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Feature Column

Promoting a Corporate Environmental Accounting System

Recognizing the importance of environmental accounting, five years ago Taiwan began researching environmental accounting systems and introducing the concepts to domestic industries. Many leading enterprises have since joined the movement. A corporate environmental accounting system has been included in the EPA's three-year action plan with short-, medium- and long-term implementation strategies. This is expected to expand application of environmental accounting to a greater number of industries in Taiwan.

Expenditure toward environmental protection has become a decisive factor in terms of policy making in both government and private sectors when it comes to business opportunities and sustainable development. Current business

accounting practices lack proper methodology to evaluate environmental activities, and rarely reflect the cost of environmental conservation in business activities. This has necessitated the development of an environmental accounting system.

while measuring green GDP, the Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, found that very few industries in Taiwan incorporate environmental costs in accounting practices.

In 2000 the EPA commissioned academicians to research and formulate an environmental accounting system for corporate Taiwan. By the end of 2002, the team created a corporate environmental accounting system that is applicable in Taiwan and comparable to international systems. Briefings, seminars and other promotional activities were

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External Demand Prompts Environmental Accounting System

Promotion of environmental accounting systems stems from two external factors. First, exports to European countries require data on environmental cost along with other necessary documents. Second,



An EPA promotional activity for the environmental accounting system.

launched from 2003 to help industries understand and implement this system.

This year, the EPA initiated the "Taiwan Corporate Environmental Accounting System Promotion Plan," which called for updating websites, organizing demonstrations and seminars, as well as providing guidance and counseling on starting pilot projects. Responding to the *Kyoto Protocol*, the EPA is evaluating environmental cost factors for three companies cooperating in the greenhouse gas emission reduction and inventory program. To encourage other companies to follow suit, the EPA also provides information on how to manage environmental asset-liability, how to produce environmental performance reports and specify indicators of environmental performance.

Leading Enterprises Set the Example

Progress to date on Taiwan's environmental accounting system are listed below:

A. The system

1. Grouping of environmental costs: Six main categories (ex:

Operating costs), 28 sub-categories and 19 items. (see chart)

2. Selection of environmental accounting titles: Categories include investment in facilities, personnel, energy, maintenance, inspection, materials, labor, education and training, R&D, etc.
3. Information structure planning: Tree form and matrix form structures are used. Tree form simply includes accounts of environmental costs under the current financial accounting system and can be extended accordingly. This is applicable to small/medium-sized businesses with relatively simple accounting systems and environmental data. The matrix model, on the other hand, lays out current financial accounts and environmental accounts on a dual axis with internal encoding, suitable for large or high-polluting industries with complicated accounting systems and environmental data.
4. Compilation of environmental accounting system manual: This provides a standardized system for industries to follow,

including methods of recognizing environmental costs and effects, accounts and sample categories of environmental costs.

B. Promotion:

An environmental accounting system website has been established. Industries are encouraged to take part in more than four seminars and demonstrations every year.

C. Model industries:

As of June 2005, thirty companies—mostly from the electronics and automobile industries—have joined the pilot program. State-owned industries include Taiwan Power Company and Chinese Petroleum Corporation. President Chain Store Corporation is the first service industry to participate.

D. Incentives:

Effective from 2004, companies adopting this system will gain points in the selection of the Enterprises Environmental Protection Award of the Republic of China. Among 11 awarded companies, United Microelectronics Corp. (UMC) and Liang Haw Technology have applied this system so far. The latter, in particular, is the only award-winning small/medium-sized enterprise. The EPA also assists the Department of Commerce, Ministry of Economic

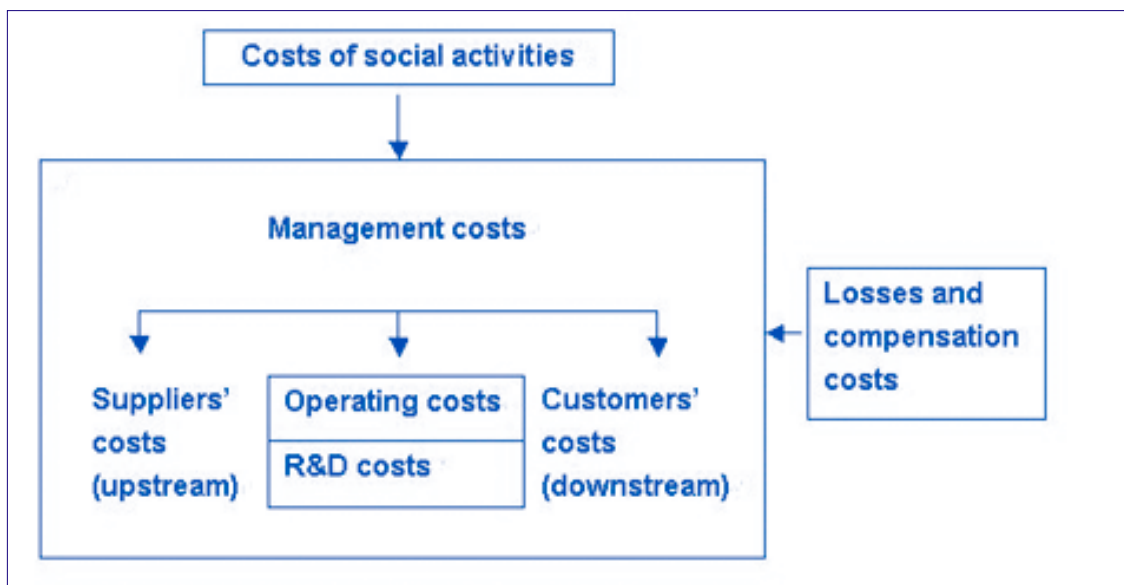


Chart: Grouping of environmental costs

Affairs, in launching award programs for green accounting as a means to achieve wider application among industries.

According to the EPA, despite a modest proportion of industries applying green accounting methods, the fact that most of them are leading companies in their respective fields will induce a green chain reaction towards downstream industries. This is regarded as a positive trend in terms of promoting environmental accounting.

The EPA experienced a number of challenges while introducing the environmental accounting system to industries. The domestic industry structure consists of mostly small- and medium-sized enterprises. Without seeing a direct or immediate benefit, it is hard for them to appreciate the environmental accounting system, and they are generally not eager to adopt it. This factor adds difficulties for promoting agencies.

Companies in Taiwan's four Environmental Science and Technology Park (ESTP) have been prioritized as targets for pilot programs. The Kaohsiung ESTP is currently the only fully developed ESTP, with 11 companies in operation. After active communication with these companies, the Yamaguchi Gold Mineral Technology (山口金礦物科技) Co., Ltd. agreed in principle to trial this system. The system is currently undergoing internal evaluation. If feasible, the EPA will provide counseling and actual assistance.

In terms of cost factor analysis of greenhouse gas emission reductions, although the *Kyoto Protocol* has taken effect, many domestic industries are only focusing on emission inventories without taking cost into account. This program addresses this problem by targeting electronics, chemical and energy businesses to conduct cost

factor analysis and test calculations on greenhouse gas emission reductions.

Continued Promotion to Benefit Policy Making

Regarding future development of the environmental accounting system in Taiwan, the EPA points out that this system provides accurate financial information on corporate environmental activities. This information is a useful reference for

corporate decision makers and for the government to measure green GDP and draw up suitable environmental policies. The EPA has included the promotion of environmental accounting in its three-year action plan (2004~2006). The following four strategic goals have been adopted in short-, medium- and long-terms plans: introduce the system, assist in trial application, establish methodology and create incentives and regulations.

General Policy

New EPA Minister Chang Explains Policy Focus

Officially entering office on June 8, newly appointed EPA Minister Chang Kow-lung recently issued a press release outlining the direction of future policies. Chang highlighted the importance of his duty to accelerate implementation of response measures to the *Kyoto Protocol*, including energy conservation measures and policies, development of renewable energy, and air pollution control. In his first talk with environmental NGOs, Chang made clear the government's unwavering determination to implement the "nuclear free homeland" policy.

New EPA Minister Chang Kow-lung (張國龍) earned his doctorate degree from Yale University in 1968 and returned to Taiwan in 1971 to teach in the Physics Department at National Taiwan University. Chang formerly served as executive secretary of the Taipei County Government, as well as political deputy minister of the Ministry of Examination. Showing long-standing passion and concern for the environment, Chang became involved with Taiwan's growing environmental movement in the early 1980s. His efforts to protect Taiwan's environment challenged the old system and spurred the government to establish the Environmental Protection Administration in 1987. Working to put into practice the principles and ideals of environmental rights, Chang established the New Environment magazine in 1986 and the

Taiwan Environmental Protection Union in 1988.

Referring to his many years of firsthand participation in environmental NGOs and actions, Chang expressed understanding that all circles of society have high expectations for his term in office. Chang said that as a government official he is quite clear of his duty to both assert his own ideals as well as serve the practical needs of society. Chang recognized the need to carry through with existing policies as well as develop innovative reforms. Sustainable development and improved environmental quality are not only the collective goals and aspirations of the people, but are also important indicators of Taiwan's ability to keep up with the rest of the world.

Speaking on policy objectives during his term in office, Minister

Chang explained that Taiwan currently faces several important challenges in protecting the environment. Firstly, Taiwan must work out relevant response measures to the *Kyoto Protocol* and pick up the pace in implementing energy conservation measures and policies, developing renewable energy and controlling air pollution.

Secondly, the government must reevaluate existing policies from a broader perspective in weighing the environmental impacts and economic benefits of transportation infrastructure. For example, the disasters caused by two successive typhoons in central Taiwan last year should still be fresh on our minds. These events should remind us to place more emphasis on environmental sustainability when planning the development and conservation of sloplands.

Lastly, environmental rights are a basic human right. Chang hopes to help materialize the concept of environmental justice in the future. To this effect, greater consideration must be given to local environmental loading in all development activities and administrative measures. During his term in office, Chang will uphold the government's ideal of creating a "green silicon island," as well as the existing Nuclear Free Homeland policy. Chang hopes to facilitate the integration of the powers of government and people, as well as the powers of the EPA and other ministries. As EPA Minister, Chang will continue to promote existing key policies and review the efficacy of policy implementation. He strives to enhance the integration of communication, management, achievements, and strategies in a way that leads to steady improvement of Taiwan's environmental quality.

Chang met with environmental NGOs for the first time in the capacity of EPA Minister on June 28. He mentioned that his civil background helps him realize citizens' sense of urgency to improve environmental quality in Taiwan. Fielding environmental NGOs' concerns about the construction of Taiwan's fourth nuclear power

plant, Chang stated that it is not a sign of a mature nation to continually waver on a policy; it is also not a sign of a mature nation to go forth with a policy that is clearly flawed. Chang told environmental groups to rest assured that Executive Yuan's existing "nuclear free homeland" policy will be implemented as planned.

General Policy

EPA Proposes Tangible Measures in National Energy Conference

The National Energy Conference kicked off on 20 June 2005. The EPA reported on Taiwan's strategic response to the implementation of the *Kyoto Protocol*, and reviewed past achievements in reducing greenhouse gases. The EPA also proposed carrying out environmental impact assessments on energy, industry and transportation policies.

CO₂ emissions from energy sources in Taiwan have continually risen in recent years. Reduction strategies formulated in the 1998 National Energy Conference have not led to substantial outcomes over the past seven years. Non-fossil fuel energy sources made up only 10.4% of energy production in 2003, while coal, the largest source of CO₂ emissions, accounted for 32.2% of energy, already surpassing energy consumption rates projected for the year 2020. In combating industry emissions, it has become necessary to reevaluate national industry structure and energy consumption rates. Greenhouse gases from the transportation sector have been on the rise in the last few years, and over 85% of emissions in this sector are associated with public roadways. It is estimated that greenhouse gas emissions from the transportation sector will have grown fourfold from 1990 to 2025.

During the June 20 National Energy Conference, the EPA pointed out that over 80% of Taiwan's greenhouse gas emis-

sions are from the industry sector, and transportation sector greenhouse gas emissions are on an upward trend. The EPA believes that energy, industry and transportation policies are at the root of the nation's greenhouse gas emissions, and environmental impact assessments should be conducted for policies in all three sectors. In the commercial and residential sector, energy efficiency standards should be enhanced for buildings, machinery and infrastructure.

The EPA indicates that Taiwan should take gradual steps to actively promote mitigation measures such as emission reduction capacity building and voluntary reductions in each sector. The government should actively promote inventory reporting and auditing systems that are localized and up to date with the international community. The government should also implement measures with substantial reduction outcomes based on each department's reduction capacity, with built-in methods to periodically review reduction outcomes. Taiwan should also be prepared to respond to international

greenhouse gas reduction models, for example, by promoting carbon taxes and "cap and trade" schemes.

According to the EPA, Article 3 of the *UN Framework Convention on Climate Change* implies that each country is to bear responsibility for reductions, but to different degrees based on fairness. Cost effective policy measures need to be implemented to combat climate change. The EPA recommends Taiwan frame international negotiations around global energy consumption and product lifetime. Taiwan's responsibility for emission reductions should be based on CO₂ emissions from domestic net en-

ergy consumption, as well as domestic capability to make reductions.

In its report at the conference, the EPA pointed out signs that there is not a strong correlation between greenhouse gas emissions and GDP economic growth in OECD nations. It therefore behooves Taiwan to invest efforts toward mitigating the growth rate of greenhouse gas emissions to meet the standards of OECD nations. Taiwan should also take further steps to ensure per capita greenhouse gas emissions tally with the standards of OECD nations.

Soil & Groundwater

Interministerial Taskforce Addresses CPC Anshun Factory Pollution

The EPA convened related departments in a meeting to remedy soil and groundwater pollution at China Petroleum Corporation's Anshun Plant in Tainan City. Presiding over the meeting, EPA Minister Chang called for expanded investigations. Chang said the EPA will publicize investigation results of fish farms and other areas where pollution has been ruled out. Confirmed polluted areas will be designated as pollution control sites and pollutants will be removed.

The central government taskforce in charge of a case of serious pollution from Tainan City's China Petroleum Corp's Anshun plant (中

石化安順廠) held an impromptu meeting on June 24. Participants included representatives of the EPA, Ministry of

Economic Affairs, Council of Agriculture, Department of Health and the Tainan City Government. Chairing the meeting, EPA Minister Chang Kow-lung (張國龍) stated that those areas already confirmed to have pollution shall be declared pollution control sites by the Tainan City Government and the pollutants shall be removed immediately. Due to the high concentration of pollution in benthic mud of salt water ponds and public fish farms adjacent to the Luermen River (鹿耳門溪), the city government will reclaim these areas and prohibit aquaculture activities.

Minister Chang stated that the current investigation will be expanded, and the EPA will announce investigation results of those fish farms and areas where pollution has been ruled out to allay citizens' fears. During the meeting a consensus was reached to quickly remove pollutants. The city government shall first remove the benthic mud from the Jhufagang River (竹筏港溪) and some of the soil from the banks of fish farms. The government will provide subsidies for fish farms affected during the period of pollution removal.

Ministry of Economic Affairs Deputy Minister Steve Ruey-Long Chen (陳瑞隆) stated that the MOEA places great importance on this issue and is actively cooperating with other agencies to remedy pollution problems. Remediation work should be carried out independent of work to determine responsibility for polluting activities. As for local pleas for the government to strengthen health care, Chen stated that the MOEA has already provided NT\$5 million to the Tainan City Government and has approved of funding for Tainan City to purchase vehicles for transporting local residents to and from hospitals. The MOEA has also pledged to assist local resi-



Government will reclaim polluted fish farms and prohibit aquaculture activities.

dents with health care expenses.

Regarding the benthic mud of the Luermen River and nearby fish farms, although mercury and dioxin test results comply with soil pollution control standards, there is still concern that

bioaccumulation in aquatic life could produce negative effects. Minister Chang indicated that the EPA will refer to similar cases abroad and academic research results to develop standard values for determining removal of benthic substrate.

Toxic Substance Management

Mandatory Liability Insurance for Toxic Disasters to Ensure Compensation

Citizens now have better protection against disasters due to toxic chemical substances such as chlorine gas leaks from factories. From 1 July 2005, the EPA will require handlers of toxic chemical substances to purchase third party liability insurance. This measure spares citizens long litigation procedures and guarantees compensation for casualties.

In standing with Article 12 of the *Toxic Chemical Substances Management Act* (毒性化學物質管理法), on 30 June 2005 the EPA has promulgated the designated items and contents of third party liability insurance policies for handlers of toxic chemical substances, effective as of 1 July 2005.

The EPA now makes it mandatory for all handlers to purchase third party liability insurance. In the future, all handlers (including operations such as manufacture,

use, storage, or transport) of toxic chemical substances over a certain designated amount must be insured before engaging in operations. Insurance policy documents should be kept on the premises of operations at all times and presented during inspections.

Minimum coverage of insurance policies:

1. NT\$2,000,000 per casualty
2. NT\$70,000,000 per accident resulting in casualties

3. NT\$10,000,000 per accident resulting in property damage

4. NT\$160,000,000 total accumulated insurance fees during insured period

In the event of bodily injury, disability, death or property damage of a third party due to an accident at facilities, while in transport or during emergency rescue operations after an accident, those toxic chemical substances handlers required to purchase third party liability insurance are liable for NT\$2 million in compensation for each casualty and NT\$10 million for each incidence of accident-related property damage.

After full implementation of this mandatory insurance regulation, if toxic chemical substances handlers demonstrate good management, insurance fees will be lowered. Conversely, insurance fees will inflate for businesses with poor management practices. This measure safeguards citizens by pushing related industries to improve safety practices when handling toxic chemical substances.

Those toxic chemical substance handlers required to purchase insurance must be insured by the end of September 2005. Failure to purchase third party liability insurance will result in punishment, with penalties ranging from NT\$1 million to NT\$5 million as well as an injunction to make immediate improvements. If improvements are not made before the allotted deadline, business shall be suspended. If necessary, strict injunction will be given to terminate business, revoke registration or cancel operating permit. Affected businesses are thus asked to abide by the new measures and regulations.

News Brief

New Mexico Taiwan Trade Office Seeks Environmental Cooperation Opportunities

Atmospheric modeling expert Dr. Ted Yamada of New Mexico and Ms. Michelle Keng, representative of the State of New Mexico Taiwan Trade Office, visited the EPA Office of Science and Technology Advisors and the Department of Environmental Monitoring and Information Management on June 9 to seek cooperation opportunities. Dr. Ted Yamada is one of the world's leading experts in atmospheric airflow research and modeling, and previously directed a mesoscale modeling research team at Los Alamos National Laboratory. His main purpose for visiting Taiwan was to introduce the "New Modeling System to Predict Winds and Turbulence around Buildings under the Influence of Diurnal Variations of Weather Conditions." The Department of Environmental Monitoring and Information Management expressed interest in further evaluation of applications of this modeling system.

Noise Control**Low Frequency Noise Complaints Become Inspection Priority**

To mitigate the disruptive effects of low frequency noise, the EPA has extended regulatory controls over low frequency noises from entertainment venues and business locations. As of July 1, the EPA's noise inspection and monitoring work will focus on noise reported by citizens.

Based on Article 7 paragraph 2 of the *Noise Pollution Control Act* (噪音管制法), on 30 January 2005 the EPA promulgated revisions to Article 3 of the *Noise Control Standards* (噪音管制標準), which now sets control standards for low frequency noise. The new stipulations are effective as of 1 July 2005 and specifically pertain to business premises, entertainment venues, residential areas, and other premises announced by

the local government. If these premises are the subject of noise complaints, and found in noncompliance with low frequency noise control standards, they shall be subject to fines ranging from NT\$ 3,000 to NT\$30,000. In the case of serious violations, they could be required to suspend business or quit using the equipment that is making the noise. Low frequency noise (20~200 Hz) sources prima-

rily include air conditioners, cooling water towers, and exhaust fans. The EPA indicates that citizen complaints of noise frequently involve noises that are not particularly loud in volume. Most reported noises are in the low frequency range and differ widely in their effects on individuals. In some cases for instance, there may be only one person in a cluster of apartments who reports a noise complaint. Potential sources of low frequency noises primarily include cooling water towers, isolated air conditioners, exhaust fans, refrigerators, washing machines, and pressure pumps, most of which emit noise in the 20~200 Hz low frequency range. From outside or from rooms with open doors and windows, these

Table: New Environmental Policies Effective as of July 1

	New environmental policies effective as of 1 July 2005	Source of legislation
1	Restrictions on SOx emissions from stationary pollution sources effective nationwide. The 0.5% restriction on sulfur content of liquid fuel has been extended to the last group of counties: Hualien County, Taitung County, and Kinmen County.	<i>Air Pollution Control Act</i>
2	Third-stage motorbike noise control standards entered into force.	<i>Noise Pollution Control Act</i>
3	Low frequency noise control standards entered into force. Businesses, enterprises and residential areas with low frequency noise from cooling water towers, ventilation fans and air conditioners, must comply with low frequency noise control standards.	<i>Noise Pollution Control Act</i>
4	Handlers of toxic chemical substances must now purchase third party liability insurance to prevent accidents involving toxic chemical substances and to establish post-disaster compensation measures and channels.	<i>Toxic Chemical Substances Management Act</i>
5	Inspections and penalties tightened for the second group of enterprises required to report waste clearance and disposal online. This includes plate makers, printers, college and academic research institute laboratories that generate hazardous industrial waste, drycleaners, environmental analysis organizations, terminal markets for agricultural products and other listed businesses.	<i>Waste Disposal Act</i>
6	Implementation of a new measure now makes it easier for vehicle owners to turn in end-of-life vehicles for recycling. After deregistering end-of-life vehicles at local supervision and management stations, vehicle owners can proceed to the EPAs new joint service counters to turn in their cars for recycling.	<i>Waste Disposal Act</i>
7	To ensure compensation for damage due to ship pollution, owners of general ships over 400 tonnes and oil or chemical tankers over 150 tonnes are required to purchase liability insurance or provide a guarantee based on tonnage. The insurance contract or guarantee may not be suspended or terminated. Violators face fines ranging from NT\$600,000 to NT\$3 million.	<i>Marine Pollution Control Act</i>
8	The EPA and other central government departments launched a joint half-year trial plan on 1 July 2005 to promote green procurement. The plan will be officially implemented on 1 January 2006.	<i>Green Procurement Act</i>

lower frequency sounds are covered up by other outdoor medium to high frequency noise sources. However, when doors and windows are closed, medium to high frequency noises are blocked out, making low frequency noise more audible.

In preparation for the new low frequency noise control regulations, effective as of July 1, the Central Taiwan Bureau of Environmental Inspection has already purchased two more noise measurement instruments and inspectors have been trained to operate this equipment. Once a citizen files a noise complaint, personnel will be dispatched immediately to carry out inspection and monitoring.

Statistics show 33,136 noise com-

plaints made in 2004 in the Taiwan area, with more cases coming from more densely populated urban areas. As of 1 July 2005, low frequency noises from 20 Hz to 200 Hz emanating from entertainment and business premises are subject to regulatory control. A noise that is reported and subsequently confirmed by inspectors to be in noncompliance with noise control zone and time standards constitutes a violation of Article 7 of the *Noise Pollution Control Act*. Violators failing to make improvements in the allotted time period will be fined from NT\$ 3,000 to NT\$30,000. Further negligence to improve the situation will result in consecutive daily fines, and possibly suspension or termination of operations.

ing related enterprises ample preparation time to respond to changes, the draft regulation will take effect on 1 July 2006.

The EPA indicates alkaline manganese batteries and manganese dioxide-zinc dry cell batteries are in greater use nowadays and non-mercury battery production technology is already mature. The EPA will therefore first ban the manufacture, import and sale of manganese dry cell and non-button cell alkaline-manganese batteries with over 5 ppm mercury. Enterprises manufacturing, importing or selling the abovementioned batteries containing under 5 ppm mercury are not subject to restrictions as long as they can show proper certification documents. To effectively control smuggling of standard batteries, vendors are not permitted to sell batteries that have not first been approved by the EPA. The competent authority may perform random testing of dry cell batteries on the market. Products found containing over 5 ppm mercury must be recalled by the manufacturer or importer.

Recycling

Mercury Dry Cell Batteries to Be Restricted

To reduce the impacts of mercury pollution on human health and the environment, Taiwan has drawn upon EU and US regulations that gradually restrict the use of mercury in drafting a new regulation based on the *Waste Disposal Act*. The regulation calls for a restriction on the manufacture, import or sale of dry cell batteries containing over 5ppm mercury, and is scheduled to take effect on 1 July 2005.

The use of dry cell batteries has continually grown following an increase in electronic instruments and consumer products. With an increasing variety of batteries on the market, some containing mercury, which is harmful to the environment, failure to properly recycle these batteries could cause mercury to spread in the environment. Subsequent bioaccumulation of this toxin could enter the human food chain and endanger human health.

Heeding the international trend to gradually restrict and ultimately ban mercury, most of the world's countries are restricting the use of mercury in certain products. For

example, the European Union established guidelines advising member nations to prohibit the sale of dry cell batteries with over 5 ppm mercury from the year 2000. The US has similar restrictions on mercury-containing dry cell batteries.

Considering the harmful effects of mercury on human health and the environment, the EPA has referred to the EU's directives on batteries and has decided to gradually phase out the manufacture, import or sale of dry cell batteries containing more than the allowable standard of mercury, based on Article 21 of the *Waste Disposal Act*. Allow-

Children's Environmental Education DVD

The EPA issued the Children's Environmental Education DVD in conjunction with World Environment Day activities. This marks the first time for the EPA to employ DVD technology. The 8 cm compact disc contains 1.4 GB (equivalent to 750 million Chinese characters) of data, including environmental theme game software, short educational films, songs, posters, and picture files. The diverse content is suitable for use as auxiliary teaching material for environmental education at the elementary grade level. The EPA sent the DVDs to all public and private elementary schools in Taiwan just before World Environment Day. Most of the content on the DVD is also available on the kids section of the EPA's website (www.epa.gov.tw/kids) for all to enjoy.

Waste Management

EPA Reviews Standards for Defining Hazardous Industrial Waste

The EPA has launched waste recycling and reuse policies to materialize the concept of sustainable development in terms of resources. Keeping in tandem with the *Basel Conventions'* controls on hazardous waste, the EPA is drafting new standards for defining basic properties of hazardous industrial waste. Certain hazardous industrial wastes may be removed from the list of regulated hazardous wastes based on their recycle value and the extent to which they harm the environment.

In the past, there was good cause for concern about the possibility of environmental pollution during clearance or disposal of certain industrial wastes due to inappropriate treatment methods. The EPA's response was to tighten controls on certain regulated hazardous industrial waste items possessing reuse value, and ban their import into Taiwan.

However in recent years, Taiwan has made considerable progress in developing industrial waste reuse and disposal technology, thereby greatly reducing risks of environmental pollution.

In the interest of promoting waste recycling and reuse policies and keeping up with international trends, the EPA is considering revisions to the existing standards for defining hazardous industrial waste. Wastes that have reuse value and are unlikely to pollute the environment during clearance and disposal processes may be

considered for removal from the list of regulated hazardous industrial wastes. Standards for defining categories of hazardous waste will continue to undergo adjustments in adherence to the Basel Convention.

The EPA explains that in order to expand the benefits of this potential revision, it will soon hold a series of intensive forums entitled "Developing Revisions to the Standards for Defining Hazardous Industrial Waste." Invitations to the forum have been extended to industry, academic and research organizations, environmental NGOs and all levels of government environmental protection agencies to present their views on revisions. Since May the EPA has been inviting the resource recycling industry, electronics industry and other related industries to seven small forums and two large briefings to exchange in dialogue. Around thirty forums and four briefings will have been held by October 2005.

The EPA emphasizes that it will consider recycling and reuse trends when reviewing standards for defining hazardous industrial waste. Where there is already appropriate disposal technology for wastes currently identified as hazardous, these items may be considered for removal from the list of regulated wastes. The EPA will continue to comply with the spirit of the *Basel Convention* by strictly controlling the flow of highly dangerous wastes into the environment, including electroplating sludge, printing circuit boards, waste material, waste containing 2,3,7,8-tetrachlorinated dioxin, and transformers containing polychlorinated biphenyl (PCB).

In view of the significant rising trend in the reporting of temporary storage of industrial waste in recent years, existing standards will be reviewed to shorten the

deadline for permitting temporary storage of hazardous industrial waste, and restrict the number of times industries can apply to extend the deadline for temporary storage. The new standards will continue to ensure appropriate control and management over the flow of hazardous industrial waste.

Green Mark

All Government Agencies Required to Buy Green Products

The EPA invited representatives of the Presidential Office, Legislative Yuan, Judiciary Yuan, Examination Yuan and Control Yuan to discuss collective plans to promote green procurement. July 1 marks the start of a half-year trial run, after which the policy will be implemented on 1 January 2006. At this time, all public service organizations will be responsible for making green procurements.

Taiwan officially launched the Green Mark system in 1992. To date already 88 categories of Green Mark product specifications have been designated and already over 2,700 products bear the Green Mark logo. Taiwan now ranks fifth in the world in terms of numbers of certified green products. The *Government Procurement Act* (政府採購法) was promulgated in 1997 with an article authorizing government agencies to make green procurements. This was the world's first legislation that empowers government agencies to purchase environmentally preferable products.

On 1 January 2002, county and city governments, and government agencies under the Executive Yuan

began making green procurements. With the full cooperation of all agencies, NT\$2.6 billion of government procurements went toward green products (60.5% of spending in designated product categories). By 2004, this increased to NT\$5.7 billion (78% of spending in designated product categories). With government organizations driving the trend for green procurements, there has been a substantial increase in businesses' willingness to apply for Green Mark certification. The number of Green Mark products has more than doubled within three years.

The government green procurement promotion plan does not make green procurement compulsory, and has only been implemented at the Executive Yuan and local government levels. Aiming for full implementation among all government agencies, in 2002 the EPA passed Article 22 of the *Resource Recycling and Reuse Act*, which lists environmental product categories that all gov-

ernment agencies "should" consider for procurement. This will soon be promulgated and come into effect at the end of the year, at which time all public service organizations, including the Presidential Office, the five Yuans and county and city governments will be asked to make green procurements.

Apart from promoting green procurements by government agencies, the EPA is also undertaking significant efforts to promote green consumption by the populace. For example, a Green Purchasing Alliance has been established, using the cooperative model, to promote green procurement in industry. Green shopping has also been promoted this year through online shopping channels. The Yam online shopping website will establish a special area just for environmental products around November this year to help citizens make green purchases.

Air Quality

Penalties Tightened for Air Pollution from Construction Sites

Results of the EPA's recent inspection of construction sites show signs of serious air pollution, indicating the need to strengthen pollution control at this source. The EPA has accordingly called on construction project owners to enhance pollution control measures. Punishment for serious violations include penalties exceeding NT\$100,000 or suspension of operations.

To prevent air pollution from construction sites, the EPA launched a special inspection targeting 32 large-scale sites around the country in May this year. The inspection revealed serious pollution

Activities

Construction Begins on Second Southern ESTP

Following the establishment of the first Environmental Science and Technology Park (ESTP) in Kaohsiung County, the groundbreaking ceremony of the second ESTP in southern Taiwan (Dasin Industrial Park and Environmental Science and Technology Park) was held on 4 June 2005. Tainan County Commissioner Su Huan-chih (蘇煥智) invited officials from the EPA, the Council for Economic Planning and Development, and the Industrial Development Bureau, Ministry of Economic Affairs, to attend the ribbon-cutting ceremony. Commissioner Su explained this industrial park is unlike conventional ones in that its development model will follow that of a science based industrial park. Thirty-seven percent of the park's area will be given to public infrastructure and green space. The park will also host an incubation center, a research center, laboratories, an international conference hall, and an Environmental Science and Technology Park to lead as a vanguard among green technology parks. Thirty hectares of the 246-hectare park will be designated for the ESTP. Six firms have already been approved to set up operations in the ESTP, which is eventually expected to generate output value of NT\$48 billion as well as 10,000 employment opportunities.

Green Packaging Contest Kicks Off

In coordination with the new restrictions on excessive product packaging, the EPA has held the first packaging design contest for designated market products to choose the top ten green packaging designs for products already on the market. Contest entries are accepted from now until 15 August 2005 and winners will be announced this September (2005). The EPA has organized a team of scholars, experts and representatives to form a selection committee. The four criteria for selecting the greenest packaging design are: thrifty design, materials used, creativity, and environmental progressiveness. Designated products subject to this restriction include pastry gift boxes, cosmetics gift boxes, alcohol gift boxes, processed food gift boxes and computer program CDs. Manufacturers, importers and vendors of these five product categories are eligible to participate in this packaging contest. For more information, please see http://ivy2.epa.gov.tw/out_web/H/exm/main-all.htm

problems. Except for one construction project temporarily closed due to change of plans, among the remaining 31 sites, only seven had no flaws, while ten received tickets for serious violations. One case incurred consecutive daily fines. Another 14 sites received warnings for minor infractions. Cases of serious pollution were mostly located in central and southern Taiwan. The EPA's Environmental Inspection Bureau indicated that both impromptu and continuous methods will be employed in tracking and monitoring construction projects to pressure owners until improvements are made.

Inspectors of the EPA's special construction site inspection program not only determined whether construction work was a cause of air pollution, but also checked whether pollution control facilities met criteria stipulated in the *Regulations for Air Pollution Control Facilities at Construction Sites* (營建工程空氣污染防治設施管理辦法). Flaws were recorded on a point system and added up for a total score. Items most frequently overlooked include: failure to set up signboard at construction site, dustcovers that do not fully cover construction material stockpiles, lack of car-wash equipment at the entry/exit or space for car-wash, vehicle routes or exposed land comprise disproportionate area based on scale of construction, and fencing that does not encircle entire construction area.

The EPA explains that over 10 error points constitutes a violation of Article 1 of the *Air Pollution Control Act* (空氣污染防治法), in which case the enterprise is subject to punishment. Those companies with under 10 points will have a chance to improve without receiving punishment. During this inspection plan, only seven sites had perfect scores among the 31

sites in operation, while one project site reported up to 38 points. This shows the need for further improvement of pollution control work at construction sites.

The Environmental Inspection Bureau indicates that during the construction period the contractor should use dustcovers or spray chemical stabilizing agents on piles of construction materials or waste. For exposed land, similar measures should be taken such as laying down steel plates, growing vegetative groundcovers, or compacting the ground and spraying water to prevent dust.

Steel plates should be positioned at the entrances of construction sites to prevent dust from vehicles. Upon discovery of pollution or other violations, the contractor will be fined between NT\$100,000 to NT\$1 million according to Article 1 of the *Air Pollution Control Act*. The contractor must also make improvements before a fixed deadline. Failure to do so will result in consecutive daily fines, and in the case of serious violations, the project may be suspended or terminated.

News Briefs

Deregistration and Recycling of End-of-Life Vehicles Made Easy

Making it easier for vehicle owners to deregister end-of-life vehicles (ELVs) and turn them in for recycling, the EPA has installed service windows at 35 local supervision and management stations throughout Taiwan. As of July 1, after declaring vehicles unusable, citizens can directly proceed to the EPA's joint service counter to turn in their end-of-life vehicles for recycling. Vehicle owners not only receive NT\$3,000 for each car and NT\$1,000 for each motorbike, but can also negotiate their selling price with recyclers based on the value of their vehicle as scrap material. This new policy is expected to increase the number of vehicles turned in for recycling, decrease the number of stolen vehicles, reduce environmental pollution and solve public safety issues.

EIA Enforcement Rules Amended

Revisions to the *Environmental Impact Assessment Act Enforcement Rules* (環境影響評估法施行細則) were promulgated on 17 June 2005. In the revisions, the EPA has strengthened mechanisms for citizen participation and information disclosure concerning EIAs. The revisions also address practical needs of investigation procedures in the following ways:

- 1) The competent authority shall disclose investigation conclusions and EIA review committee meeting minutes via Internet;
- 2) After receiving review fees from developing agency, the competent authority shall disclose via Internet the Environmental Impact Statement or preliminary EIA report;
- 3) If the developer applies for changes to environmental protection items in the Environmental Impact Statement or EIA report, the industry competent authority should submit to the appropriate environmental authority an analysis report showing the changes in environmental impacts or a comparison chart showing content changed by the developer.

International Air Quality Information Available Online

The EPA has established a webpage on the status of air quality around the world, making it easier for people to stay abreast of local air quality before traveling abroad. Fourteen countries throughout Asia, North America, Europe and Australia are currently linked to this site, including the most frequently visited countries such as Japan, Thailand, Hong Kong, U.S.A., Britain, and France. The EPA's world air quality webpage is at <http://taqm.epa.gov.tw/world>. To better serve international friends and internationalize environmental information, the EPA has also launched an English webpage on Taiwan's air quality at <http://www.epa.gov.tw/aq>. Up to date info on atmospheric conditions can be found at <http://taqm.epa.gov.tw/emc>,

where users can also access the latest air quality indicators and air quality forecasts for the following day.

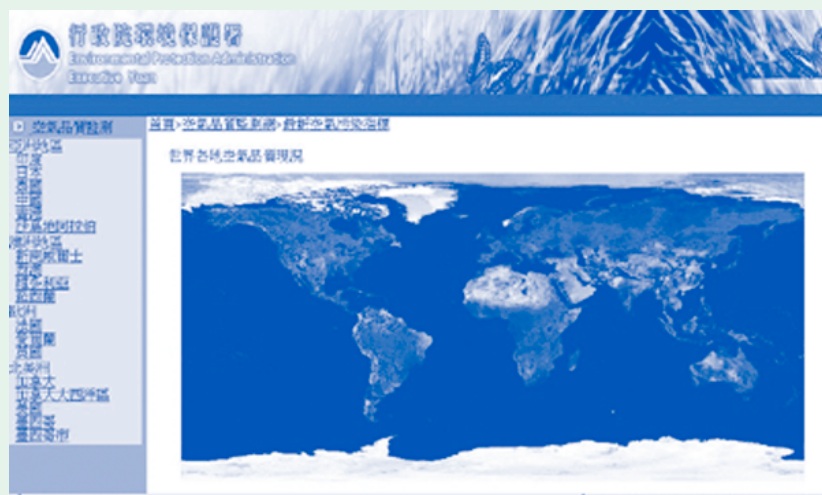
Tracking the Waste Flow of the Printing, Dyeing and Pigment Industry

The EPA will strengthen auditing and guidance over waste flow and waste treatment in the printing, dyeing and pigment industry. In 2004, this industry reported 130,000 tonnes of general industrial waste and 12,000 tonnes of hazardous industrial waste. Of this, paint, dye, and pigment manufacturers accounted for 15,000 tonnes of general industrial waste and over 2,000 tonnes of hazardous industrial waste. Among the waste products generated by printing, dye-

ing and finishing plants includes sludge from textiles, which the Ministry of Economic Affairs has listed as a reusable material. This sludge can be used as raw material for organic fertilizer (restricted to textile sludge from cotton/wool spinning and ginning industries), raw material for artificial aggregates, or fuel for brick kilns, cement kilns, or boilers.

Recycling of Leather Waste Material as Fertilizer Halted

The EPA has announced revisions to the *Standards on Methods and Facilities for the Storage, Clearance and Disposal of Industrial Waste* (事業廢棄物貯存清除處理方法及設施標準) on 7 June 2005. The EPA states that original consideration was given to the abundance of organic waste material from the manufacture of leather products. To encourage resource recycling and reuse, the standards formerly required scrap leather material to be recycled through steam processes into leather meal. However, leather meal from steamed leather waste material contains a large amount of chromium. Further processing of this product into fertilizer could result in fertilizer products with excessive chromium. To prevent farmers from using such products and potentially contaminating their soil and crops, the Council of Agriculture is drafting new standards for chromium content of fertilizer products. In the future, steamed leather meal will not be suitable as a raw material for fertilizer.



EPA's world air quality webpage - <http://taqm.epa.gov.tw/world>

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