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Feature Article

Factories with High Soil Pollution Potential Under Inspection

Companies in Taiwan have been slow to realize the need for soil and groundwater protection. The EPA is now taking the lead by listing the sites of abandoned factories with high soil pollution potential as national property that will undergo land quality management. Plans are in place not only to prevent dumping of pollutants, but also to invest more resources into further inspections of abandoned factories. These measures will work to prevent pollution and keep a check on land quality.

Industrial operations are the primary cause of soil pollution in Taiwan. This and the fact that Taiwan is a small island with a large population have heightened the need for pollution inspection and remediation work in recent years. Since the promulgation of the Soil and Groundwater Pollution Remediation Act (SGPRA; 土壤及地下水污染整治法) on 2 February 2000, the EPA's various pollution inspection plans and pollution source control measures have gradually become a strong constraint on pollution from enterprises.

Despite missing data, the large number of abandoned factories still pending inspection, and limited financial and technical resources, in order to protect citizens from health risks and maintain a high quality living environment, the EPA has continued through with

plans to inspect and regulate abandoned factory sites that are potentially contaminated. Implementation strategies and management plans are executed as quickly as possible, while resources are available to invest in carrying out inspections.

Screening process prioritizes industry categories and environmental effectiveness

The primary grounds for screening and inventorying of pollution sites is to determine reasonable allocation of land resources in terms of sustainable use, environmental risk and resources for pollution prevention. Comprehensive consideration must also be given to scheduling and costs of inspection and remediation.

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The current inspection project adopts five main precepts:

1. Systematic quantification, sorting and screening

Of Taiwan's many abandoned factories, only a limited number have been under inspection. This project establishes screening mechanisms to gradually screen indicative cases and establish a list of priority targets for the coming years. Factories with high pollution potential are discerned, and in-depth inspections of individual cases provide better understanding of the status of potentially contaminated land at abandoned factories.

Screening involves a two-stage process. In the first stage factories are screened by industry category alone, by analyzing domestic and foreign pollution to determine which types of industries warrant more attention. The second stage then screens representative companies in each prioritized industry category that will undergo inspection. Inspections are to be priority-driven and based on environmental effectiveness. In other words, the main basis for inspection and control of polluted industrial sites should not be only the degree of pollution, but whether the potential pollution increases environmental or health risks.

2. Meticulous planning of professional inspections

The first step of planning is a background check starting with gathering information on manufacturing processes and substances handled. Preliminary checks are then made of potentially polluting facilities, storage tanks, and pipeline locations to ensure integrated appraisal of areas with high pollution potential. Information about manufacturing processes and raw materials is assessed to reasonably determine inspection processes for abandoned factories in each type of industry. This process refers to the Environmental Site Assessment (ESA) used by the American Society for Testing and Materials (ASTM), in particular the Phase I E1527 process of the ESA. This involves collection of data on implementation practices, on-site visits and interviews to find the Recognized Environmental Conditions (REC) within the boundaries under inspection. REC refers to current environmental conditions indicative of current, past or possible contaminants or leakages. After screening and elimination, professional

experience is drawn upon to analyze investigation results, and draft blueprints for inspection plans and follow-up work.

3. Establishing standards through experience feedback

This inspection project is established through professional subjective appraisal methods. Based on the current numbers and status of abandoned factories, there is little experience for environmental personnel or companies to refer to. The inspection project thus employs inductive reasoning to generate universal principles appropriate to each category of industry. The principles are then used to establish technical standards for each type of industry and serve as the basis for follow-up implementation of large-scale inspections and control. Accumulated practical experience is drawn on throughout the process of implementation, and principles are developed based on this process in addition to expert knowledge. The principles are used to calibrate related factors and a conclusion is developed using deductive reasoning. This is the process used to progressively develop a rational screening and evaluation system for abandoned factories.

The accumulated experience of abandoned factory inspections is an important part of the base of knowledge applied during subsequent inspections. Strengthened training of professionals is essential to the future establishment of a certification system for qualified professionals and organizations.

4. Developing technical guidelines

With consideration to vastly different types of operations in each industry category, part of this project also includes the establishment of inspection technical guidelines for abandoned factories in each industry category. This will benefit follow-up inspection work by local personnel, and ensure limited administrative resources are put to optimal use.

5. Training and guidance

Throughout the process of implementing this project, the EPA will continue to hold inspection technical workshops on the characteristics of each industry for Environmental Protection Bureau (EPB) personnel and industry competent authorities.

Inspecting Potentially Polluted Factories to Safeguard Land Quality

The nationwide project to inspect abandoned factories with high pollution potential has entered the fourth stage. The abovementioned system was employed for screening and establishing a list from nearly 30,000 abandoned factories in the originally selected 20 industry categories with high pollution potential. Major achievements to date include completion of current status assessments and data verification for 2,047 abandoned factories with high pollution potential, 237 potential pollution assessments, and 135 onsite investigations.

Taiwan has had a late start in soil and groundwater pollution remediation, and many business owners still lack understanding of the environment and pollution prevention. Fortunately environmental awareness has gradually improved in mainstream society and most citizens are in agreement about the need for

a high quality living environment. The EPA has led the way to include abandoned factory sites of high polluting industries on the list of national property to undergo land quality management. This strategy not only prevents the dumping or spread of pollutants, but actually claims the land as government property to be entrusted to the soil pollution remediation fund. The EPA expects this approach will lead companies and markets to consider the quality of land when assessing land prices, and eventually integrate the concept of land quality management into property management.

The EPA foresees that the currently known cases of contaminated land at abandoned factory sites are just the tip of the iceberg. The EPA will continue to invest resources and make every effort to expand the list of abandoned factories with potential pollution, so as to prevent further decline of polluted areas and keep a check on national land quality.



▶ Inspection technical workshops held by the EPA

Feature Article

President Ma and Premier Wu Receive Their First Environmental Education Lesson

EPA Minister Stephen Shu-hung Shen invited President Ma Ying-jeou, Premier Wu Den-yih and other senior officials to participate in the "Environmental Education Starts with You and Me" event on 5 June 2011 at the Wugu Wetlands Ecological Park education center in New Taipei City, to officially announce the promulgation of the Environmental Education Act. The President, Premier and other officials took this opportunity to receive their first environmental education lesson.

This year's World Environment Day marked an event of special historical significance, being the first day for Taiwan's Environmental Education Act to go into effect, during the centennial year of the R.O.C. EPA Minister Stephen Shu-hung Shen made a special effort to integrate the day's event with environmental NGO activities and invited the participation of President Ma Ying-jeou, Premier Wu Den-yih, New Taipei City Mayor Eric Chu and Deputy Minister of Education Tsai-shun Wu. President Ma and the group of officials listened to talks given by experts and scholars and watched a film on environmental protection topics, successfully fulfilling one hour of required environmental lessons for all government officials.

The content of the President's first hour of environmental lessons consisted of three parts:

1. Environmental Ecology: Professor Jing-ming Wang of the National Taiwan Normal University Graduate Institute of Environmental Education spoke on critical ecological problems currently facing Taiwan and the world, and explained the importance of ecological conservation to all people on Earth.

2. The Environment and You in Taiwan's Centennial Year: This film features the first lesson in what is regarded as the essence of environmental education - how individuals can change their environment. The 15-minute film describes the core concepts of the Environmental Education Act, intergenerational justice and sustainable development, and explains the need for diverse lessons in environmental education.

3. The Story of Environmental Change in Taiwan: This part of the lesson featured an interpretive walk on environmental change and the results of conservation initiatives at the mouth of the Danshui River, jointly led by Society of Wilderness President Jung-hsiao Lai and Chinese Society for Environmental Education Yung-jaan Lee.

After the lesson, Mr. Lai and Mr. Lee presented certificates to President Ma, Premier Wu, Minister Shen, Mayor Chu, and Deputy Minister Wu to verify they had received one hour of environmental education. The lesson that day was also open for registration on a first-come, first-served basis to the general public, who were also given certificates upon completion.



▶ *President Ma (right) and Premier Wu (left) learn first hand about wetland ecology at the mouth of the Danshui River*

Revised Effluent Standards for Petrochemical and Semiconductor Industries Preannounced

On 16 June 2011, the EPA preannounced effluent standards for the petrochemical industry, petrochemical park sewer systems, wafer manufacturers, and semiconductor manufacturers. In addition to other substances already under regulation, this marks the first time that ammonia nitrogen has been placed on the list of controlled substances. Restrictions have been added for six volatile organic compounds (VOCs) including benzene, and six plasticizers including di(2-ethylhexyl) phthalate for the petrochemical industry and petrochemical park sewer systems. Restrictions have also been added on total toxic organic substances for wafer and semiconductor manufacturers. Parallel revisions have been made to the Marine Effluent Standards, as some petrochemical industry effluent is also discharged into the ocean.

The EPA stated that risk management and pollution prevention are the main reasons for setting standards for the petrochemical industry and petrochemical park sewer systems. The main targets for heightened control in water resource quality and quantity protection areas are ammonia nitrogen, six volatile organic compounds (benzene, ethylbenzene, chloroform, dichloromethane, 1,2-dichloroethane, and vinyl chloride) and six plasticizers (di(2-ethylhexyl) phthalate, or DEHP; dimethyl phthalate, DMP; dibutyl phthalate, DBP; benzyl butyl phthalate, BBP; diethyl phthalate, DEP; and di-n-octyl phthalate, DNOP). Among these substances, DNOP and VOCs containing chlorine (or benzene) are confirmed carcinogens; DEHP, DBP and BBP are toxic to reproduction; and DMP and DEP are persistent and bioaccumulative. Discharge of ammonia nitrogen in environmental water bodies uses up dissolved oxygen and can lead to degraded water quality, eutrophication and harm to aquatic life. These dangers explain the need to include these substances in controls.

Including the items in the original Effluent Standards listed as common discharge limits for petrochemical related industries, a total of 24 substances are controlled for in the petrochemical industry, and 40 substances are controlled for in petrochemical park sewer systems. The above six VOCs and six plasticizers have also been added to the Marine Effluent Standards to control marine discharge of effluent from related industries. Apart from ammonia nitrogen, controls for the abovementioned newly added items are slated to take effect from 1 July 2012.

The EPA has set different discharge limits and

grace periods for ammonia nitrogen for the petrochemical industry based on whether enterprises are currently existing or newly established, as well as on manufacturing processes. The discharge limit for newly established petrochemical parks and petrochemical enterprises has been set at 20 mg/L. The discharge limit of ammonia nitrogen for existing petrochemical enterprises with low-nitrogen manufacturing processes is also set at 20 mg/L, effective from 1 July 2012. Existing petrochemical parks and petrochemical enterprises with high-nitrogen manufacturing processes are allowed a longer grace period, as they must comply with improvements to wastewater treatment facilities. Their discharge limit is set at 60 mg/L, effective from 1 July 2016.

The main focus in setting effluent standards for wafer fabrication and semiconductor manufacturers is to add fluoride, ammonia nitrogen and total toxic organics to the list of controlled substances. As fluoride is commonly present in wastewater from the semiconductor industry, restrictions have been set for fluoride complex ions and total toxic organics. Including items in the original Effluent Standards listed as common discharge limits for semiconductor related industries, a total of 28 substances are controlled. The abovementioned controls on substances, apart from ammonia nitrogen, from existing industries will take effect on the date of promulgation. Ammonia nitrogen controls for existing industries have been set at 30 mg/L and will take effect later, on 1 July 2015, due to the requirement that wastewater treatment facilities be improved.

As effluent standards are end-of-pipe control mechanisms, the EPA appeals to all involved to

strengthen source control of waste solvents used in manufacturing processes. Reducing the flow of chemicals into wastewater treatment facilities reduces the complexity of end-of-pipe wastewater treatment. In addition to giving priority to independent standards for the petrochemical industry, petrochemical parks and semiconductor industries, a rolling review will be

conducted for other industrial effluent standards in order to protect environmental water quality.

The preannouncement of the new standards and related information is available online in the preannouncement section of the EPA Web site (<http://ivy5.epa.gov.tw/epalaw/index.aspx>).

Toxic Substance Management

Plasticizer Management to Be Strengthened

The EPA held a press conference on 9 June 2011, to declare its intent to follow the EU precautionary principle by strengthening management of plasticizers. The EPA issued a preannouncement of measures that will either upgrade or add to the list of Class 1 or Class 2 chemicals seven plasticizers in addition to di-n-octyl phthalate (DNOP), which is already listed as a Class 1 chemical. Apart from these eight chemicals, all other phthalate plasticizers will be classified as Class 4 toxic chemicals. After implementation of these measures, the plasticizers that recently caused concern among the general public can be listed for heightened control.

The preannouncement adds benzyl butyl phthalate (BBP), diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and diethyl phthalate (DEP) to the list of regulated toxic chemical substances due to unanimous recommendation by the EPA's expert advisory committee on toxics. The EU currently classifies di(2-ethylhexyl)phthalate (DEHP), dibutyl phthalate (DBP) and BBP as chemical substances toxic to reproduction. Although the reproductive toxicity of other phthalate acid esters (PAEs) is not as strong as the above three, PAEs do not easily break down in the environment and are bioaccumulative. The committee recommended that they be listed as regulated substances due to their ability to harm the environment and people's health.

DEHP and DBP will be switched from Class 4 to, respectively, Class 1 and Class 2 toxic chemical substances; dimethyl phthalate (DMP) will be switched from Class 4 to Class 1; BBP will be added to the lists of Class 1 and Class 2 toxic chemicals; and diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and diethyl phthalate (DEP) will be listed as Class 1 toxic chemicals. Aside from these seven chemicals and DNOP, other phthalates will be listed as Class 4 toxic chemicals. The EPA will soon hold public hearings and complete other legislative procedures. Once promulgated, the above eight chemicals will be limited to use in plasticizers only.

The preannouncement explains that upgrading these seven plasticizers to Class 2 or Class 1 toxic

chemicals is to align with the EU's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) standards regarding the control of the three plasticizers DEHP, DBP, and BBP. On 17 February 2011, the EU announced these three plasticizers should be included in the list of substances for which a permit application is required, with an application deadline of 21 July 2013. A grace period has been set at four years, but companies that have not yet obtained a permit for these substances before 21 January 2015 will not be allowed to use these substances.

The EPA stated that this preannouncement is similar to the EU regulations in that it gives manufacturers a reasonable grace period with a minimum of six months to submit records, and up to 18 months to install warning systems and obtain permits. After public hearings it may be reconsidered whether it is necessary to extend the grace period.

In addition to source controls on plasticizers, the EPA convened a cross-ministerial task force on endocrine disruptors to divide work among the relevant competent authorities for foodstuffs and other products in a timely and effective manner, so that regulations can be strengthened, and management and controls can be put in place to protect the environment and human health.

Environmental Education

Certification Regulations Announced for Environmental Education Organizations and Facilities

Coordinating with the implementation of the Environmental Education Act, the EPA promulgated the Environmental Education Organization Certification and Management Regulations (環境教育機構認證及管理辦法) and the Environmental Education Facility Certification and Management Regulations (環境教育設施場所認證及管理辦法) on 2 June 2011.

According to Article 10 of the Environmental Education Act, the central government competent authority and industry competent authority are responsible for certification of environmental education organizations and personnel. All levels of competent authorities are required to carry out, or entrust environmental education organizations to hold, training for environmental education personnel, environmental lectures or certification as required by the Act. The EPA thus drafted the Environmental Education Organization Certification and Management Regulations, with a total of 20 articles, which were promulgated on 2 June 2011.

In addition, according to Article 14 of the Environmental Education Act, all levels of competent authorities and central government industry competent authorities should integrate planning of special environmental education facilities and resources, prioritizing places or buildings where there is unused space or assisting private organizations to set up environmental education facilities and premises. Each facility should establish and provide complete professional services, information and resources in environmental education. The EPA has thus formulated the Environmental Education Facility Certification and Management Regulations, with a total of 19 articles, which were also promulgated on 2 June 2011.

Environmental Education

Taiwan's First Environmental Trust – Nature Valley Environmental Education Site

The "Environmental Protection Public Trust Nature Valley Environmental Education Site" is Taiwan's first example of a successful environmental trust, setting a precedent for other environmental trusts in Taiwan. Apart from lending itself to further environmental protection actions, this trust site can also receive guidance to become an environmental education facility according to the Environmental Education Act.

As many people in Taiwan are tuning in to the need for environmental protection, more and more people are getting involved in environmental protection work. Yet how can environmental protection work be extended beyond the lifetime of devoted individuals and be maintained over the long-term? Environmental trusts provide just the solution.

The EPA defines an environmental trust as a type of public trust that, in simple terms, puts the environment in the hands of trustees who intend to protect and sustainably manage the environment. The resulting benefits of appropriate care and management of a piece of land under an environmental trust are thus

shared by all.

The EPA states that there are numerous advantages of environmental trusts, such as providing compensation for habitat restoration, reducing damage to the ecological functions provided by different habitats, and maintaining biodiversity. After several years of promotion by the EPA and civil organizations, this year the Society of Wilderness has applied for permission to establish the "Environmental Protection Public Trust Nature Valley Environmental Education Site." The EPA states the purpose of this environmental trust is to protect habitats and hold educational activities on ecological conservation.

This will serve as a model for putting the ideals of environmental education and wilderness protection into practice. It provides a way for people to work in harmony with the environment and engage in sustainable activities that aim to effectively promote environmental trusts in Taiwan.

Many countries have made use of public trusts as a way to bring social forces together to protect natural and cultural assets. As environmental trusts are created with clearly stated objectives, they are good for providing people with a feasible way to voluntarily protect areas of land. Environmental trusts provide a way to utilize the power of many people to work

together in maintaining ecosystems, and to leave behind cherished assets for future generations.

The idea that environmental trusts can offer long-term protection to areas of land has caught on worldwide. Heeding this trend, the EPA promulgated the Environmental Protection Trust Permit and Monitoring Regulations (環境保護公益信託許可及監督辦法) in 2003. This provides a way for people to invest their own assets or profits into trusts for environmental protection related purposes. More information on the Environmental Protection Trust Permit and Monitoring Regulations can be found on the Chinese version of the EPA Web site.

Environmental Monitoring

EPA Air Quality Monitoring Earns ISO Accreditation

The management quality and capacity of Taiwan's air quality monitoring technology has been internationally affirmed. The Quality Assurance Laboratory, responsible for air quality monitoring, has obtained ISO 17025 accreditation, meaning 55 other nations now officially acknowledge Taiwan's air quality monitoring technology.

Responsible for the EPA's air quality monitoring, the Quality Assurance Laboratory (QA Lab) recently became accredited as a Calibration/Testing Laboratory by the Taiwan Accreditation Foundation (TAF) and complies with the International Standards Organization's requirements for technical capacity and management quality as a calibration and testing laboratory (ISO 17025). QA Lab has entered the International Laboratory Accreditation Cooperation (ILAC) along with 55 other nations, becoming one of 66 organizations to receive such accreditation. QA Lab is the first government organization in Taiwan to receive ISO 17025 accreditation.

The EPA stated that calibration of instruments on a regular basis is the key factor determining the accuracy of air quality monitoring results. In the initial stages of planning and operating Taiwan's network

of monitoring stations, the EPA established the QA Lab to calibrate instruments at the stations and ensure quality of monitoring data. Following recent developments in international standard accreditation, the EPA decided to introduce the ISO accreditation system to strengthen citizen confidence in monitoring data.

The EPA pointed out that management quality and technical capacity are the main items appraised when an organization applies for Calibration/Testing Laboratory accreditation. Accreditation is a hard-won achievement, as a laboratory must have impeccable quality maintenance strategies and management procedures as well as mastery of calibration and measurement technology in order to pass the strict evaluation process.

Recycling

Subsidies Drafted for Bioplastic Container Recycling, Clearance and Treatment

The EPA is planning to subsidize fees for recycling, clearance and treatment of bioplastic containers to encourage sorting, recycling, clearance and treatment of waste bioplastic products and containers as well

as prevent bioplastic containers from adversely affecting the existing recycling system for other plastics. Government intervention to provide economic incentives through fee subsidies is expected to raise the efficiency of recycling and treating waste bioplastic goods and containers.

Bioplastic containers look similar to conventional plastic containers, and are not easy for most people to distinguish. Thus they are commonly channeled into the recycling and treatment system for conventional plastics, hindering the latter's reuse. After reviewing the current status of recycling and treatment of bioplastic containers and goods, including treatment efficiency and the balance of the fund budget, the EPA drafted revisions to subsidies for bioplastic container recycling, clearance and treatment fees in accordance with Article 5 of the Regulated Recyclable Waste Recycling, Clearance and Treatment Subsidy Application Review Management Regulations (應回收廢棄物回收清除處

理補貼申請審核管理辦法). The revised subsidy for recycling, clearance and treatment of bioplastic containers was set at NT\$15.17 per kilogram.

The draft revisions to the Subsidized Fee Rates for Recycling, Clearance and Treatment of Regulated Recyclable Containers (應回收廢容器回收清除處理補貼費率) are posted on the EPA Web site in the section on regulation preannouncements (<http://ivy5.epa.gov.tw/epalaw/index.aspx>). Suggestions and comments are welcome from all circles and may be sent by email to hcliang@epa.gov.tw

Air Quality

Demonstration and Experience Sharing on Electric Bus Network Operating Models Held

The EPA is keen to assist in the development of electric bus networks in Taiwan, and has been actively encouraging operators to hold trial runs. On 18 May, the EPA held the 2011 Electric Bus Operating Model Demonstration and Experience Sharing in conjunction with the Ministry of Transportation and Communications, Ministry of Economic Affairs, and the governments of Taipei City and New Taipei City. The conference was an opportunity for Taiwan's bus operators and other interested parties to learn and exchange ideas about the current state of electric bus development in Taiwan, and what has been learned from using them.

As EPA Minister Stephen Shu-hung Shen said at the demonstration, electric buses are characterized by their zero emissions, and are hence far more worthy of being promoted as green transportation than conventional gasoline or diesel engine vehicles. However, the batteries that power electric buses still need to be improved and their high manufacturing cost needs to come down before electric buses become a viable mode of public transportation. As a result, most electric bus networks worldwide are still in the research/trial run stage and examples of large-scale commercial operations are hard to find.

In order to overcome these limitations, electric bus operators in Taiwan have made improvements to the batteries and have drawn up plans for an effective system of battery swapping stations specific for electric buses that take into account the unique features of these vehicles. It is expected that companies

specializing in battery recharging and maintenance will enter the market so that the transport companies running the electric buses will be able to concentrate on their core operations, a division of labor that should lead to better operating efficiency.

Another advantage of adopting a battery swapping system is that the batteries – which make up a significant portion of the cost of an electric bus – would be provided by the electricity supply and service companies and so the price of the buses would be lower. If demand for electric buses grows as expected then economies of scale will bring vehicle prices down even further. Transport operators who make the shift to electric buses can look forward to savings in fuel costs, and even though they will still have to pay for battery services, the cost of such services will be more predictable than the highly variable prices of gasoline and diesel. Electric buses also

have lower maintenance costs than their combustion engine counterparts, which would also help increase operators' profit margins. And of course Taiwan's environment will also benefit from the adoption of electric vehicles that use less energy and produce

very little pollution. Electric buses thus offer a win-win solution on a number of fronts: Upgraded manufacturing capabilities, higher profits for transport operators, and a cleaner environment for all.

Air Quality

Electric Motorcycle Battery Swapping System Subsidy Regulations Promulgated

The EPA has promulgated the Electric Motorcycle Battery Swapping System Subsidy Regulations (電動機車電池交換系統補助辦法) which encourage enterprises to establish a battery swapping operation system that will make the changing of batteries as convenient as filling up a tank of gasoline. Consumers will no longer need to worry about battery power and maintenance problems.

The EPA points out the advantage of electric vehicles is that they don't emit air pollutants while in use, making them worthy of promoting as an environmentally friendly form of transportation compared to vehicles with internal combustion engines. Yet the most worrisome aspect of owning an electric vehicle from a consumer's standpoint is battery life. Consumers may worry about how much power is left in their battery, and whether they have enough power to reach their destination. The establishment of a battery swapping system is the best solution to this problem, as consumers need not fret about battery power and maintenance issues, and will be able to exchange batteries at a swapping station at any time.

The EPA will first launch a pilot run for electric motorcycles and is now actively encouraging enterprises to set up electric motorcycle battery swapping systems. This entails initial establishment of 30 stations with subsidies for enterprises to set up a system that will provide services to a baseline of 5,000 electric motorcycles. A maximum subsidy of NT\$1.5 million is planned for each swapping station. The EPA encourages enterprises to quickly apply for subsidies and commence the establishment of battery swapping systems, so as to accelerate the replacement of existing internal combustion engine motorcycles with electric ones and thus reduce air pollution from motorcycles.

Recycling

Home Appliance Vendors Offer Free Recycling Services from July 1

From 1 July 2011, vendors nationwide are required to provide a "Consumer Information Confirmation" and a "Recycling, Clearance and Treatment Control Manifest" whenever they sell any of these four appliances: TVs, washing machines, refrigerators, and air conditioners. In other words, vendors are required to inform consumers of their right to bring these appliances back to the vendor for recycling. This measure provides transparency to the flow of end-of-life appliances, and helps achieve resource recycling and reuse.

On 27 June 2011, EPA Minister Stephen Shu-hung Shen met with representatives of department store vendors, home appliance chains, electronic goods vendors, and traditional home appliance stores for the full-scale launch of a new recycling system for end-of-life home appliances. Minister Shen

expressed gratitude to unions and home appliance vendors for their full support of this measure.

Minister Shen said that Taiwan began promoting the Four-in-One Recycling Plan in 1997, which increased the recycling rate of TVs, washing

machines, refrigerators, heaters and air conditioners from 29% to 51% by 2010. While considerable success has already been made there is still room for improvement. Once this new measure takes effect, recycling of these four types of appliances will be greatly augmented.

Vendors now bear an important environmental responsibility in the recycling of end-of-life home appliances. Firstly, they need to report copies of the "Consumer Information Confirmation" and "the Recycling, Clearance and Treatment Control Manifest." Secondly, they must deliver the four types of end-of-life appliances they have collected from consumers to a recycling or treatment entity in the allotted timeframe in order to obtain certification showing they have registered these items. In addition to the control manifest, all bar codes should be affixed to the exterior of the appliance in an obvious location to ensure control over the recycling flow of these four types of appliances. Consumers can use the number on their copy of the control manifest to track the entire recycling process online, as well as enter a lucky draw activity held by the EPA. Details on this activity are posted online (<http://recycle.epa.gov.tw>) and inquiries can be made over the phone by calling 0800-085717.

To ensure vendors fully understand how they are supposed to complement these measures and the online reporting procedures before the measures take effect, the EPA held 84 briefings in northern, central and southern Taiwan, and dispatched personnel to 8,000 home appliance stores to explain details. Local environmental protection bureaus (EPBs) have also been instructed to reinforce guidance on these measures at the local level. In order to put this policy into effect, the EPA has set principles for inspection, and from 1 July 2011, each EPB will hold an inspection. First-time violations will result in issuance of a warning, while subsequent violations will be penalized according to regulations with fines ranging from NT\$60,000 to NT\$300,000.

The EPA calls on all to help ensure the transparency of the end-of-life recycling and treatment flow for these four types of appliances, and achieve recycling and reuse objectives, as well as put an end to illegal disassembly and pollution. The new system highlights the need for both vendors and consumers to engage in environmental protection work and work together to create a sustainable high-quality environment.

Soil & Groundwater

Protecting Public Participation and the Right to Know: Remediation Plan Public Hearing Guidelines Preannounced

In keeping with the Constitution's requirement to guarantee the public's right to request disclosure of information and protect public participation, the EPA revised Article 24 Paragraph 5 of the Soil and Groundwater Pollution Remediation Act (SGPRA) in 2010, making competent authorities responsible for holding a public briefing. A preannouncement of the newly drafted Guidelines for Holding Public Hearings on Soil and Groundwater Pollution Site Remediation Plans (辦理土壤及地下水污染場址整治計畫公聽會作業準則) was issued on 10 June 2011.

Public hearings are important to allow citizens a chance to express their views. To prevent interested parties from deliberately disrupting public hearings, the guidelines clearly state the procedures to which hearing participants must adhere, as well as ways for dealing with those who violate these procedures. Administrative procedures also have been revised for the purpose of holding successful public hearings, so

that the remediation plans under consideration can be approved as quickly as possible.

The EPA stressed that remediation plans are subordinate to Article 24 Paragraphs 2 and 3 of the SGPRA. The competent authorities are thus required to inform other relevant agencies, and invite experts, academics, organizations and local residents to a public hearing so that people are clearly informed

of relevant information and are given an opportunity to express their views. Their views shall then serve as references in drawing up remediation plans. To satisfy citizens' right to know, the guidelines specify the content required in written notifications of public hearings, the categories of participants to be invited, the posting of meeting information on the competent authority's Web site, the meeting location, venue planning, meeting procedures, and meeting

minutes.

The EPA has posted this preannouncement along with relevant information online, and welcomes all to express their views or suggest revisions in the response box provided on its Web site within 14 days of the draft preannouncement (ivy3.epa.gov.tw/epalaw/index.aspx).

News Briefs

International Workshop on Marine Pollution Response Held

The EPA held the International Workshop on Marine Pollution Response on 28 June 2011, to build Taiwan's emergency response capacity in terms of marine pollution prevention and applied technology, as well as promoting international exchange. Among those invited included academics and experts from the US National Oceanographic and Atmospheric Administration (NOAA), the US EPA, Singapore and Taiwan. The workshop engaged participants in exchange and dialogue on the latest international issues including remote sensing technology applications, oil spill modeling, and oil spill response.

During the meeting international academics discussed the effects of the Gulf of Mexico oil spill, remote sensing technology applications in oil spill monitoring, and the effect of oil spills on marine life. Participants enjoyed extensive dialogue on how to utilize modern high-tech means to effectively guard against oil spills and conduct post-incident data gathering and dissemination to provide information to policy makers.

The EPA explained that remote sensing data can provide instant marine and atmospheric data for researchers to analyze, interpret and use in modifying oil spill models. Monitoring of oil spills in the ocean can provide important information for emergency planning, making remote sensing an important support tool in marine pollution emergency response. Currently domestic university and national laboratories are actively carrying out research in related maritime pollution prevention. Emerging from this

forum, Taiwan's future capabilities in maritime pollution prevention will be of great benefit to science.

Each year the EPA holds regular maritime pollution prevention drills, emergency response drills, and personnel training development to foster protection of the marine environment and sustainable use of maritime resources. The EPA also actively promotes the establishment of cross-jurisdiction maritime pollution response mechanisms to share emergency response resources and raise the effectiveness of pollution control.

Green Backpack Contest Launched

To encourage green consumption the EPA calls on all travelers to carry their own toiletries, dining utensils, water bottles, and handkerchiefs. The EPA is working in cooperation with the Homemakers' Union and Foundation to hold the "Wanted: Green Backpack" contest from 1 July 2011 to 9 September 2011. Entries can be sent to the Homemakers' Union and Foundation email address (homemakr@ms15.hinet.net), after which they will be voted on by the public and a panel of experts to select the most environmentally friendly, creative and practical backpack. Winners will be announced in October. Details can be found on the EPA Green Life Web site (<http://greenliving.epa.gov.tw/GreenLife/actions/GreenBag>) or the Homemakers' Union and Foundation Web site (www.huf.org.tw). The EPA encourages hotels to reward green consumers who bring their own necessities or refrain from using disposable necessities by setting aside the saved money to sponsor environmental protection projects of non-profit organizations. Currently 149 hotels and guesthouses have already agreed to do this.

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