



Environmental Policy Monthly

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

ISSN: 1811-4008 GPN: 2008600068

The EPM is available at <http://www.epa.gov.tw/environmentalpolicymonthly>

Feature Article

EPA Releases Documentary One Earth, One Chance and Plants Trees to Mark 2014 World Environment Day

To mark 2014 World Environment Day, the EPA held a release ceremony for its documentary film, *One Earth, One Chance* on 5 June. Also on 8 June, the EPA planted trees and pledged to reduce carbon to save the Earth. The documentary explains the measures Taiwan's citizens are adopting in their daily lives to mitigate climate change, and also introduces the cooperative plans, past and future, that Taiwan has drawn up with its allies among the small island nations of the South Pacific. These plans are a response to the United Nations' call for nations around the world to join forces to fight climate change. Ambassadors from some small island developing nations and representatives of other nations or state governments were invited to participate in the events.

Documentary released to share with the world what Taiwan has done for the 2014 World Environment Day Challenge

In the face of global climate change and the threat of rising sea levels, there is not a moment to lose for international cooperation in environmental protection. At the screening ceremony EPA Minister Kuo-Yen Wei spoke about how the United Nations (UN)

declared 2014 to be the International Year of Small Island Developing States (SIDS) in order to raise awareness about the forthcoming climate change-induced challenges that these nations face due to their topography. The slogan for this year's World Environment Day is "Raise Your Voice, Not the Sea Level" and the UN is using this message to urge the international community to take action to assist the SIDS in coping with the increasing threats that they

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face, of which climate change is the greatest.

Ambassadors of Kiribati, Nauru, Palau and Tuvalu, and a representative of the State of Hawaii Office in Taipei were invited to the screening, where they jointly urged the world to focus more upon the crisis that the SIDS face. Also present at the screening were the internationally famous environmental artist Vincent J.F. Huang and the entertainer Chris Downs, who is originally from Canada and now married and residing in Taiwan. Both of them spoke to the audience about how the film had affected them.

The four challenges of the 2014 World Environment Day raised by the United Nations Environment Programme were: power down, reduce food footprints, go greener, and purge plastics, all of which the citizens of Taiwan have already been doing in their daily lives for many years. The EPA therefore decided to release its documentary *One Earth, One Chance* on World Environment Day to help people around the world better understand the mindset of Taiwan's residents toward environmental protection. The documentary includes interviews with the ambassador of Tuvalu, the artist Vincent J.F. Huang and Ms. Yu-Juan Wu, a Taiwan environmental volunteer who works overseas, in which they discuss climate change and how the SIDS are responding. As the

documentary's main narrator, Chris Downs comments from the perspective of a foreign spouse on the many different aspects of environmental protection to be found all over Taiwan.

Taiwan's cooperation commitment to cooperate with Pacific island allies

In addition to screening the documentary, the EPA also used the occasion to reiterate Taiwan's commitment to implementing cooperative projects with six Pacific island nations. The projects include:

Clean energy: Lighting every community with renewable energy.

Food security: Sending an agricultural technical mission to each nation.

Medical and sanitation: Sending a mobile medical mission to each nation.

Education: Establishing partnerships with each nation to improve local education.

EPA Minister Kuo-Yen Wei also asked the ambassadors and representatives of nations and local governments in attendance to join him in a



▶ Minister Kuo-Yen Wei (fifth from right) signed the "Reduce Carbon to Save the Earth" pledge with foreign dignitaries and heads of other governmental agencies

small ceremony in which everyone called out "Raise Your Voice, Not the Sea Level" to express their determination to tackle climate change.

EPA planted trees and pledged to reduce carbon to save the Earth on World Environment Day

The annual World Environment Day is also the anniversary of the enactment of Taiwan's *Environmental Education Act*. It has been three years since the implementation of the act. Statistics show that as of 30 April 2014, the cumulative number of person-hours spent participating in environmental education activities had reached nearly 90 million, with a total of 84 environmental education facilities, 19 environmental education institutes and 3,125 certified environmental education personnel actively participating in environmental education. Through these activities, environmental awareness has been raised and the public is encouraged to take actions to face the challenge of climate change.

Capitalizing on this rare occasion, on 8 June 2014,

the EPA went to Taoyuan County to hold celebration activities for World Environment Day. Minister Kuo-Yen Wei, accompanied by ambassadors from Tuvalu and Kiribati, and representatives from the American Institute in Taiwan, the State of Hawaii Office in Taipei, the Indonesian Economic and Trade Office in Taipei, Minister Bao-ji Chen of the Council of Agriculture, Director General Tao-Sheng Lee of the Forestry Bureau, and Director General Shyh-Wei Chen of the Taoyuan County Environmental Protection Bureau, planted trees and signed the "Reduce Carbon to Save the Earth" pledge.

The EPA also invited these ambassadors and representatives to visit the Laojei River to witness how the Taoyuan County Government has spared no efforts in improving the living conditions of its people. At the site, the ambassadors and representatives were requested to write a World Environment Day pledge in the language of their respective countries. Thus, through the tree-planting ceremony, the "Reduce Carbon to Save the Earth" pledge was implemented, while Taiwan showed its determination to face climate change with the rest of the world.



► Ambassadors of Kiribati, Nauru, Palau and Tuvalu; and a representative of the State of Hawaii Office in Taipei were invited to the screening.

Promoting Eco-friendly Products through Preferential Recycling Fee Rates

In order to balance the revenue and the expenditure for the Recycling Fund and to promote the design of eco-friendly products, in 2013 the EPA pre-announced revisions to the recycling fee rates for electrical and electronic goods so that green products in this category can be charged 30% less than the conventional products. The EPA hopes that economic incentives such as this will encourage green design and green consumption for the benefit of the environment.

Since 1998, the EPA has been adding importers and manufacturers of various containers and products to the list of enterprises required to pay a recycling fee. For importers, the fee is collected according to the volumes of import; for manufacturers, it is collected by their amounts sold. Importers and manufacturers are required to pay – via banks or the post office – their recycling fees to the Recycling Fund Management Board by the 30th of every other month.

Rapid technological advancements have brought a wide variety of complex consumer electronic products onto the market. It also means that environmental pollution from substances from recycled e-waste such as refrigerant, fluorescent powder, mercury and liquid crystal have to be guarded against. In order to encourage Taiwan's enterprises to manufacture or import eco-friendly consumer goods, in 2013 the EPA amended the relevant regulations to allow for reduced recycling fee rates for green electrical and electronic products.

Preferential Fee Rates Extended to All Eco-labelled Products

There is an ongoing international trend toward both strengthening controls over substances containing mercury and also toward recycling them. This, along with the rapid development of the market for electronic products, has led the EPA to revise the clearance and disposal fee rates for such products in accordance with Article 16 Paragraph 5 of the *Waste Disposal Act* (廢棄物清理法). Products that have been issued the Green Mark or Energy Label accreditation now enjoy a 30% discount on recycling fee rates. The new regime took effect in March 2014.

The revisions to the Information Technology Products Recycling Fee Rates were introduced in 2013 after a full review of all of the relevant factors involved. These included recycling and disposal costs, the administration costs of collecting the fees, the reuse value of the materials, the overall environmental impact, and the financial stability of the Recycling Fund. In order to encourage enterprises to develop green products and help promote green shopping habits, the EPA expanded the scope of the fee discount to include any product that has been awarded any of Taiwan's certified eco-labels.

Electrical and electronic goods eligible for the reduced fee rate are those that carry the Green Mark, Energy Label, Water Label, or accord with grades 1 or 2 of the Ministry of Economic Affairs (MOEA)'s Energy Efficiency Rating and Labeling. The preferential rate for information technology (IT) products is applied to products carrying the Green Mark or Energy Label. The recycling fee rates for printers will be reviewed each year for the next three years based on the revenue and expenditure of the Recycling Fund.

The announced list of recyclable IT products includes portable computers, casings, motherboards, monitors, hard drives, printers, power supplies, and keyboards (see attached table for details). The most recent revisions saw the addition of a fee rate of NT\$25.3 per unit for tablet computers; classifying external hard drives as hard drives with the fee rate remaining unchanged; reclassifying closed circuit television (CCTV) as "monitors" and subject to the same unchanged fee rate as other image output devices that have a diagonal width of 27 inches or less.

Graded Subsidies Seen As Way of Stimulating Technological Advances

Taiwan has established a treatment system for

dealing with waste electrical and electronic products, and related treatment technologies are maturing rapidly. But the issue of how to further improve treatment technology and gradually increase the reuse rate of reusable waste remains important. Disposal of e-waste results in a number of hazardous substances, such as refrigerants, fluorescent powder and mercury. This makes e-waste difficult to recycle, as evidenced by the large variations in recycling rates between different recycling plants. Getting recycling operators to improve their treatment of these unique and harmful substances so that they do not impact the environment is a major objective for the EPA.

Experts in Taiwan have suggested that a comprehensive indicator system should be established to evaluate organizations so that they can be given different levels of subsidies such as with the green fee rates from the EPA. This would promote economies of scale among organizations receiving

subsidies, and would particularly encourage e-waste treatment plant operators to scale up. Along with improved technology and lower costs, this would lead to reduced total recycling and treatment costs.

As the green fee rate policy was rolled out only three months ago, it is still too early to assess its effectiveness and the public response to it. The EPA is calling upon responsible enterprises, the trade associations that they belong to, and environmental organizations to feel free to provide scientific data and information at any time to assist the EPA in conducting reviews and revisions. Such data will be passed on to the Resource Recycling Fee Review Committee for evaluation, which amends regulations and announces the revisions in accordance with the stipulations of the *Waste Disposal Act*. Calling for more public participation is in line with both public expectations and the government's guidelines for implementing policies.

 *Table of recycling fee rates*

	Item	Fee rate (NT\$)	Date of implementation
Type of electrical/electronic product			
1	TVs	Non-liquid crystal display (LCD) types 1. Over 27 inch: NT\$371/each (green rate: NT\$260/each) 2. Under 27 inch: NT\$247/each (green rate: NT\$173/each) LCD types 1. Over 27 inch: NT\$233/each (green rate: NT\$163/each) 2. Under 27 inch: NT\$127/each (green rate: NT\$89/each)	1 March 2014
2	Refrigerators	1. Over 250 kg : NT\$588/each (green rate: NT\$412/each) 2. Under 250 kg : NT\$392/each (green rate: NT\$274/each)	
3	Washing machines	NT\$307/each (green rate: NT\$215/each)	
4	Air conditioners	NT\$241/each (green rate: NT\$169/each)	
5	Electric fans	1. Over 12 inch : NT\$34/each (green rate: NT\$24/each) 2. Under 12 inch : NT\$19/each (green rate: NT\$13/each)	

	Item		Fee rate (NT\$)	Date of implementation
IT products				
6	Portable computers	Laptops	NT\$39/each (green rate: NT\$27/each)	1 March 2014
7		Tablets	NT\$25.3/each (green rate: NT\$18/each)	
8	Monitors		Non-LCD : NT\$127/each (green rate: NT\$89/each) LCD : NT\$127/each (green rate: NT\$89/each)	
9	Motherboards		NT\$47.6/each (green rate: NT\$33.4/each)	
10	Hard drives		NT\$47.6/each (green rate: NT\$33.4/each)	
11	Casings		NT\$7/each (green rate: NT\$5.6/each)	
12	Power supplies		NT\$7.9/each (green rate: NT\$5.6/each)	
13		Ink jet	NT\$101/each (green rate: NT\$96/each)	1 March 2014
			NT\$121/each (green rate: NT\$115/each)	1 January 2015
			NT\$144/each (green rate: NT\$137/each)	1 January 2016
14	Printers	Laser	NT\$155/each (green rate: NT\$137/each)	1 March 2014
			NT\$151/each (green rate: NT\$143/each)	1 January 2015
			NT\$159/each (green rate: NT\$151/each)	1 January 2016
15		Dot matrix	NT\$152/each (green rate: NT\$144/each)	1 March 2014
			NT\$153/each (green rate: NT\$145/each)	1 January 2015
			NT\$155/each (green rate: NT\$147/each)	1 January 2016
16	Keyboards		NT\$14/each (green rate: NT\$10/each)	1 March 2014

Climate Change

Foreign Experts Gather to Facilitate Carbon Capture and Storage in Taiwan

The EPA held the 2014 International Conference on Carbon Capture and Storage on 19 May 2014. Experts from Taiwan, Australia, France, Indonesia, Japan, Malaysia, the Netherlands, the Philippines, Thailand, the UK, the USA and the EU attended the event.

At the International Conference on Carbon Capture and Storage (CCS) held on 19 May 2014, EPA Minister Kuo-Yen Wei and Director Christopher Marut of the American Institute in Taiwan both emphasized the pressing need for international cooperation on environmental affairs in their opening remarks. The 250 or so delegates who attended the conference consisted of government officials, academic experts, and a large number of manufacturers concerned about global warming and interested in mitigation technology. Members of the press and general public were also in attendance,

and some expressed their concerns and interest in the visions for, and development of, carbon reduction technologies in Taiwan.

In his closing remarks chairperson Professor Hsiao-Kang Ma particularly thanked the International Energy Agency, the Global CCS Institute, the Japanese CCS consultancy Japan CCS Co., Ltd., the Dutch firm Ecofys, and all of the experts from Indonesia, Malaysia, the Philippines, Taiwan, Thailand and the UK for their support and contributions during the conference. Professor Ma also said that the

meaningful exchanges and experience sharing between the gathered experts had provided a clearer picture of the conditions necessary – in terms of technological development, supportive policies, accompanying regulation and public participation – for CCS to be successful. He said that the spirited discussions between the participants and the invited experts on the topics of the environmental impact and risk management for CCS had led to the exploration of many different ideas.

Professor Ma said it was clear that there is a role for CCS in reducing carbon emissions. He also emphasized the need to combine thorough geological surveys and monitoring technology with adequate risk management and emergency response measures to ensure the safety and efficacy of CCS. He pointed out that Taiwan is seeking to cooperate with other nations on the development of CCS technologies and once again emphasized that the establishment of a Taiwan CCS association would stimulate CCS development in Taiwan and lead to the formation of regional partnerships and CCS pilot plans.



◀ Experts representing 11 nations and the EU gather to work on mitigating global-warming and promoting carbon capture and storage technology.

Environmental Education

First Taiwan-Denmark Water Resources and Environmental Education Symposium Held

On 15 May 2014, the EPA and The Trade Council of Denmark, Taipei jointly held the first Taiwan-Denmark Water Resources and Environmental Education Symposium in Taipei. Over 200 experts, researchers, and industry representatives, as well as personnel from the EPA, the Ministry of Economic Affairs' Water Resources Agency, and water providers such as Taiwan Water Corporation and the Taipei Water Department attended the event.

The Danish experts were invited to Taiwan for four days of events, with the symposium being held on the final day. For the first two days, the Danish experts divided into two groups, with one group going to Kaohsiung City to tour non-revenue water resources

and tap water leaks, and the other group going to Yilan County to study how environmental protection is carried out in conjunction with the economic development of the hot and cold spring resources there. As EPA Deputy Minister Shin-Cheng Yeh

pointed out in his remarks at the opening ceremony of the symposium, the preliminary conclusions from the two field inspections seemed to be very positive and he had the utmost confidence that the two nations could develop technology exchanges. Deputy Minister Yeh said that although it seemed the Danish side was giving more than it was taking he was confident that in the future Taiwan would be able to offer to Denmark its plentiful experiences in the fields of flashflood prevention and urban flood prevention.

Mr. Svend Olling, Director of the Danish Ministry of Foreign Affairs, and Mr. Mikkel Hall, Deputy Director of the Nature Agency, Danish Ministry of the Environment, also attended the symposium. Mr Olling said that Denmark's government considers the protection of water resources to be one of its top national development priorities. He pointed out that Denmark's water tax of up to 25% of the retail price ensures that the price of water accurately reflects the cost of treating and transporting it. He emphasized that the importance attached to water resources was unaffected by political changes. He also said that Denmark's tap water comes from groundwater and can be drunk from the tap even though Danish law stipulates that disinfectants cannot be added to tap water. Denmark's regulatory standards and its people's expectations are the reason why Denmark's water resource industry is highly energy efficient and its water technologies are leading the world.

Mr. Hall pointed out that although Denmark, like Taiwan, does not have natural resources such as oil or coal, both nations have a wealth of human capital. He said that the two days of field trips had led the team of Danish experts to conclude that Danish techniques could be quickly adapted for use in Taiwan and would quickly produce results. The Director of The Trade Council of Denmark, Taipei – Sune Kjeldsen – mentioned that cooperation between the council and the Taiwan EPA began two years ago with the Green Island Elephant environmental education project. More recently, the council has had the honor of introducing to Taiwan the work of the highly acclaimed environmental organization, INDEX: Design to Improve Life, with the hope that the Danish approach to environmental education – which is both humanistic and pragmatic – can be absorbed into Taiwan's system of environmental education.

Denmark does not have nuclear power stations nor does it produce oil, but it does lead the world in

renewable energy development and is the best place on Earth to live. However, in 2001 there was a serious incident of groundwater pollution that threatened the safety of tap water and in 2011 a flashflood in Copenhagen caused NT\$40 billion of damage. But the problems were quickly dealt with because Danish politicians hold respect for the environment as one of their highest principles, regardless of political affiliation. Since 1981 Denmark has forged ahead with developing renewable energy regardless of the party in power, and the Danish government has set a target of 100% of electricity to be generated from renewable sources by 2050.

Following many years of continuous mediation, communication and cooperation between representatives of government, industry and academia, Denmark has developed comprehensive and integrated technology that cover water pollution prevention, groundwater surveying and monitoring, water leak detection and follow-up, flashflood prevention, and urban flood prevention. In recent years, Denmark's government and water companies have been actively working with designers and educational organizations to bring water resource issues into environmental education courses based on the concept of humanism. Human-centered design is now a common theme on Denmark's campuses.

The Trade Council of Denmark, Taipei, along with the EPA and the MOEA's Water Resources Agency, held a series of practice exchanges related to water resources and environmental education from 12-16 May 2014. In order to strengthen water resource technology exchanges and commercial cooperation between Taiwan and Denmark, central government departments were mobilized and local governments were also invited to participate. The Trade Council of Denmark, Taipei arranged for a team of engineers that also works for the Danish government, to come to Taiwan to conduct on-site surveys and give diagnoses. They gave pragmatic suggestions regarding the problems they identified, and also learned about Taiwan's experience with flood prevention, which they planned to share with colleagues back in Denmark.

Note: Non-revenue water volume rate (%) = Volume of water supplied free of charge / total volume of water supplied x 100. "Volume of water supplied free of charge" includes water leaks, inaccuracies in the volume of water supplied, water used for firefighting, water thefts, and metering inaccuracy.

Taiwan Develops Harmless PVC Substitute

Polyvinylchloride (PVC) has a major impact upon the environment, with citizens being particularly concerned about the PVC content in containers for various products. The problem of finding a more eco-friendly substitute for PVC was solved last year through the cooperation between the EPA and the Plastics Industry Development Center, who spent a year working together before a breakthrough led to the development of a new PVC substitute – liquid silicone rubber (LSR). LSR is non-toxic to a degree that accords with the *Food Sanitation Act*, and so it can be used to make lid linings for glass containers.

There is an international trend toward reducing the use of PVC, and the EPA has been responding to this trend since 2005, when it began raising the recycling fees for container accessories, such as lids, that contain PVC. To encourage manufacturers to stop using PVC container accessories, started from 2008 the recycling fee, which is calculated by the total weight of the container, has been doubled when PVC is used for container accessories. However, no manufacturer has yet developed a PVC substitute for the PVC in the metal lug caps that are commonly used for sealing glass containers.

To overcome the aforementioned bottleneck and assist manufacturers to use a PVC substitute for lid linings for glass containers, in 2013 the EPA commissioned the Plastics Industry Development Center to implement an innovative R&D plan that eventually resulted in the development of eco-friendly, non-toxic LSR as a lining material. LSR is not only an excellent PVC substitute for lug cap manufacturers but can also be used in the food packaging industry.

In 2014, the Industrial Development Bureau of the Ministry of Economic Affairs began investigating technologies to achieve large-scale manufacturing of LSR.

The modified LSR can help to mitigate the long-standing food safety and eco-hazard issues surrounding the use of PVC. Enhancement of LSR's basic material and mechanical properties also gives it the same functionality as PVC (such as elasticity and cap removal torque). Silicone rubber also has the advantage of not containing added plasticizers or heavy metals, and thus meets the food container and packaging safety test standards for dissolution of toxic phthalates such as di(2-ethylhexyl) phthalate (DEHP) and heavy metals, set by the Ministry of Health and Welfare. Silicone rubber can also withstand heat up to 200° C – which is well above the industry standard of 125° C for 90 minutes for sterilizing bottled food and beverages – and does not come off or age easily, thus making it an ideal candidate for use in the bottled food and beverage industry.

Executive Yuan Passes Draft Revisions to the Water Act to Impose Heavy Penalties on Illegal Discharges

On 5 June 2014, the Executive Yuan approved a draft revision of the *Water Pollution Control Act* (水污染防治法) that was put forward by the EPA. The revisions include large increases in the maximum fines that can be levied on polluters along with a new provision covering criminal responsibility. The draft will soon be sent to the Legislative Yuan for review.

There have recently been a number of major environmental pollution incidents, with the general public consensus being that the current penalty regime is insufficient to deter polluters and thus needs to be amended. To this end, the EPA has formulated draft revisions to the act. The main points of the

revisions to the penalty regime include raising the maximum fine from NT\$600,000 to NT\$20 million and stipulating criminal responsibility for incidents of illegal discharges of wastewater that lead to human injury or loss of life. The legal basis for confiscating illegal gains has also been clarified. The EPA hopes that

the forthcoming regime of stiffer penalties will deter polluters and thus assist in protecting environmental water bodies.

The revisions also allow for part of the fines to be used for rewarding members of the public who report incidents of pollution to the EPA. Details of how corporate whistleblowers are to be protected have

also been added. In addition, there is a stipulation that confiscated illicit gains and part of the levied fines are to be used to capitalize a special water pollution prevention fund, with the remediation of polluted water bodies to be given priority. The EPA expects the new measures will encourage the public to be on the watch for illegal activities, as well as speed up the remediation of polluted water bodies.

Water

Online Water Quality Monitoring to Control Effluent and Protect Rivers

The EPA is striving to gain control over major pollution sources, and to this end is using new technological tools to enhance the use of pollution emissions data. In the future automatic real-time online monitoring of effluent quality and quantity will be required for major pollution sources. To date, installation of such monitoring facilities has been completed at eight of Taiwan's industrial parks.

Protecting river environments relies on inspections of pollution sources by environmental inspectors and patrols by enthusiastic local volunteers. The EPA is also using technological tools to enhance the use of pollution emissions data by rigorously rolling out automatic real-time online monitoring of effluents from major pollution sources. To date, installation of said monitoring facilities has been completed at eight industrial parks, which represents a big step forward in the effort to control pollution sources. There have already been a number of occasions when the automatic monitoring system has warned of abnormal effluent quality, which has resulted in the EPA working successfully with industrial park service centers to catch four enterprises in the act of illegally discharging effluent. This is proof that the automatic online monitoring system is providing the warnings it should and is effectively helping to prevent illegal discharges.

In the past, water pollution control was done by inspectors taking samples on site and sending them to laboratories to check whether or not the water was up to standard. This method is not only time consuming but is also subject to time and manpower constraints, making it difficult to increase the frequency of inspections and allowing operators the chance to profit from breaking environmental regulations. Employing technological tools such as automatic real-time online monitoring facilities allows the EPA to gain better control and keep better records of effluent

discharge so that abnormal discharges can be quickly discovered and polluting activities prevented.

New environmental regulations stipulate that automatic online monitoring facilities must be installed in 36 industrial parks by 14 July 2014. The eight parks that currently have them are: Kuanyin Industrial Park in Taoyuan County; New Taipei Industrial Park; Nangang Industrial Park in Nantou County; Changhua Coastal Industrial Park; Yunlin Technology-based Industrial Park; Kaohsiung Linhai Industrial Park; Hsinchu Science Park; and the Southern Taiwan Science Park in Tainan City. Trial operations are currently being conducted at the other 28 locations. Another 60 enterprises must also install automatic online monitoring facilities by the end of the year. Taking Kuanyin Industrial Park in Taoyuan as an example, from January to March 2014 the automatic monitoring equipment detected abnormal pH readings for water in rainwater drains on four occasions. Being authorized to carry out inspections, the park's service center was able to assist the EPA by uncovering four cases of factories in the park illegally discharging wastewater into rainwater drains, a good demonstration of the monitoring equipment's effectiveness.

Taiwan and US Hold Workshop on Soil and Groundwater Technology

On 21 May 2014, the EPA's Soil and Groundwater Remediation Fund held the Taiwan-US Workshop on Soil, Groundwater and Sediment. The workshop was divided into two sections – one for the application of sediment technology and the other for application of geophysical exploration technology. A number of American experts, including Dr. D. Dale Werkema, Jr. from the USEPA, Professors Upal Ghosh and Donald Hayes, Mr. Edward Buchak, and Mr. Harry Zahakos attended the workshop to give presentations and exchange experiences with their Taiwan counterparts.

The section on the application of geophysical exploration technology focused on case analyses and research on new methodologies being applied to pollution inspections and remediation assessments, with the intention of advancing mutual transfers of knowledge and technology. The workshop was also an opportunity for the participants from government, industry, and academia to broaden their horizons and raise their competitiveness in their fields.

The section on the application of sediment technology focused on using model evaluation tools to establish sediment remediation technologies that meet the particular characteristics of different types of Taiwan's unique aqueous environments.

In recent years the EPA has been conducting soil and groundwater pollution investigations on high pollution potential sites. In addition to applying the new technologies to gain a better understanding of underground pollution, the EPA has also developed localized inspection standards, work procedures and remediation technologies. These have allowed the EPA to effectively detect pollution at sites with high potential of pollution, so as to put measures in place to

prevent the pollution from spreading.

As of the end of 2013, the EPA has completed inspections at 90 factories with high pollution potential around Taiwan. In addition to conducting inspections inside the premises, the EPA has been taking advantage of the precision that the new geophysical exploration technologies can offer to investigate occurrences of hidden pipes as well as illegal dumping. Dr. D. Dale Werkema, Jr. an expert on geophysics at the USEPA, was specially invited to the workshop to share his knowledge and experiences of related technologies.

For the section on the application of sediment technology, the EPA invited four experts from abroad to Taiwan and arranged the workshop according to their fields of expertise. These fields included: bioavailability and its assessment methods; the application of water quality models during and after sediment remediation; and the latest sediment remediation techniques and their challenges. The participants agreed that the exchanges that occurred were fruitful and had enhanced their professional knowledge.

News Briefs

Petrol Station Pollution Prevention and Investigation Reaps Fruitful Results

On 6 May 2014, the EPA held the Petrol Station Pollution Prevention, Investigation and Remediation Workshop and Achievement Exhibition. On display at this event were the achievements from implementing investigation and prevention measures for petrol station pollution nationwide over the years. Fourteen enterprises were invited to set up exhibition booths to provide relevant industry and policy planning information to members of the petrol station industry, and to demonstrate the advanced level of soil and groundwater pollution prevention and remediation technologies at Taiwan's petrol stations. In addition to a full

house for the workshop, the exhibition attracted more than 400 visitors.

In earlier years, petrol station pollution prevention was no more than a management tool for industrial safety. However, the mode of thinking has recently shifted to one that places equal emphasis on pollution prevention and self-regulation. After 10 years of actively carrying out tasks for petrol station pollution prevention and underground environment investigation, the EPA has reaped fruitful results. Other than applying the newest investigation technologies to keep track of the potential for underground pollution, the EPA also has introduced advanced technologies from abroad to improve and enhance the

prevention and remediation of petrol station pollution, thus greatly reducing the chances of petrol stations polluting the underground environment.

Revisions to the Guidelines for the National Environmental Education Awards Announced

To enhance the implementation of national environmental education, the EPA has, in accordance with the stipulations of Article 20 of the *Environmental Education Act*, formulated the Guidelines for the National Environmental Education Awards. Furthermore, the EPA processed the selection and commendation of the National Environmental Education Awards as per the guidelines which were partially amended and promulgated on 12 May 2014.

The amendments added “environmental education volunteer” into the individual category of recipients; added a legal basis of the awards; defined the “community” and “individual” categories and the contribution of individual award recipients; added application documents for government agencies, state-run enterprises, and schools below the senior high school level and juridical associations who derive more than 50% of their income from government donations; added the enrollment quota, time periods for primary, secondary and final reviews for private enterprises as well as for government agencies, state-run enterprises, schools below the senior high school level and juridical associations who derive more than 50% of their income from government donations; and, defined the restrictions to past winners who wanted to enlist for the awards again.

Fines and a Mandatory Course Imposed on People Who Spit Betel Nut Juice on the Ground

On 14 March 2014, the EPA announced the *Implementation Regulations for the Quit-Betel Nut Courses*, which specified that the mandatory courses should be mapped out by competent health and sanitation authorities. Offenders who receive notices to attend the course should report to the designated time and place.

The EPA reminds betel nut users not to spit betel nut juices on the ground, otherwise they will be liable to pay fines and attend a mandatory corrective course. The *Waste Disposal Act* was amended on 29 May 2013 to add a stipulation that people who spit betel nut juices or residues on the ground are liable for fines from NT\$1,200

to NT\$6,000 plus a four-hour mandatory course.

Real-Time Air Quality Information is the Most Viewed Open Data

In keeping with the Executive Yuan’s policy to make governmental information open to the public, the EPA on its part has established its own open data platform (<http://opendata.epa.gov.tw>). Since its inception, this platform has accumulated 67 datasets with more than 540,000 pieces of information. As of the end of April 2014, the website has had over 110,000 visits, and machine to machine downloads have exceeded 1 million. According to the results of the EPA’s combined random sampling, the user satisfaction rate has exceeded 80%.

At present, the data available for public access include information on various types of environmental monitoring, basic information on listed controlled pollution sources, abstracts of environmental impact assessments, etc. Of the above information, the ones that are most often downloaded are: real-time air pollution indicators, current ultraviolet index, latest 10-minute precipitation report, air quality forecast, and abstracts of environmental protection projects.

Subsidies Launched for Electric Trailers at Siluo Wholesale Produce Market

The EPA has decided to make sweeping improvements to the air and noise pollution problems caused by the 800 diesel trailers at Siluo Wholesale Produce Market. To this end, on 28 May 2014 the EPA held the Green Transport Press Conference in the market. At the conference it was announced that some manufacturers have already qualified for EPA subsidies to manufacture electric produce trailers. In addition, a subsidy of NT\$120,000-140,000 is to be available for the purchase of every new or converted electric trailer, along with a monthly subsidy of NT\$3,500 for up to five years to rent batteries for the trailers.

To ensure the function and safety of the electric trailers, the subsidy regulations stipulate vehicle testing and accreditation criteria and the EPA has been actively advising manufacturers on the vehicle testing regime. As of May 2014, two manufacturers that convert diesel trailers to electric ones, Noveltek and Bei Li Electric Motion Enterprise Co., Ltd., have qualified for EPA subsidies. A number of other manufacturers are also in the process of vehicle testing.

Environmental Policy
Monthly
R.O.C. (Taiwan)

Publisher
Kuo-Yen Wei, Minister

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Editorial and translation support
provided by:
Hui-kuo Consulting, Ltd.

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Environmental Policy Monthly
Environmental Protection Administration
Office of Sustainable Development

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Printed with soy ink on recycled paper.



行政院新聞局出版登記證局版北市誌字第1611號
中華郵政北台字第6128號執照登記為雜誌交寄