. Manufacturers will have a number of ways of achieving this target, such as making electric scooters, hybrid vehicles, or installing equipment that turns off the engine when it is idling.

The EPA points out that motorcycles are a popular mode of transport in Taiwan and that the large numbers of motorcycles on the roads are one of the main causes of air pollution. To combat the problem, in addition to enforcing periodical emissions testing for motorcycles and road-side spot checks, and introducing incentives to encourage owners to trade in their old motorcycles, it is also necessary to gradually tighten emission standards for new vehicles. The EPA hopes that its efforts will have the support of the general public.

Solid Waste

Hong Kong Experts Learn from Taiwan's Successes in Waste Disposal

On 7 June 2013, the head of Hong Kong's Environment Bureau, Mr. K. S. Wong, along with a group of Hong Kong experts visited Taipei to observe local waste disposal policies in action. EPA Minister Stephen Shuhung Shen met the group in person and told of Taiwan's experience with waste disposal policy making and its successes in resource recycling. These include the system of sorting waste before disposal, the pay-per-bag garbage collection system being implemented by Taipei City and other municipalities, and the gradual decrease in annual waste volumes resulting from the public making more effort to recycle resources. The Hong Kong experts left Taiwan with a much clearer understanding of Taiwan's waste disposal practices.

The group from Hong Kong consisted of 60 experts from government, industry, and academia. The main purpose of their trip was to learn from Taipei City's successes in implementing waste management and recycling in local communities, how fees for metropolitan waste are charged, and how food waste is treated. A meeting with the EPA to exchange ideas and opinions was also part of their agenda. The Hong Kong group was taken to some of Taipei City Government's waste disposal facilities and to an eco-friendly local community to observe metropolitan waste management in practice, including solid waste sorting, recycling, collection, and disposal.

The Hong Kong Environment Bureau group was particularly interested in the pay-per-bag waste collection system being implemented by the Taipei City Government. EPA personnel were at hand to explain in detail the planning, administration, public education,

and supporting measures for the scheme, as well as problems encountered and how they were solved.

The EPA pointed out that Taiwan's successes and experiences in environmental matters, especially in the fields of waste treatment and resource recycling, have been a focus of international attention. Hong Kong's Environment Bureau members lauded the way waste treatment in Taiwan has been transformed from solely tail-end treatment to more reduction-at-source and resource recycling, to the extent that in 2012 the recycling and reuse rate reached 65%. Taiwan has thus come a long way from the "trash wars" of the period prior to 1987 when untreated refuse was piled high in the streets. The Hong Kong Environment Bureau group was full of praise for Taiwan's success in waste sorting at source and resource recycling that has made Taiwan a model for other nations to learn from. Full credit for this should go to Taiwan's tireless

garbage collection teams and Taiwan's citizens in general for pulling together to make it happen.



▶ Minister Stephen Shu-hung Shen (right) with Mr. K.S. Wong of the Hong Kong Environment Bureau

Air Quality

Vehicle Idling Regulations Relaxed

The EPA has announced revisions to Articles 4 and 5 of the *Motor Vehicle Parking and Idling Management Regulations*. In the future, owners of idling vehicles will not be fined when outdoor temperatures exceed 30°C or during rain showers. Large vehicles with passengers or taxis waiting to pick up passengers will also be exempt, as will vehicles from which people with limited mobility are embarking or disembarking. The revisions are intended to facilitate more effective enforcement of the regulations without impacting public health.

Since the *Motor Vehicle Parking and Idling Management Regulations* first came into effect on 1 June 2012, many opinions on what circumstances should qualify for exemption from the regulations have been put forward from all sections of society. After taking into account all of these suggestions, related regulations in neighboring countries, the nature of Taiwan's climate, and also public opinion, the EPA decided to revise Article 4 of the regulations.

In addition to the exemption for taxis waiting to pick up passengers, in the interests of safety, idling school buses, minivans, coaches, and other large passenger vehicles that have passengers on board are also henceforth exempt. Owners of idling vehicles will not be fined when the highest outdoor temperature is forecast to exceed 30°C or during rain showers,

nor will owners of vehicles from which people (not including the driver) are embarking or disembarking. There are also exemptions when work practices require the vehicle's engine to idle. These include roadside rescue vehicles, vehicles for which diesel particulate filter manual regeneration requires that the engine idles, malfunctioning vehicles in which idling cannot be stopped, or any vehicle that is being used by government inspectors conducting inspections or tests in accordance with the law.

The "exceed 30°C" mentioned in the revision is defined as the highest temperature as forecast by the Central Weather Bureau, either after 5 pm the previous day or in any of the forecast updates on the day itself, for the city or county in which the vehicle in question is found to be idling.

Green Mark

EPA Encourages Hotels and Travel Agencies to Apply for Green Mark

The EPA is taking steps to extend its environmental labeling system to the service industry. In addition to the amendments of the Green Mark specification standards announced for the "Hotel Industry" in August 2012, the EPA newly announced the environmental labeling standards for the travel service industry, restaurant industry, cleaning services industry, car rental industry, and car washing industry in May 2013.

The focus of eco-labeling for the service industry can be divided into two areas: internal management processes and service operations. In either area, there are certain practices to be adhered to, such as non-violation of the environmental laws, the development of environmental management programs or action plans in keeping with national environmental protection policies, environmental training and education for staff, implementation of green procurement, installation of energy-saving office space and waste management measures, etc. In addition, different rules and regulations should be devised in accordance with the special characteristics of each service industry. For example: hotels should not provide single-use toiletry products to their guests and should also encourage them not to request changes of linen and towels for a second night's stay; travel agents should plan low-carbon tours and persuade customers to bring their own toiletries;

restaurants should not offer single-use tableware to customers, and a minimum percentage of their food ingredients should be obtained locally; cleaning products used by the cleaning services industry and the car washing industry should meet low-pollution specifications of environmental laws; car rental enterprises should provide energy-saving and low pollution vehicles and inform drivers of eco-driving behavior norms; the car washing industry must be frugal on its use of water, etc.

The eco-labeling for the above-mentioned six service industries can be divided into: gold, silver, and bronze, with bronze being the lowest threshold and relatively easy for enterprises to achieve. It was designed in this way so that enterprises will be encouraged to apply for eco-labeling, and, once they pass the bronze level, they will be enticed to strive towards obtaining the silver or the gold level service eco-labeling.

Toxic Substance

Working Standards Revised for Environmental Agent Permit Application and Issuance

The EPA is continuing to reinforce its management of the testing and registration of environmental agents by revising the *Working Standards for Environmental Agent Permit Application and Issuance* when necessary. The latest revision lists chlorine dioxide as a controlled environmental agent.

The main purpose of the latest revision is to strengthen consumer protection and the safe use of toxic substances. Henceforth, applications for environmental agent permits for pesticides purporting to consist of natural ingredients must be accompanied by documentary proof of their composition. Chlorine dioxide for use as an environmental disinfectant or germicide will also be required to be tested, and the manufacturer will be registered with the EPA. The toxicity category of environmental agents in general has also been adjusted to reflect WHO adjustments to

the toxicity category of pesticides. The word "signature" in the regulations has also been amended to "certification" to match revisions to related regulations announced by the Ministry of Foreign Affairs.

Following the revisions, chlorine dioxide for use as an environmental disinfectant or germicide has been listed as an environmental agent. Starting from 1 July 2014 manufacturers and importers will need to apply for a permit to handle chlorine dioxide. Applications for environmental agent permits for pesticides

purporting to consist of natural ingredients will also need to be accompanied by documentary proof of their composition as of 1 January 2014. In order to ensure the stability and quality of products containing

environmental agents, from 1 July 2014 applicants will have to submit test reports of their products' physical and chemical composition for approval.

Solid Waste

Guidelines Revised for Incineration of Plastic Pesticide Containers

Since currently there are large quantities of waste pesticide containers being stockpiled due to insufficient recycling capabilities, the EPA has decided to continue incinerating this category of container as a short-term stop-gap measure. Implementation of the *Pesticide and Special Environmental Agent Plastic Container Incineration Treatment Working Guidelines* has been postponed to 30 April 2015.

The annual volume of waste pesticide and environmental agent containers being recycled is currently around 1,000 tonnes. The enterprise that was originally handling the disposal of such containers stopped accepting them on 26 December 2008 and has yet to resume operations, creating a logjam in the recycling process. The *Pesticide and Special Environmental Agent Plastic Container Incineration Treatment Working Guidelines* were first announced on 12 May 2009. Revisions announced on 10 August 2010 added supplementary regulations that set the maximum permitted proportion of fertilizer containers mixed in with waste environmental agent containers that recyclers can accept at 4%. This particular stipulation will last until 30 April 2013.

Although the EPA always gives priority to recycling and reuse when considering disposal options, the reality is that no enterprises are currently willing to invest in establishing a waste environmental agent containers recycling plant. Even if a suitable enterprise were to declare its intention to set up a plant, a considerable length of time would be needed to carry out investment assessments, factory planning, and designing and building of the facilities. To solve the ongoing problem of large quantities of waste pesticide containers being stockpiled due to insufficient recycling capabilities, the EPA

has decided to continue incinerating this category of container as a short-term stop gap measure. Revisions have been made to the *Pesticide and Special Environmental Agent Plastic Container Incineration Treatment Working Guidelines* so that implementation can be postponed to 30 April 2015. The short-term incineration of pesticide containers will prevent further bottlenecks from building up in the recycling process.

The maximum permitted proportion of fertilizer containers mixed with waste environmental agent containers that recyclers can accept is 4%. Excess quantities, if discovered, will result in a proportionate deduction of the recycler's subsidy. The excess quantities of fertilizer containers will also not be eligible for subsidies at the mixed material rate. This measure is intended to encourage recyclers and farmers to separate fertilizer containers from pesticide containers, so that they can be recycled as ordinary plastic containers at the standard subsidy rate. The measure also safeguards the health of recycling plant workers, as the 4% limit ensures that they are not over-exposed to pesticides by having to separate fertilizer containers from pesticide containers by hand. Other types of non-plastic environmental agent container cannot be easily incinerated and so fall into the mixed material recycling subsidy category.

News Briefs

Subsidies Forthcoming for Electric Vehicles Converted to Use Swappable Batteries

The EPA is working on the establishment of an electric vehicle battery swapping system that will allow electric

vehicle users to change batteries as quickly as filling up a conventional vehicle, so as to increase ownership of this eco-friendly mode of transport. In addition to offering subsidies to operators to set up battery swapping stations and to electric vehicle owners to use such stations, the EPA has also formulated a draft of the *Management Regulations Regarding Subsidies for the Conversion of Electric Vehicles to Use Standardized Swappable Batteries*. The subsidies will be offered to owners of electric motorcycle and electric bicycle stores who convert their facilities to enable them to exchange standardized swappable batteries, thus enabling them to join the electric vehicle battery swapping system. This will enable more models of electric vehicles to participate in the system. The EPA expects that the draft of the *Management Regulations Regarding Subsidies for the Conversion of Electric Vehicles to Use Standardized Swappable Batteries* will offer conversion subsidies of up to NT\$1 million for every model of electric motorcycle and NT\$650,000 for every model of electric bicycle. Eighty percent of the inspection fee will also be subsidized. The EPA believes that these incentives will increase the willingness of businesses to participate in the system.

EPA Holds Science and Technology Forum to Promote Interchanges among Government, Industry and Academia

The EPA held the “2013 Environmental Science and Technology Forum” on 10 June 2013. The Forum was geared toward promoting exchanges regarding the newest environmental sciences and technologies of Taiwan. Professor Gwo-Dong Roam of National Central University, Professor Juu-En Chang of National Cheng Kung University, Professor Chea-Yuan Young of Chinese Cultural University, Professor Chuen-Jinn Tsai of National Chiao Tung University, and Professor Shang-Lien Lo of National Taiwan University were invited to panel discussions on developing trends in environmental science and technology. The other topics discussed during the forum included: research on noise control and improvement measures for land transport systems (especially referring to noises generated under the bridges of elevated highways); the investigation and research of new physical public nuisances; the formulation of product categories for eco-labeling; the sharing of research achievements on inspection, auditing, and assessments of environmental benefits; the study of the status quo of the sludge industry and the R&D of its forensic

technology; high velocity solid phase extraction coupled with ultraperformance liquid chromatography (UPLC) systems/using a tandem mass spectrometer to analyze the existence of 100 pesticides in water bodies; the R&D of inspection technology for nano-particle cytotoxicity; R&D projects for the treatment and recycling of community sewage using film filter automation technology combined with continuous flow sequencing batch reactor (CFSBR); recycling polyethylene terephthalate (PET) bottles to make new three layered PET bottles; and finally, how to capitalize on industry/academia cooperation to enhance the environmental performance of industries.

Regulations Regarding Rewards for Reporting Smoky Vehicles to be Amended

The EPA preannounced that it would soon amend the *Regulations Governing Reporting of High-polluting Vehicles and Its Reward Standards*. The current provisions of the reward incentives stipulate that the informants must provide photos or videos of the high polluting vehicles. After amendment, the regulations for reporting of the high polluting vehicles and for the receiving of award money will be revised.

In view of the fact that over 90% of the informants provide photos or videos to support their allegations, the EPA, in order to enhance the actual benefits of the general public reporting on high polluting vehicles, will no longer require photos or videos as a prerequisite for prosecuting a pollution case. Instead, the EPA will reinforce its supervision of the extent of improvement of the reported vehicles, while abolishing the visual reporting method with a view toward avoiding possible disputes that may arise from the adjudication of cases that are reported through the visual reporting method.



▶ A high-polluting bus

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