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Feature Column

Environmental Training Standardized to Increase Efficiency

Established 15 years ago, the Environmental Professionals Training Institute currently provides both general training and certificate training for environmental professionals. Over the years EPTI has made the best use of its streamlined staff to maximize efficiency and provide training services for professionals in the growing field of environmental protection.

Materialization of environmental policy through cultivation human resources is the key to successful environmental protection planning. One of the best ways to enhance one's work efficiency is to continually receive professional training and new knowledge in the field of environmental protection. This is

the guiding vision behind the Environmental Professionals Training Institute (EPTI), Environmental Protection Administration, Executive Yuan. The Organizational Guidelines for the Establishment of EPTI were announced in December 1990. Soon thereafter, the institute was officially established on 1 July 1991 for the sole purpose of training the nation's environmental protection personnel.

the emphasis was on general training, which was only provided to the personnel of government environmental protection agencies. Afterwards, in order to complement environmental policy demands, EPTI fully integrated all environmental training work, which was originally spread out among other organizations. From 1992, EPTI gradually began providing training to the environmental professionals of business groups. The purpose of training is to promote a continual increase in quantity and quality of environmental human resources, as well as put important concepts into practice in the work environment. Train-

In This Issue

Feature Column: Environmental Training Standardized to Increase Efficiency	1
Wastewater from Disaster Response Regulated.....	4
Asbestos to Be Banned in Certain Construction Materials.....	5
Poll: Air and River Quality Are Top Public Concerns.....	5
Taiwan Holds 2005 International Conference on Ecolabelling.....	6
Record High Government Green Procurement in 2004.....	7
Plans Finalized for Groundwater Pollution Early Warning System in Northern Taiwan	8
Soil/Groundwater Pollution Found at Five Abandoned Factories.....	8
93% of Polluted Farmland Improved after Three Years of Remediation.....	10
News Brief.....	4
Activity.....	8

Training Expanded for Both Government and Industry

EPTI's services fall under the two main categories of general training and certificate training for environmental professionals. At the outset,



A course for environmental patrol units held at EPTI

ing courses are designed to enhance environmental knowledge, and expand skills in the areas of policy, information and management.

In terms of environmental professional certificate training, subject areas have expanded from the initial fields of air pollution control, wastewater management, waste disposal, toxic chemical substances management, to the current total of 13 subject areas. As of 1993, the EPA transferred certificate approval, issuance and management work -- tasks formerly spread out among each department -- to EPTI as a measure to unify training and certificate issuance. This has resulted in enhancement of administrative efficiency, as well as the establishment of a permit management system. Over the years, EPTI has consistently worked to make the best use of its streamlined staff to produce the most efficient results and provide increasingly expanded services.

Standard Procedures Enhance Effectiveness of Training

Since the establishment of EPTI, continual progress has been made in terms of integrating resources, establishing the training system, and advancing training content to greatly increase the quality and effectiveness of training.

1. General Professional Training

EPTI provides training to environmental personnel in all levels of government organization and industry to build environmental professionals' capacity to control pollution. Upon receiving instructions to provide new training services, EPTI immediately begins to establish a training system. This work involves surveying training requirements,

drawing up training plans and carrying out the actual training and evaluation. All training courses undergo the four-step PDCA cycle (Plan-Do-Check-Adjust), to ensure that each course attains training goals.

2. Environmental Professionals Certificate Training

Based on past difficulties in providing training for various environmental professional certifications and validating the different methods used in each school, at the outset EPTI actively began carrying out student registration affairs and unifying course material and examinations. A certificate training system was then established including a computer system to provide test results, evaluation and random selection of test questions. EPTI works hard to respond to in-house training needs of environmental professionals in the private sector. In addition to integrating academic institutions to make the best use of their teaching resources by offering their own training courses, EPTI also coordinates with other organizations by holding training courses at their facilities to make it more convenient for students.

General environmental professional training: EPTI develops training plans, designs curriculums, selects teachers, provides counseling, evaluates teaching, and holds examinations upon completion of training. The annual budget allows a training capacity of 2,500~3,000 students (person-times).

Training plans mainly target the following three categories of professionals: personnel in all levels of environmental agencies, environmental personnel of industry competent authorities, and environmental personnel of public or privately operated businesses. From EPTI's establishment in July

1991 to June 2005, already 1,171 courses have been held for 70,923 students (person-times). Training themes can be divided into general environmental protection, administrative management and pollution control.

Environmental Professional Certificate Training:

This training is based on environmental regulations that set guidelines for 13 categories of environmental protection professionals or technicians. Based on the EPA's calculations, 12,000 businesses are subject to air pollution controls, 11,000 businesses are subject to water pollution controls, and 3,000 businesses are subject to toxic chemical substances controls. The current demand for certificate training is about 10,000 trainees (people-times) per year. With only limited resources, EPTI is unable to meet the needs of a large number of trainees within one short period of time. Therefore it coordinates training services with accredited domestic academic institutes or related environmental research organizations. This makes the best use of external resources and effectively increases training capacity. From EPTI's establishment to July 2005, the institute has trained 133,066 professionals (people-times).

Advancing International Environmental Training and Exchange

Environmental technology and management systems undergo frequent change in response to growing links between international environmental issues and economic trade. This makes it all the more important to promote international exchanges in environmental technology and training. Apart from inviting international experts, EPTI actively invites renowned domestic and foreign scholars to hold seminars in Taiwan. EPTI also holds overseas training courses in specialized topics based on domestic priorities as well as the

latest developments overseas in environmental professional technology. EPTI currently fosters two main kinds of international exchanges in environmental training:

1. Overseas training in specialized topics: After receiving environmental training overseas, trainees become seed teachers in their area of specialization upon returning to Taiwan. Their newly acquired knowledge helps build the nation's foundation of environmental protection. From 2002 to 2005, based on the need for organized response to marine oil pollution control, each year personnel from environmental agencies and the Coast Guard Administration are selected to undergo training abroad (including the U.K., Canada, Japan, and Singapore). Activities such as this strengthen ties and exchanges with foreign government agencies and academic institutes.

2. Overseas research: EPA personnel who display excellent performance and eagerness to develop their potential are encouraged to study abroad to take in the latest environmental knowledge and further their professional knowledge and skills. Based on the nation's needs, outstanding personnel are chosen and invited to propose individual plans to receive overseas training in a specialized field of environmental research.

management system for environmental specialists that can be accessed online. The system consists of a national searchable database on developments in the field. EPTI has taken the initiative to compile various certification and placement data from all levels of environmental organizations into a computer database that is continually updated. This allows one to stay abreast of developments in the placement of each type of specialist. This comprehensive environmental specialist system helps local environmental agencies quickly verify and appropriately manage specialists in their area. More importantly, it puts an end to illegitimate conduct such as lending of specialist licenses or illegal placement of specialists.

While the outlook is good for the environmental personnel training system, certain bottlenecks exist:

1) In order to provide comprehensive and effective training, a balance is required between actual operations, theory, and introduction of new technology. At present, EPTI's frequently leases other venues to fulfill training needs, and this limits training capacity to a certain extent.

2) Practicum courses are difficult to arrange; budget and space constraints make it hard to establish

responsible for issuing and managing all professional certification. However as for onsite evaluation, EPTI must rely on the three regional units of the EPA's Bureau of Environmental Inspection; this takes more time to collect evidence on illegitimate practices.

Future plans and expectations for the environmental professional training system:

1. Actively search for training venues and establish a model to provide onsite training where it is needed. Build service capacity to better integrate supply and demand.
2. Establish training outcomes based on integration of theory and practice so that the knowledge and skills learned at EPTI can immediately be applied at the work place. This will help to shrink the gap between learning and doing, as well as to strengthen EPTI's training competitiveness.
3. Integrate characteristics of local industry and find out the environmental needs of industry; develop locally suitable pollution control practical training courses.
4. Actively establish instructor database. In addition to hiring external instructors, develop qualified teachers within EPTI; increase advantages.
5. Increase added-value of existing training materials and build up EPTI's competitive advantages.
6. Become the training institute in Taiwan that is most able to integrate environmental policy, regulations, theory and professional skills
7. Complement current trends by actively establishing e-learning courses and training models that emphasize both simulation and real-life practice.

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Strengthening the Environmental Professional Certificate Management System

EPTI has developed a computer

more comprehensive training facilities.

3) Due to the difficulties involved in environmental professional certificate management, EPTI is re-

Water Quality

Wastewater from Disaster Response Regulated

A new regulation has been promulgated regarding emergency response to disasters involving dangerous effluent from industries or sewers. The regulation specifically protects the water quality of water bodies that are sources for tap water, drinking water, irrigation water and aquaculture production. A comprehensive system has been established for announcing, executing and managing the emergency response to wastewater pollution incidents in the interest of safeguarding human health, aquaculture products, and drinking water sources.

The EPA promulgated the *Regulations Governing Emergency Response to Effluent (Wastewater) Discharge from Industry or Sewers* (事業或污水下水道排放廢(污)水緊急應變辦法) on 26 August 2005. The regulations, containing eight articles, lay down stipulations for the effective execution of emergency response. Tap water providers, management agencies or persons directly drawing drinking water, irrigation or aquaculture water from water bodies affected by pollution incidents must be notified within one hour of the incident. To prevent others from

using polluted water sources, the local environmental protection bureau (EPB) should also be notified within three hours of the pollution incident.

The EPA indicates that the parties most affected by this regulation are handlers of chemical substances as wastewater collected or generated during accident intervention is now subject to regulations. In the past there were no regulations regarding the discharge of post-accident wastewater. For example, wastewater generated by relief efforts after a recent fire at a factory in

the Taichung Industrial Park was not immediately intercepted, collected and treated, resulting in pollution of the Nanbian River (南邊溪), an issue of great concern for nearby residents. Article 5-12 of this regulation will require wastewater generated by relief efforts to be intercepted, collected and temporarily stored. The rescue organization must install related equipment during relief efforts, and afterwards should properly treat the wastewater or entrust treatment to another organization.

The regulation is based on Article 27-2, 3 of the *Water Pollution Control Act* (水污染防治法), and violators shall be subject to fines ranging from NT\$60,000 to NT\$600,000 according to Article 51 of the Act. If necessary, the responsible party may have their effluent discharge permit or "simple discharge permit" revoked, or may even be ordered to suspend operations. The EPA therefore calls on related industries to pay heed and abide by this regulation.

The regulation requires industries or those responsible for sewerage systems to adopt several emergency

News Briefs

Product Overpackaging Review Fee Standards Drafted

From 1 July 2005, manufacturers of computer CD programs, gift boxes of pastries, cosmetics, alcohol, or processed foods are required to abide by regulations on overpackaging, or be subject to penalties. On 15 August 2005, the EPA promulgated the *Fee Standards for Review of Product Overpackaging* (限制產品過度包裝個案審查收費標準草案), which stipulates manufacturers must pay a fee of NT\$20,000 for each product packaging review when applying for a certificate of approval from the EPA or a designated organization. As long as no changes have been made to the product or its packaging, no fee will

be charged for extension or re-issuance of permit, or changes to the name of the company or persons responsible. The review fee may not be returned for any reason after it is collected, except in the case of incorrect fee amount.

Hualien ESTP Begins Seeking Firms in September

Activity is abound at Taiwan's Environmental Science and Technology Parks (ESTPs). Four firms have already signed contracts to enter the Hualien ESTP and the park plans to introduce around 15 firms to set up operations. The EPA indicates the overall outlook is good in terms of each ESTPs progress in attracting firms. The Hualien ESTP held the first groundbreaking ceremony on 14

July 2005. The park will focus on development of stone materials, agricultural biotechnology and biomass power generation. The current rise in energy prices and the urgent need to convert waste into resources is bound to prompt environmental and renewable energy industries to pick up the pace of development. The EPA held a briefing on 7 September 2005 in Taoyuan in an initiative to bring together environmental technology firms from Taiwan and abroad, and attract companies to set up in Taiwan's ESTPs. The ESTP promotion plan provides many incentive measures for firms willing to establish operations in Taiwan's ESTPs. Among the benefits include subsidies for land rental, production and research.

response measures, including: close off discharge points or install interception or barrier facilities; reduce or halt production or services; install adequate temporary wastewater storage facilities, or if unable to

do so ensure that discharge or production of wastewater can be halted; and based on the actual onsite conditions, check or eliminate abnormal operations, malfunction, and accidents, and activate backup equipment.

workers are advised to get in the habit of wearing anti-dust masks of N95 or above when cutting materials that may contain asbestos. This measure will prevent inhalation of excessive asbestos fiber dust, and the associated detrimental effects on human health.

Toxic Substance Management

Asbestos to Be Banned in Certain Construction Materials

Due to the detrimental effects of asbestos on human health, the EPA will ban the use of asbestos in certain construction materials including roof shingles, boards, conduit, cement, and fiber cement board.

Asbestos is a commercial term for a group of natural fibrous serpentine and amphibole minerals that retain water, have extraordinary tensile strength, and conduct heat poorly. Asbestos fiber cement board is soundproof, fireproof, easy to work with, available at low cost, and adaptable to diverse construction design. It is frequently found in certain building materials like fireproof fiber cement boards such as calcium silicate board, perlite board and asbestos shingles.

The EPA listed asbestos as a toxic chemical substance early on in 1989 according to the *Toxic Chemical Substances Management Act* (毒性化學物質管理法), and accordingly banned its use in certain products. However there still remained a need for asbestos in industry applications due to its superior heat resistant and insulating properties. For this reason its use was permitted in fabrication of asbestos shingles, boards, conduit, cement and car brake lining, fireproofing and insulation.

The International Agency for Research on Cancer (IARC) has rated asbestos as a known human carcinogen (Group 1). Prolonged inhalation of asbestos causes pulmonary fibrosis and could lead to asbestosis or malignant tumors such as mesothelioma. Long-term exposure can also eventually lead

to lung cancer. For this reason, the international community already strictly regulates asbestos. The U.K., U.S. and Japan are encouraging academia and industry to research and develop alternative products. This will help accelerate a full-scale ban on the use of asbestos and reduce its harmful effects on the environment and human health.

To keep up with international trends in controlling the use of asbestos, the Bureau of Standards, Metrology and Inspection (BSMI), Ministry of Economic Affairs, has already drafted restrictions on the use of asbestos in fiber cement board and reinforced fiber cement board. During a recent conference on toxic chemical substances information management held by the EPA, the decision was made to ban the use of asbestos in the manufacture of asbestos shingles, board, conduit, cement, and fiber cement board.

To reduce the harmful effects of asbestos on human health, the EPA calls on citizens to avoid purchasing building materials containing asbestos and to reduce potential exposure to asbestos in the environment. As it is difficult to determine whether a product contains asbestos judging on appearance alone, citizens and

General Policy

Poll: Air and River Quality Are Top Public Concerns

According to the results of the EPA's latest policy performance indicator survey, 20% to 30% people agree air and water quality have improved. However, a higher proportion of respondents feel the government should direct more effort toward reducing air and river pollution. Among those interviewed, 68% reported disturbance from noise pollution within the past year.

Recognizing the close link between public health and the environmental quality of air and water, this August the EPA released the results of a policy performance indicator survey conducted in 2005. Comparing air and river quality today with conditions three years ago, 22% people think air quality has improved and 45% say it has worsened; 32% think river quality has improved and 29% think it has worsened.

Among respondents, 68% suffered from noise pollution within the past year, with cars and motorcycles the targets of most complaints. Seventy-six percent think mandatory sorting of garbage does not pose an inconvenience on their lifestyles. However, 23% think otherwise, and reported the greatest inconvenience is storing and carrying

household food waste.

In prioritizing environmental problems, people think the government should first address air pollution and then river pollution. They think vehicles are the main source of air pollution, followed by factories. To control river pollution, most respondents believe the first thing to do is to strictly regulate industrial discharge, and then clean up garbage on the rivers and along riverbanks. The EPA is committed to ensuring a better living environment by improving air and river quality, and welcomes the public to participate in related pollution control work.

As the standard of living rises, people put greater emphasis on maintaining a quiet living environment. Results show 68% of people have been disturbed by noise at least once this year, reporting that the worst noise comes from traffic. Low frequency noise has been under regulatory control from 1 July 2005. Survey results show 86% of respondents are not disturbed by low frequency noise near their homes. Only 14% of respondents reported low frequency noise disturbance, which mostly occurred in urban areas.

Starting this year, the EPA is gradually implementing mandatory garbage sorting as a method to increase the recycling rate and achieve the goal of "zero waste." People are required to sort garbage into recyclable items, food waste and general waste. Results indicate that 76% of people think there is no trouble complying with the policy while 23% think otherwise, for reasons like not knowing how to sort, unpleasant odors, inconvenience of handing sorted resources to collection trucks, and inadequate storage space. Some respondents said the most disagreeable part was the hassle of storing and carrying

food waste.

The policy performance indicator survey was conducted by the EPA from 25 April through 9 May this year (2005) to learn people's thoughts about environmental problems. Interviews covered important environmental issues such as air quality, river quality, compul-

sory sorting of garbage, as well as drinking water safety. The interviews were conducted via telephone and targeted people above 20 years of age in 20 counties and cities. A total of 4,730 valid responses were collected, with 95% confidence margin and sampling error less than 1.42%.

Ecolabelling

Taiwan Holds 2005 International Conference on Ecolabelling

The 2005 International Conference and Workshop on Ecolabelling was held in Taipei from August 30 to 31, marking the first time for this event to be held in Taiwan. EPA Minister Chang presided over the opening ceremony and invited Deputy Premier Dr. Wu Rong-yi to deliver a special topic report. The conference was well attended with close to one hundred domestic and foreign participants from 18 countries.

The 2005 International Conference and Workshop on Ecolabelling was sponsored by the EPA and cosponsored by the Global Ecolabelling Network (GEN), the Ministry of Foreign Affairs (MOFA) and the Industrial Development Bureau, Ministry of Economic Affairs (IDB, MOEA). The theme of this year's conference was "Moving Toward an Internationally Coordi-

nated Ecolabelling System." With President Yu Ning (于寧) of Taiwan's Environmental Development Foundation now serving as GEN Chairman, this year the conference was held in Taiwan for the first time. This held special significance for Taiwan and attests to Taiwan's achievements in the area of ecolabelling.

EPA Minister Chang pointed out



Deputy Premier Dr. Wu Rong-yi delivered a special topic report.

that there is no inherent conflict between environmental protection and economic growth. Chang stressed that while environmental sustainability may impact the interests of a single enterprise or sector, it is generally agreed that no matter whether it's a small village, a nation, or even the entire global village, all forms of economic growth are unable to deviate from the society and ecology that keeps us alive.

Minister Chang stressed that ecolabelling is a type of information transfer and is a type of environmental education that is closely connected with all people. It therefore behooves more people to get involved in this matter. Chang expressed hope that all consumers can be provided with adequate information on all products and services.

Deputy Premier Dr. Wu Rong-yi spoke on Globalization and the Economy, emphasizing that although Taiwan is excluded from entering the United Nations, as a nation we are not lagging behind in terms of promoting environmental protection. Dr. Wu raised the example of Taiwan's hosting of this international ecolabelling conference, saying that in the future, Taiwan will continue to devote full efforts in contributing toward environmental issues of global concern.

Under the theme of "Moving Toward an Internationally Coordinated Ecolabelling System," sub-topics discussed by attending domestic and foreign experts included: GEN and the Internationally Coordinated Ecolabelling System, Green Procurement Initiatives, Green Product Development, and Impact of New EU Policy and Directives on Ecolabelling.

Foreign experts invited to speak at this year's conference included Mr. Evan Bozowsky (Secretariat,

GEN), Ms. Helena Nordin (Manager, TCO), Mr. Kris Pollet (Director of EU Law and Policy, White & Case LLP), Dr. John Chai (Managing Director, Fook Tin Group Holding Ltd.), Dr. Wendy Williams (Assistant Professor, University of Applied Sciences, Austria), and Dr. Tomoko Kurasaka (Secretariat Staff, International Green Purchasing Network).

Green Mark

Record High Government Green Procurement in 2004

Government agencies attained record performance in green procurement last year with nearly 80% of purchases within designated product categories being environmentally preferable products. This far exceeds the original goal of 60% set by the Executive Yuan. From January 2006 the remaining four government Yuans as well as the Presidential Office will join the Executive Yuan in increasing green procurement.

The EPA has announced the results of green procurement performance by government agencies in 2004. The total amount spent on green products was NT\$5.7 billion—NT\$96 million more than green purchases in the year 2003 (over NT\$5.6 billion). The percentage of purchases from designated green product categories reached 79.1%, marking a 5.4% growth over last year's rate of 73.8%, and far exceeding the 60% goal set by the Executive Yuan for 2004.

The EPA commissioned an organization to assess government agency performance in green procurement in 2004. Among those agencies with outstanding performance included seven Executive Yuan agencies (Ministry of National Defense, Ministry of Education, Ministry of Transportation and Communications, Department of Health, Environmental Protection Administration, Council of Agriculture and Coun-

After the conference the Environmental Development Foundation discussed a mutual recognition ecolabelling scheme with Ukrainian representatives, and the two nations are expected to sign a formal agreement by the end of 2005. This will push Taiwan's Green Mark ecolabelling system one step closer to internationalization.

cil for Cultural Affairs) and ten county/city governments including Taipei City. These organizations all exceeded the set goal for green procurement in the designated product categories. These organizations also established green procurement promotion plans and evaluation systems within their organization. The National Council on Physical Fitness and Sports was the only agency that failed to reach the goal, with only 40.5% of purchases from the designated green product categories.

The EPA pointed out that government agencies were able to reach the stated green procurement goals in 2004 only after having full understanding of green procurement concepts. The green procurement policy also owes its success to the Central Trust of China, which eagerly complemented promotion efforts by providing joint supply contracts for green products. This makes it more con-

venient for procurement staff to choose products, and has helped spur phenomenal growth in green procurement.

To expand the results of government green procurement, the goal for 2006 has been increased to 75%. Moreover, the EPA has announced that government green procurement "must" reach 60% in 23 designated product categories. This new target will officially take effect in January 2006, at which time government agencies must be fully prepared to put green procurement concepts into practice. Based on the *Resource Reuse and Recycling Act* (資源回收再利用法), all public service agencies including the Presidential Office, Legislative Yuan, Judicial Yuan, Examination Yuan, and Control Yuan are required to join the Executive Yuan in increasing green procurement.

Activity

Taiwan Shares Experience at International Congress on Noise

The 2005 International Congress and Exposition on Noise Control Engineering was held in August. The EPA sent a delegate to participate in the conference which lasted from August 7-12 in Rio De Janeiro, Brazil. Several hundred experts and scholars from over 50 nations around the world attended, including environmentalists and workers in noise control. Over 100 papers were presented to open up discussion and sharing of control strategies and technology to reduce noise. The EPA presented Taiwan's low frequency noise control standards and strategies, which received strong approval from other nations. Japan, China and other nations in Southeast Asia expressed interest in referring to Taiwan's low frequency noise control strategy as they develop their own control measures.

Soil & Groundwater

Plans Finalized for Groundwater Pollution Early Warning System in Northern Taiwan

To effectively control groundwater quality, in August the EPA finalized plans for a groundwater quality early warning monitoring network in areas susceptible to serious pollution in Northern Taiwan. The plan calls for installing 87 monitoring wells and regular monitoring to facilitate prompt discovery of abnormal groundwater conditions.

In August the EPA finalized plans for establishing a groundwater quality early warning monitoring network in areas susceptible to serious groundwater pollution in northern Taiwan. In the beginning stage, the plan calls for setting up 87 monitoring wells around 20 industrial parks in northern Taiwan, where regular monitoring will be conducted. This will facilitate early discovery of abnormal conditions in areas susceptible to serious groundwater pollution so that polluters can be tracked down and pollution can be prevented from spreading.

The EPA explained that the slow and invisible movement of groundwater makes it hard to detect pollution. To gain control over the groundwater quality in areas susceptible to groundwater pollution, the EPA has already begun formulating a Nationwide Groundwater Quality Early Warning Monitoring Network. The plan was finalized for northern Taiwan in August 2005 and calls for the establishment of

87 early warning monitoring wells. In order to find the most appropriate location for wells in the early warning monitoring network, a wide array of information was collected including background characteristics; industrial pollution; analysis, screening and assessment of discharge models; regional groundwater flow, velocity, hydrology and geology; and onsite survey data.

The EPA emphasized that for areas susceptible to serious pollution, monitoring of groundwater quality in the surrounding area is the only way to provide an early warning for groundwater pollution, and adopt timely emergency response measures. After the Nationwide Groundwater Quality Early Warning Monitoring Network is fully established, regular continuous monitoring will help discover groundwater pollution early on and prevent it from spreading. Adoption of this "early discovery and early management" principle is expected to effectively protect groundwater quality and environmental quality.

Soil & Groundwater

Soil/Groundwater Pollution Found at Five Abandoned Factories

Following successful soil and groundwater pollution surveys of farmlands and gas stations, the EPA is now clamping down on potential soil and groundwater pollution at 100,000 abandoned factories throughout the nation. Five companies, including the Taiwan Sanli Chemical Plant in Changhua County, are among the first group of abandoned factory sites with soil or groundwater pollution at levels requiring control measures.

From January 2005, the EPA formally announced 18 designated industries that must conduct soil pollution tests upon relocation or before setting up, suspending or terminating business operations. Before this regulation took effect, already over 100,000 factories had been abandoned over the years. Last year, the EPA launched a systematic nationwide survey of all factories that had been abandoned over the years. This initiative was taken to prevent incidents such as the recent pollution case at Chinese Petrochemical Development Corporation's abandoned Anshun Plant in Tainan City, where failure to promptly discover soil and groundwater pollution resulted in harming the environment and residents. The survey will continue over the next few years to forestall a reoccurrence of similar events, and sites with a higher potential for serious soil and groundwater pollution have been prioritized for inspection.

The EPA has established a mechanism to select and evaluate sites according to data such as factory location, past production and business records, handling of toxic chemical substances, and environmental audit records. Fifteen factories with a potential for high-polluting activities were the targets of the first investigation. Results of the first two-phased onsite investigation came out on 15 August 2005, confirming polluted soil or groundwater at five old factory sites. The five factories and pollutants found were: Taiwan Sanli Chemical Plant (臺灣三笠化工公司) in Changhua County with chromium, copper and cadmium in soil at levels requiring control measures; the Ho Cheng Metal Industrial Co., Ltd. (和鉦金屬工業公司) in Kaohsiung County with copper and zinc contaminated soil; Kaohsiung Ammonium Sulfate Co., Ltd. (高雄硫酸銨公司)

in Kaohsiung City with arsenic, chromium and total petroleum hydrocarbons in soil; China Petrochemical Development Corporation's (中石化公司) Cianjhen Plant in Kaohsiung with mercury in soil, and 1,1 dichloroethylene, benzene and vinyl chloride in groundwater; and Taiwan VCM Corporation's (台氣公司) Kaohsiung Shihcian Plant with 1,1 dichloroethylene, 1,2 dichloroethane, benzene, shun-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene, and vinyl chloride in groundwater.

As for follow up management methods at these sites, the EPA will ask local environmental protection bureaus (EPBs) to request industries to carry out improvements within a certain time period. During the inspection it was found that a large amount of waste was still stored at some factory grounds. For example, the Kaohsiung County's Fengnan Metals received a large amount of waste from external sources, making this an illegal waste storage site. The EPA has already

given the local EPB authority to handle the situation according to the *Waste Disposal Act*.

Some companies did not take adequate soil and groundwater pollution prevention measures during former operations. Other companies did not actively carry out follow up treatment measures after plant closure, resulting in environmental pollution. The EPA is determined to uncover these delinquent companies. In the future abandoned factory investigation plans will be continued and expanded in scale to protect the environment for future generations.

The EPA calls on all companies to confirm whether the land is polluted upon establishment or closure of factory operations. This step will clarify which party is responsible for pollution. If the former landowner transfers land to another party without providing related information as required by law, and if pollution levels require the land to be announced as a control site or remediation site, both former and current owners are held equally responsible.

News Brief

EPA Department Directors Shuffled

Upon receiving approval from the Executive Yuan, the EPA announced a shuffle of department directors on 10 August 2005. The officials took up their new positions on 12 August 2005, after a transfer-of-duty ceremony held that morning. The following table shows the changes.

Name	Former position	New position
Ni Shih-piao (倪世傑)	Chief Secretary	Director, Environmental Professionals Training Institute
Tung Te-po (董德波)	Director, Department of Planning	Chief Secretary
Ho Soon-ching (何舜榮)	Director, Department of Air Quality Protection and Noise Control	Director, Department of Waste Management
Chen Hsiung-wen (陳維文)	Director, Department of Waste Management	Director, Department of Planning
Young Chea-yuan (楊之遠)	Director, Department of Supervision Evaluation and Dispute Resolution	Director, Department of Air Quality Protection and Noise Control
Chen Shean-rong (鄭顯榮)	Director, Environmental Professionals Training Institute	Executive Secretary, Recycling Management Fund
Huang Guang-hui (黃光輝)	Deputy Director, Department of Planning	Director, Department of Supervision Evaluation and Dispute Resolution

Soil & Groundwater

93% of Polluted Farmland Improved after Three Years of Remediation

The EPA has announced the results of three years of farmland remediation. A total of 1,180 parcels of contaminated farmlands were discovered by the end of 2002, comprising a total area of 261 hectares. For the last three years, the EPA has invested over NT\$300 million toward remediation, and has worked with local governments to remove 93% of contaminated areas from the list of control sites.

The EPA completed a detailed inspection of 319 hectares of farmland with a high potential for pollution in June 2002. It was found that 256 hectares of this land indeed exceeded soil pollution control standards. These 256 hectares were distributed throughout 12 counties and cities, including 183 hectares in Changhua County, 32.7 hectares in Hsinchu City, and 11.4 hectares in Taoyuan County. Based on soil pollution control standards, the EPA has designated and announced these 256 hectares, in addition to 261 hectares of previously discovered contaminated farmland, as soil pollution control sites.

In order to protect the safety and hygiene of the nation's food, any food crops that have been grown on contaminated soil have been up-

rooted and burnt, and further cultivation of food crops on contaminated soil is prohibited. Looking after the livelihood of farmers, the EPA provides compensation twice per year for a total of NT\$82,000 for each hectare of farmland to reimburse production losses. Over the past two and a half years, the EPA has provided a total of NT\$40 million in compensation.

The EPA is responsible for overseeing local government farmland improvement plans. Since 2003, the EPA has successively approved of NT\$240 million in subsidies to reimburse 12 counties and cities for farmland improvement costs. Hsinchu City has been the most active local government leading remediation

efforts. Hsinchu City announced the removal of ten parcels of farmland (3.2 hectares) from the list of pollution control sites in September 2003. Another 62 parcels (7.9 hectares) were removed from the list in June 2004, and 104 parcels (21.6 hectares) were taken off the list in December 2004. Changhua County removed 712 parcels of farmland (163 hectares) from the list of pollution control sites in August 2004. Changhua's remaining 108 parcels (20 hectares) with cadmium contamination were successfully improved in March 2005 and removed from the list in May 2005. Remediation work has been completed at contaminated farmlands in Taipei City, Taipei County, Changhua County, Tainan City, Tainan County and Pingtung County, and is already partially complete at contaminated farmlands in Taoyuan County, Taichung County, and Kaohsiung County. By the end of May 2005, the nation had improved a total of 259 hectares of polluted farmland, 243 hectares of which have already passed certification and have been removed from regulatory control. This accounts for 93% of all land area discovered to have pollution in 2002. The re-

Environment Blog Promotes Exchange Between Citizens and Environmental Staff

Marking a first among central government agencies, the EPA has launched a web log on environmental topics (Environmental Blog: <http://blog.epa.gov.tw>), allowing EPA staff members to create their own blog and share their outlook on their work with the public. The site has received enthusiastic response since it went up in August and dozens of individuals have already registered their own blogs. Blog topics range from sharing of work experience to conveyance of environmental concepts. The EPA indicates that in the future the site will be opened up to all levels of government environmental protection workers as well as retired EPA staff, letting internet

users engage in direct exchange through the On-line Q&A section. EPA Deputy Minister Tsay Ting-kuay has already set up his own blog, and he encourages all colleagues to let loose their creativity in setting up

their own blogs. The initiative is meant not only to establish a closer relationship with the public, but also to provide a channel for progressive environmental ideas and give the EPA a new image.



Homepage of the EPA's new "Environment Blog" site.

maining sites will be successively removed from the list of control sites as improvement outcomes are verified.

The EPA has provided NT\$46 million for post-remediation work after contaminated farmland is improved and removed from regulatory control. The Agriculture and Food Agency, Council of Agriculture, assists in restoring soil fertility and provides guidance to farmers in growing green cover crops for two seasons to rehabilitate the soil. This project will be completed within a year.

The EPA indicates that the primary reason for contamination of farmland is due to use of polluted water sources for irrigation. Besides halt-

ing the use of such water sources in the future, the EPA is also investigating contaminated mud in the bottom of irrigation ditches in Taoyuan County, Changhua County and Kaohsiung County. Assistance is provided to the Council of Agriculture and water irrigation associations to clean up contaminated mud. The EPA has also provided local environmental protection bureaus over NT\$28 million to carry out proper treatment of contaminated mud from ditches, so as to prevent secondary pollution of farmland. To prevent further pollution, environmental protection agencies have strengthened inspections of target industries. For example, the Tainan County Government has stipulated

consecutive daily fines to a landowner for illegally providing land to store landfill sludge, issuing an accumulated total of NT\$4 million in fines. Taichung County discovered a case of contaminated farmland due to factory effluent discharge. The factory not only faces a NT\$360,000 fine for illegal discharge of wastewater but also bears costly pollution improvement fees and long term compensation for suspended production on 5.4 hectares of contaminated farmland. The EPA also counsels electroplating and metal surfacing treatment industries in Changhua County to relocate into industrial parks to prevent further contamination of farmland.

News Briefs

Top Priority Green Procurement Product Categories Announced

On 3 August 2005, the EPA announced the first group of environmental product categories to be prioritized for procurement by government agencies, public schools, publicly operated businesses or organizations, and military organizations. A total of 15 types of products in four categories were announced (see chart). For the abovementioned organizations, these green products should account for at least 60% of spending in these product categories each year. The measure will take effect in January 2006.

Category	Green products prioritized for procurement
Paper products for office use	office automation (OA) paper
	stationery and note paper
	sanitary paper
	computer equipment
Office equipment	monochrome printers
	fax machines
	notebook computers
	clothes washing machines
Electrical goods	refrigerators
	air conditioners
	dehumidifiers
	microwave ovens
Other	lighting equipment
	dual-flush toilets
	compost

Wholesale Vendors Trial Biodegradable Packaging

From 1 August 2005, the EPA has been trialing the use of 100% biodegradable packaging for fish, meat, eggs and pastry products at Carrefour and Sinon supermarkets. Packaging labels with the biodegradable symbol will make it easier for citizens to select these items for purchase. After use, the label also aids in sorting, after which the packaging may be given to the sanitation crew for recycling. The EPA indicates that most packaging for fish, meat, eggs and pastry products is made of PET, PVC or OPS. Taiwan goes through over 65.5 tonnes of these packaging materials each month. However, these materials do not easily decompose in the environment. To better understand citizens' level of acceptance, the EPA has launched a two-month trial period for selling the new packaging. At the above two shopping centers, citizens can easily locate product packaging that is marked with the "100% biodegradable" symbol.



Activities

EPA Minister Determined to Continue River Remediation Efforts

The percentage of seriously polluted river-lengths of the Erren River has decreased from 100% in 2001 to 47.2% in 2004. During an onsite inspection of the pollution status of the Erren river, EPA Minister Chang Kow-lung emphasized that in order to further improve the water environment of the river, the EPA has set four major visions in restoring the Erren River environment: 1) Clear water and reappearance of fish, 2) A river watch network to prevent further pollution, 3) Clean river surface with no garbage, and 4) More public access points along the river. It is hoped that the international Dragon Boat Races can be held on the Erren River in 2011.

2005 Nationwide Marine Oil Spill Emergency Response Drill

To strengthen marine oil spill emergency response, reporting, and coordination capabilities, the EPA, the Coast Guard Administration and the Taipei County Government jointly held the "2005 Nationwide Marine Oil Spill Emergency Response Exercise" on 25 August 2005. EPA Minister Chang Kow-lung presided over the activity. Sixteen organizations displayed exhibits on marine ecological conservation, marine environmental protection and marine pollution emergency response equipment. Around 150 people were mobilized for the exercise, including personnel from

the Coast Guard Administration, China Petroleum Corp., National Airborne Service Corps (NASC) and the county government. During the exercise, NASC directed helicopter operations and other agencies commanded a total of ten ships of various types. The drill presented a real-life scenario on the ocean to hone skills in investigating, skimming and recovering oil pollution.

Former EPA Ministers Help Celebrate EPA's 18th Anniversary

The EPA has come of age with already 18 years to its name. EPA Minister Chang Kow-lung kicked off the EPA's 18th anniversary party, and imparted three wishes for the future to reduce water pollution, air pollu-

tion and the nation's waste. Above all, Chang is dedicated to raising Taiwan's environmental quality in the immediate future. Chang commended his colleagues at the EPA for working hard to protect Taiwan's environment. In the face of worsening environmental degradation and increasing citizen demands, Chang urged colleagues to carry out environmental protection work in the best interest of the most people and in a way that promotes harmonious coexistence with the environment. The EPA invited the first and second ministers of the EPA, Eugene YH Chien (簡又新) and Chao Shao-kang (趙少康) to address the audience and help celebrate this occasion worth commemorating.



Former EPA ministers Eugene YH Chien (right) and Chao Shao-kang (left) celebrate the EPA's 18th anniversary with current EPA Minister Chang Kow-lung (center).

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