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Long-term Erhjen River Pollution Headache Resolved

“In the last few days we’ve already received 140 e-mails from people living along the Erhjen River strongly supporting our closing of illegal smelters. I want to announce that the EPA, together with Tainan County and City, is committed to carrying through this task to the end.” Thus spoke Administrator Lung-Bin Hau on June 29 when, in the face of enormous pressure, he confirmed the EPA’s determination to remove illegal smelters from the banks of the Erhjen River.

Flowing through farmlands near the boundaries of Tainan County, Tainan City, and Kaohsiung County, the Erhjen River is lined with illegal smelting plants long known as a severe pollution source. But since the job of removing these illegal smelters had previously been in the hands of various county and city authorities, smelter owners and the implementing agencies mostly adopted a wait-and-see attitude, and little removal work was completed.

To put the Executive Yuan and EPA’s determination to clean up illegal smelters along the Erhjen River into action, former EPA Administrator Edgar Lin and current EPA Administrator Lung-Bin Hau visited the river several times to get a closer look at the situation. They also repeatedly discussed the issue with the Tainan County and City government, expressing the EPA’s commitment to protecting environmental quality along the Erhjen River.

Administrator Hau held a press conference in Tainan on June 28—the eve of removal work—to announce the mobilization of relevant agencies to carry out the compulsory removal of close to 70 illegal smelters along the Erhjen River in Tainan County and City. Hau declared that the task would be completed before the end of June.

When 6:30 A.M. arrived on the following morning (June 29), Tainan City sent out five teams and Tainan County sent out four teams to carry out removal operations. In addition, the police mobilized close to 1,000 personnel to support the removal effort and prevent any incidents or resistance.

After giving the removal order, Hau, accompanied by work personnel, braved the intense sun and visited various removal sites. Removal work proceeded on schedule, and no large-scale public resistance occurred.

Removal continued straight through to 5:00 P.M. A total of 57 of the 68 listed smelters were removed (11 of the 57 were removed by their owners). As for the remaining 11 smelters, because the Industrial Development Bureau, MOEA, had announced it would assist smelters to relocate to the PENCHOU Industrial Park before the end of December 2001, the EPA requested that the smelter operators sign affidavits assuring they would move to legal industrial parks before the end of the year. The smelters are absolutely forbidden to perform any smelting work prior to their relocation, and will be subject to compulsory removal if they do so. Under these circumstances, the EPA has agreed to temporarily refrain from removing the remaining 11 smelters, which will be under close surveillance by local authorities.

After the completion of the removal effort, Hau thanked all agencies under the EPA, particularly the EPA’s Central Office, and the Tainan County and City government for their wholehearted assistance, which had been essential to the completion of this tough mission.

Although illegal smelting plants have been removed from the banks of the Erhjen River, because the area is still littered with smelter slag and dust collector waste, threats to health and environment linger on. The EPA conducted a survey of suspected hazardous waste samples in July. After testing 20 samples for toxic chemical substances, it was found that seven contained extractable amounts of the heavy metals lead and copper far exceeding the ROC’s *Standards for Defining Hazardous Industrial Waste*. The EPA is currently pressing smelter owners to quickly complete waste disposal work. According to Article 34 of the *Waste Disposal Act*, owners must bear responsibility for disposal; the environmental authorities may perform this disposal work and seek compensation if owners fail to adequately fulfill this responsibility. Furthermore, the EPA will step up patrol work to prevent illegal operators from restarting their smelters. 

Recycling Fund Committee Reorganized

The EPA Recycling Fund Management Committee was reorganized during July. The primary objective of this reorganization is to cut the financial losses incurred since the start of PET plastic bottle recycling, and it will also strengthen management, simplify application and reporting procedures, and establish a "single window" for services, stated the EPA.

Volume IV, Issue 6 of this publication reported on how the Recycling Fund Management Committee was strengthening efforts to catch under-reporting or failure to report by container firms. Thanks to the positive results of this campaign, the PET Bottle Recycling Fund showed a surplus (exceeding NT\$6 million) for the first time ever during the second quarter of this year. Nevertheless, in light of the massive cumulative loss sustained since the EPA took control of the fund in 1998, Administrator Lung-Bin Hau felt it necessary to resolve this problem quickly after assuming his post. Apart from improving detection of noncompliant firms, he has recently taken steps to strengthen the Fund's functioning through a major shakeup of the Recycling Fund Management Committee's organizational structure.

The first major feature of this organizational shakeup is the institution of the first full-scale changes in the Committee's divisional organization since the fund's establishment. The Committee's original organization included five divisions respectively responsible for the recycling of waste containers, scrap motor vehicles, waste tires/lubricating oil/lead storage batteries, waste electronics products/capacitors, and waste information products. An audit division was established as well. The new organizational system imposes unified management and assigns each division a distinct area of responsibility. These new divisions are responsible for waste recycling (excluding containers), container recycling, management and guidance, payment checking, and general affairs/planning.

In other words, while the original Waste Container Division has been renamed the Container Recycling Division, the other four recycling divisions have been unified as the Waste Recycling Division. The Audit Division has been changed into the Payment Checking Division. The new system also strengthens the Committee's management and planning functions by adding a Management/Guidance Division and General Affairs/Planning Division.

Apart from this major organizational change, the Committee's highest executive has been changed as well. The position of "supervisor" has now been added above executive secretary, while the position of deputy executive secretary has been

eliminated. The supervisor will bear the greatest share of responsibility for the management and implementation of the Committee's affairs in the future. This position has been filled by Hsiung-wen Chen (陳雄文), who is concurrently director-general of the EPA's National Institute of Environmental Analysis.

The second major change at the Recycling Fund Management Committee is the implementation of a "single window" for services. A simple and clear distinction between containers and other wastes has been established. With regard to upstream firms involved in the import and manufacture of containers, reporting, fee collection, and labeling inspection is now uniformly handled by the Payment Checking Division. In contrast, the auditing and certification of recycling and disposal organizations, the management of downstream recycling points, and the issuance of recycling refunds is uniformly the responsibility of the Management/Guidance Division. In the future businesses will simply need to determine whether the items to be recycled are containers or not in order to determine which division to visit. Businesses only need to go to the Management/Guidance Division for subsidy applications or the Payment Checking Division for recycling fee payments.

Following this major reorganization, the Recycling Fund Management Committee's most pressing objective has been to cut the severe losses suffered by the PET Bottle Recycling Fund. In this regard, the most urgent policy issue has been whether or not to scrap the longstanding NT\$0.5 recycling refund for PET bottles. The EPA hopes to reach a final decision on this issue in the near future.

The following personnel changes are being instituted at the newly-reorganized Recycling Fund Management Committee: Specialist Wu Cheng-tao of the Air Quality Protective Planning Bureau has taken charge of the Waste Recycling Division; Specialist Chang Hsu-chang of the Performance Evaluation and Dispute Settlement Bureau has taken over the Management/Guidance Division; Junior Specialist Hsu Chih-lun of the Solid Waste Control Bureau has assumed control of the Container Recycling Division; Researcher Chang Ting-wang of the National Institute of Environmental Analysis has taken charge of the Payment Checking Division; and Environmental Technician Wu Hsin-ju, previously hired by the Recycling Fund Management Committee, has taken the reins at the General Affairs/Planning Division. All of these personnel assignments took effect on July 13. 

Agreements Achieved at EPA-MOEA Summit

Holding his first cross-ministerial meeting since his appointment, Administrator Lung-Bin Hau met with Minister of Economic Affairs Lin Hsin-yi on July 3rd. The two ministers discussed sixteen issues with the expectation of creating a win-win situation by achieving a balance between environmental policies and economic development. Agreements were reached on many issues, including some concerning industrial park wastewater treatment and waste materials.

Administrator Lung-Bin Hau held a cross-ministerial coordination meeting with Minister of Economic Affairs Lin Hsin-Yi (林信義) on July 3rd. This was Hau's first such meeting since his appointment. The two chiefs discussed and exchanged opinions regarding such issues as the treatment and handling of industrial park wastewater and waste products. Hau said that it was a very meaningful meeting that created several intersecting points between the two goals of environmental protection and economic development.

Discussions during the meeting included a total of 16 major and minor issues, most notably: 1) the management of wastewater treatment plants in industrial parks; 2) draft amendments to the *Tapwater Act* regarding the proximity of farming and live stock areas to water sources; 3) the management of industrial waste in industrial parks; 4) the strengthening of drinking water quality inspections; 5) the planning and establishment of final disposal sites for industrial waste; and 6) drinking water quality standards.

During the five-hour meeting, the two ministries agreed to hold regular formal coordination meetings in order to promote the management of river water quality, and the Ministry of Economic Affairs (MOEA) agreed to complete the expansion of the wastewater treatment plants in the Kuanyin and Hsinchu industrial parks before the end of 2003. Further, due to the current economic slowdown, the EPA agreed to do its best to diminish the financial burden on enterprises during the initial period of collecting soil and ground water remediation fees.

Concrete agreements were reached on 14 of the 16 items discussed. These include the EPA's agreement to the MOEA request that careful consideration be granted to how Soil and Ground Water Pollution Remediation Fees are collected. This issue in particular highlights the most common problem confronted in striving for a balance between environmental protection and economic development.

Article 22 of the *Soil and Groundwater Pollution Remediation Act*, formulated by the EPA in Feb 2000, states: "For purposes of pursuing soil and ground-water pollution remediation, the EPA may collect Soil and Groundwater Pollution Remediation Fees from

manufacturers and importers of regulated chemicals based on the production and import volumes of these chemicals." This established the Soil and Groundwater Pollution Remediation Fund with independent revenues and budget.

While conceding that the fund is well intentioned, the MOEA believes that the burden on the targeted enterprises will be too great due to the present economic slowdown and the fact that there are only two petrochemical companies, Chinese Petroleum Corp. and Formosa Plastics, and no more than 40 manufacturers of chlorinated organic compounds. The ministry says that placing the entire annual burden of the fund on these enterprises will negatively impact their operations. It notes that most of the enterprises that are actually responsible for creating illegal dumping sites are not the chemical companies currently targeted by the fund. Therefore, based on the principle of "the polluter pays," the MOEA contends that a more reasonable method would be to increase the types of fines imposed upon polluters and lower the percentage of the fund collected as remediation fees.

The EPA agreed to the MOEA's proposal and decided that, in the initial phases of fee collection, utmost consideration would be given to decreasing the burden on enterprises. The EPA also decided to again discuss and adjust the collection method after two years, and that implementation should be divided into stages in order to achieve both economic development and environmental protection.

For the purpose of coordinating the two authorities' limited inspection personnel resources and efficiently to protect river water quality, the two ministries also agreed to hold regular formal coordination meetings in order to promote the management of river water quality. To improve the management of wastewater from industrial parks, the MOEA agreed to use remaining land at the Kuanyin and Hsinchu industrial parks to construct wastewater treatment facilities as soon as possible, and to complete this project before the end of 2003.

After the meeting, the two ministers agreed that this was a win-win meeting where both sides achieved specific agreements, and that the two parties would follow this model in the future, working together to solve domestic disputes over environmental protection and economic development. Administrator Hau also plans to conduct face-to-face meetings with the heads of other ministries that deal with environmental issues, such as the Council of Agriculture, in order to realize environmental protection policies. 

EPA Responds in Real-time to Environmental Disasters

With typhoon season arriving, not only front-line disaster prevention and response centers have to stand by for disaster relief orders, but also the second-front environmental personnel, and especially the EPA. Ever since Lung-Bin Hau was appointed EPA administrator and declared his intention to perform with vigor and a sense of urgency, the EPA has been more active than ever in taking the initiative to diminish as far as possible the harm of natural disasters or man-made accidents to the environment and the public.

In late June there was Typhoon Chebi, and then the collision between a Panama-registered chemical transport ship and a naval vessel occurred. As soon as these disasters had been handled, Typhoon Trami arrived in early July. Even though winds were not very strong, the torrential rains it brought with it created a disaster unseen in the south and on Penghu for several decades. Not only were the lives of the local population seriously threatened, but ocean and drinking waters were also polluted to varying levels.

To diminish public unease and protect the quality of the environment, EPA officials therefore found themselves in a race with the typhoon to be the first to arrive at a disaster area to share the difficulties with the local population, and to swiftly solve the problems.

When Typhoon Chebi hit Taiwan in late June, several hundred boats in Penghu either capsized or sank. To be able to understand the water pollution thus created around Penghu, and to coordinate oil spill cleanup by the competent authorities, the director-general of the EPA's Bureau of Water Quality Protection rushed to Penghu in order to inspect the pollution created by the sunken boats. He requested that port authorities, China Petroleum Corporation (CPC) and the Bureau of Environmental Protection take the necessary steps for handling the situation, coordinate with the Fisheries Administration's stationing of permanent personnel and take responsibility for coordinating and directing oil cleanup operations.

Within less than two weeks, Typhoon Trami brought torrential rains to the Hengchun and Kaohsiung area. The rains flushed the earth's surface, creating an area of yellow mud-water outflow along the coast, leading to the misconception that the ship MV Amorgos was leaking oil.

On July 11, the EPA immediately set up a typhoon response center to be able to continuously monitor and adopt suitable measures in response to Typhoon Trami. At 2:40 in the afternoon of that day, the deputy director of the Bureau of Water Quality Protection traveled to the vicinity of the MV Amorgos to monitor the situation and discovered that the ship was in fact not leaking oil.

Due to the abundant rainfall brought to the Kaohsiung area by Typhoon Trami, the area was instantly flooded. Not only did the local population sustain great losses, but the quality of drinking water in the greater Kaohsiung area was also affected. To relieve the unease of the local population, environmental protection bureaus in southern Taiwan tested water quality. Following these tests, the EPA called on the population to not neglect to clean their water reservoirs in order to ensure the safety of drinking water.

Not long after Typhoon Chebi had left, a major water pollution incident occurred in the waters off Kaohsiung. At 01:20 A.M. on June 28, 12 nautical miles off Kaohsiung (120° 6' E, 22° 45' N), a naval vessel collided with Golden Chemical, a Panama-registered, 3668-ton chemical transport ship.

At 06:15 A.M. the EPA notified the coastguard administration's marine police to establish a response center on location. Kaohsiung port authorities were also notified to inform the two ships' captains to immediately adopt pollution prevention and constraining measures, and CPC was asked for assistance. At 06:45 A.M. the Central Disaster Prevention and Response Committee was informed, and at 07:30 A.M. the Executive Yuan had established the *Special Taskforce for Handling Major Marine Pollution Incidents*.

After the director-general of the Bureau of Water Quality Protection had been alerted on the morning of the same day, he immediately led an EPA team to the site in order to gain an understanding of the situation and to lead the pollution disposal activities. As xylene is lighter than water and also water-repellent, it will be broken up by the waves and naturally dissolve, and, therefore, its influence on the marine environment should be very minor. Since it was impossible to immediately repair the leak, the ship was given directions to navigate to a position 24 nautical miles off the coast in order to pump out the seawater that had leaked into the ship, thereby assuring that absolutely no pollution was left onboard before the ship was allowed into the harbour for repairs. On completion of pollution treatment, the EPA instructed the southern division of the Chief Inspectorate and the Kaohsiung Bureau of Environmental Protection to keep testing the quality of coastal waters for three days. The marine police and coast guard were also asked to help monitor any remaining pollution.

The above response process has expanded the scope of EPA's pollution treatment and disaster prevention, and the EPA spares no effort in laying down the principles for future crises treatment. 

Feature Article

Regulatory Framework for SGPR Nearing Completion

Because there was previously no legal basis for soil and groundwater pollution remediation work, control and management were conducted in a case-by-case fashion. However, following the passage of the *Soil and Groundwater Pollution Remediation Act*, the EPA has now formulated 17 accompanying regulatory measures. These include the somewhat controversial *Regulations Governing the Collection of Soil and Groundwater Pollution Remediation Fees*, which is expected to be enacted this October. When that time comes, the ROC will have ushered in a new era in soil and groundwater pollution remediation.

The EPA immediately began drafting relevant regulatory measures after the Legislative Yuan formally passed the EPA-drafted *Soil and Groundwater Pollution Remediation Act (SGPR)* on its third reading in February 2000. It soon announced operating guidelines for the transitional period after the enactment of the *SGPR* and for the oversight of individual cases. These operating guidelines have insured that the management and cleanup of polluted areas will continue prior to the completion of relevant legislation.

The use of the word "remediation" in the title of this act, as opposed to "prevention" or "control," signifies that pollution has already occurred. Occurring mostly in industrial areas, soil and groundwater pollution is hidden below the surface of the ground and is therefore easily overlooked. Resulting from long-term, cumulative processes, this type of pollution typically remains undiscovered unless a problem occurs. By the time a problem occurs, the pollution is inevitably quite severe. And given the rudimentary legal basis existing in the past, it was formerly impossible to get polluters to bear responsibility for their actions. The RCA plant incident was a typical example. However, with the completion of regulatory measures accompanying the *SGPR*, these incidents will not recur.

The EPA has formulated a total of 17 regulatory measures (including guidelines - see table below) following the passage of the *SGPR*. Apart from the two operating guidelines mentioned above, the remaining regulations can be classified as (1) enforcement rules, (2) monitoring and control standards, (3) preliminary assessment methods for controlled site, and (4) fee collection and fund management guidelines.

Starting with the enforcement rules, the enforcement rules naturally serve to interpret the *SGPR* and make up for its omissions, as well as

clearly defining the responsibilities of implementing organizations. The basic spirit of the enforcement rules does not overstep that of the original law, however because soil and groundwater issues involve local government, agricultural authorities, land authorities, the MOEA, and other agencies, the EPA is still busy negotiating with all ministries, councils, and agencies in an effort to resolve obstacles to implementation. The enforcement rules have been presented to the Executive Yuan and are expected to go into effect in August.

The next item to consider is soil and groundwater pollution monitoring and control standards, which set the first threshold for remediation work. Monitoring standards will be used to judge the level of soil or groundwater pollution, and will therefore determine whether an area will be listed as a controlled site and subjected to controls. The thorniest issue when drafting these standards is not related to analysis procedures, but is rather the problem of how to formulate testing methods.

The third item is that of preliminary assessment methods for controlled sites. This is the second threshold for remediation work. A preliminary assessment must be performed whenever remediation work must be conducted at a controlled site. Preliminary assessments will be performed by local environmental authorities, and the case must be reported to the EPA for approval.

Providing a basis for the overall funding and implementation of the *SGPR*, the fourth item consists of regulations governing fee collection and the organization of a fund management committee. While organizational rules and fund utilization regulations have already been announced, the more controversial fee collection regulations are still being ironed out. The crux of the problem is that petrochemical firms, who will have to pay the greatest share of fees, don't feel they meet the conditions of the "polluter pays" principle, and are worried that the huge amount of the fees will put an excessive burden on them. The SGPR fund, which has a target size of NT\$30 billion, is expected to take in NT\$1.5 billion in fees over a 20-year period. The EPA emphasizes that the cost of the fund will not be borne solely by industry. Since money will also be allocated from the government's recycling and air pollution funds, firms should not have to bear too great a burden. The EPA hopes to announce fee collection guidelines by October.

The EPA projects that the drafting of the SGPRA's associated regulations and measures will be completed before the end of this year. With relevant laws and regulations firmly in place, by next year (2002) there should be a solid legal basis for dealing with any kind of situation. Among the problems that have occurred in the past or may occur in the future are pollution of farmland, polluted indus-

trial sites, illegal dumpsites, and leaking pipelines and oil storage tanks. It will be now possible to deal with these circumstances in accordance with law. The completion of the accompanying measures will spare the earth and water sources further pollution, allowing the earth's fruitfulness to be restored. It is impossible to overstate the importance of this event. 

Item	Name	Basis in original law	Responsible unit	Current status
1	Implementation Rules for the Soil and Groundwater Pollution Remediation Act	Article 50	SWCB	Reported to Yuan 6/27/01
2	Soil Pollution Monitoring Standards	Article 5	SWCB	Hearing 6/20/01
3	Groundwater Pollution Monitoring Standards	Article 5	WQPB	Hearing 6/28/01
4	Soil Pollution Control Standards	Article 5	SWCB	Hearing 6/20/01
5	Groundwater Pollution Control Standards	Article 5	WQPB	Hearing 4/9/01
6	Preliminary Controlled Site Assessment Methods	Article 11	SWCB	Discussion meeting 4/9/01
7	Regulations for Conducting Pollution Area Surveys, EIA and Remediation Grading for Control Sites	Article 12	SWCB	Draft completed
8	Regulations Governing Management of Environmental Inspection and Testing Organizations	Article 10	NIEA	Hearings completed
9	Regulations Governing the Control of Soil and Groundwater Pollution Control Areas	Article 14	SWCB	Discussion meeting 6/29/01
10	Regulations Governing the Collection of Soil and Groundwater Pollution Remediation Fees	Article 22	WQPB	Hearing 6/7/01
11	Regulations Governing the Collection, Safekeeping, and Use of the Soil and Groundwater Pollution Remediation Fund	Article 22	WQPB	Announced 6/11/01
12	Organizational Rules and Regulations of the Soil and Groundwater Pollution Remediation Fund Management Committee	Article 24	SWCB	Announced 7/4/01
13	Announcement of Industries Required to Submit Pollution Analysis Data Prior to Land Transfers	Article 8	SWCB	Draft completed
14	Announcement of Industries Required to Perform Pollution Analysis Before Establishment, Termination, or Cessation of Operations.	Article 9	SWCB	Draft completed
15	Format of Civil Suit Notice	Article 49	SWCB	Announced 2/20/01
16	Operating Guidelines During the Transitional Period After the Enactment of the Soil and Groundwater Pollution Remediation Act		SWCB	Announced 5/4/00
17	Operating Guidelines for Case Oversight Under the Soil and Groundwater Pollution Remediation Act		WQPB	Announced 5/16/00
	Note: SWCB =Solid Waste Control Bureau; WQPB =Water Quality Protection Bureau; NIEA =National Institute of Environmental Analysis			

TQC System Planned for Kaohsiung-Pingtung Air Pollution

Which area of Taiwan has the worst air quality? The answer is the Kaohsiung-Pingtung air quality district, and ozone pollution there is worsening each year. Therefore the EPA has decided to implement the nation's first total quantity control plan for air pollution emissions in the Kaohsiung-Pingtung air quality district beginning in 2003. In the situation that total emissions in the district exceed standards, enterprises wishing to set up new facilities will be required to utilize the best available control technology and acquire emissions credits.

Total quantity control (TQC) refers to maximum quantity levels for emissions of substances that lower air quality in a region in order to make air quality within that region meet standards. There is a high concentration of heavy industry in the Kaohsiung-Pingtung region. This, combined with heavy traffic, has caused the area's air quality to deteriorate to the point that it is the worst in Taiwan.

While monitoring data indicates that air quality has been gradually improving in Taiwan in recent years, the quality of air in the Kaohsiung-Pingtung region remains the worst in Taiwan. Figures for the last 5 years show that the percentage of days per year with air quality index ratings over 100 points (called the bad air ratio) averages around 5% for Taiwan as a whole. However, this percentage is 10% in the Kaohsiung-Pingtung region—two times higher than the national average.

In 2000, Kaohsiung County suffered the highest bad air ratio in Taiwan and Pingtung County posted the second highest. Kaohsiung City even

endured a ratio of 9.07%. The primary forms of air pollution in these areas were fine airborne particles (PM₁₀) and ozone. What's more, ozone pollution has been worsening in recent years. Therefore, EPA efforts to improve air quality in the region will focus on these two forms of pollution.

How has air pollution in the Kaohsiung-Pingtung region come to be so severe? The EPA says that above all it is the high concentration of industry and heavy traffic that have kept air pollution levels so elevated. This region is home to all sorts of industry, including steel mills, petrochemical complexes, fossil fuel-burning powerplants, cement factories and chemical plants.

Consequently, the EPA is introducing a series of measures aimed at reducing the bad air ratio in this region. These include increased street cleaning and street sweeping to keep down dust levels, strengthening controls on the emissions of nitrogen oxide and volatile organic compounds and conducting joint air and land investigations.

The most important measure for improving air quality in this region is the EPA's TQC plan. Beginning in 2003, the EPA will require that all new factories of a certain scale comply with TQC standards, including both utilizing best available control technology (BACT) and acquiring emissions credits, before they are permitted to begin operating. It aims to cut the bad air ratio in this region to 10% or less this year and bring it to within 6% by 2006.

Administrator Visits Hong Kong's Waste Management Facilities

Administrator Lung-Bin Hau visited Hong Kong from June 25 to June 27 to inspect local waste transshipment and treatment facilities. Following the inspection, the EPA is even more convinced that cross-area waste treatment is the direction that future waste treatment must take.

In late June, Administrator Lung-Bin Hau visited Hong Kong heading an inspection delegation that included the director-general of the Bureau of Solid Waste Control and other environmental protection personnel. This was the first time that Hau had left the country after being appointed EPA Administrator. The main objective of the visit was to inspect Hong Kong's waste transshipment and treatment facilities.

According to the EPA, the reason for choosing Hong Kong was that it used to be ruled by the UK, and therefore has very advanced waste treatment techniques. Add to this that, like Taiwan, Hong Kong is a small area with a large population, has a fairly limited ability to accept large volumes of garbage, encounters difficulties in obtaining new land and faces many pollution problems. When it comes

to waste treatment, however, there are many areas where it is well worth it for Taiwan to borrow from Hong Kong's experience.

Hau's main itinerary in Hong Kong included a visit to the western landfill in the New Territories, the western waste transshipment station on Hong Kong Island and the chemical waste treatment plant on Tsing Yi Island. Operation of all waste transshipment and treatment facilities in Hong Kong are outsourced to private organizations through open public tender, with the government only appointing about 10 people to each facility to supervise treatment. This is much more efficient than the current domestic practice, where many similar facilities are operated by the government.

Among these facilities, the chemical waste treatment plant on Tsing Yi Island specifically treats hazardous industrial waste. The plant is located out of the way, and for this reason there are many transshipment stations in Hong Kong where waste materials are preliminarily treated and compressed before being sent on to the treatment plant.

The advantage of establishing transshipment stations is that hazardous industrial waste can be preliminary treated close to where it originated, which will greatly diminish the risk of pollution during transport to the waste treatment plant. Transshipment stations can also be established across areas, cities or counties, lowering the cost of waste treatment plant construction, regardless of whether it be for hazardous or general waste.

In order to facilitate the implementation of cross-area waste treatment, the ongoing amendment to the *Waste Disposal Act* has already incorporated a ban on local government restrictions on cross-area waste disposal and treatment. Unfortunately it was not possible to complete the passage of this law during the previous legislative session, but it is hoped that it will be passed during the coming session, solving the problem of garbage wars between cities and counties that have been so frequent in the past. ♣

EPA to Limit Use of Disposable Utensils in Three Stages

The EPA, under its policy for controlling the use of disposable eating utensils, will gradually introduce restrictions on the use of these utensils in three stages, targeting a wider range of organizations with each progressive stage. This policy primarily aims to address this form of pollution at its source with the ultimate goal of reducing garbage volumes and environmental pollution. However, it also takes into consideration public sanitation concerns and the size of the targeted operations. The EPA hopes local governments and enterprises will make timely preparations for the introduction of these restrictions.

The disposable eating utensils we regularly see on the market are primarily those intended to be used just once. These include cups, bowls, plates, chopsticks, knives, forks, spoons and other utensils that are predominantly made of paper (which has been strengthened with wax or covered with a plastic film) or plastic.

The EPA held a public hearing on April 27, 2000 in order to discuss its control strategy for common containers that are difficult to recycle, collect and dispose of. Those attending the hearing all agreed that it was best to adopt at-source reduction measures for all disposable eating utensils.

To this purpose, the EPA held a formal meeting with the Ministry of Education, Ministry of Defense, Department of Health and local environmental protection agencies in order to discuss the range of organizations and enterprises to be targeted and the timetable for implementing its policy for restricting the use of disposable eating utensils. It was agreed that, while taking into account public sanitation concerns and the size of the targeted organizations and enterprises, the policy would be introduced in three stages.

In the first stage, these restrictions will apply to all government agencies, schools, state-run enterprises and military organizations. In the second stage, scheduled to be implemented 6 months after the beginning of the first stage, the range of targeted operations will be expanded to include all food and beverage establishments of a certain size. The environmental protection bureaus of each local government will be

granted leeway to announce the targeted operations and implementation timetable in consideration of the practical conditions of their respective administrative regions. The third stage will see these restrictions applied to all food and beverage establishments regardless of their size. However, the specific regulations of this stage will be gradually introduced following a review of the implementation of the first two stages.

Considering the practical limitations of implementation, targeted organizations will be exempted from these usage restrictions when purchasing food from outside sources or when food suppliers within the organization sell food outside of the organization. However, the use of utensils not containing benzene or chlorine polymers should be encouraged. Also, these organizations should set up recycling facilities and separate their recyclable waste into the appropriate recycling categories.

Regarding the legal basis for these restrictions, the Control Yuan previously corrected the EPA because its "*Guidelines for Implementing Prohibitions on the Use of Styrofoam Food Containers by Government Agencies, Schools and State-Run Enterprises*," announced on December 28, 1993, went beyond the original law. Therefore, in order to give the restrictions an appropriate legal basis, the EPA has added the words "restrictions on the usage of" to Article 21 in amendments to the *Waste Disposal Act* (these amendments have already passed their first reading in the Legislative Yuan, however, they were unable to pass their final reading before the Legislative Yuan recessed for the summer). These guidelines will finally gain a legal basis after these amendments are passed.

The EPA has already notified local governments that they should begin making preparations for the implementation of these restrictions. It has also stepped up its efforts to publicize these restrictions. It says that, after the required amendments are passed, it will reduce the original adjustment period from 6 months in order to speed the implementation of this plan. ♣

NIR Monitoring Results for Base Stations Released

On July 24, the EPA released the first set of monitoring data on levels of non-ionizing radiation generated by mobile phone base stations in the greater Taipei area. The results were in adherence with the *Recommended Reference Levels for Non-Ionizing Radiation in the Environment* promulgated by the EPA on January 12, 2001. Further monitoring projects are planned for both central and southern Taiwan. The EPA's monitoring efforts will not only help resolve public concerns regarding the issue of non-ionizing radiation, but will also represent a major step forward in establishing baseline data for research on non-ionizing radiation in Taiwan.

The EPA recently initiated efforts to measure electromagnetic waves released by mobile phone base stations in the greater Taipei area. Monitoring results were all in adherence with the *Recommended Reference Levels for Non-Ionizing Radiation in the Environment* promulgated by the EPA on January 12, 2001. The results of the project demonstrate that the public need not be concerned about radiation levels surrounding base stations.

The tremendous convenience in communications offered by mobile phones has led to an explosion in usage to the point that seemingly everyone in Taiwan carries one. This increased usage has also led to a dramatic growth in the number of mobile phone base stations. At the moment, the medical community has yet to establish whether radioactive electromagnetic waves from base stations pose a risk to human health, however, the issue has become a significant public concern.

The EPA's recent monitoring project was launched to resolve the questions and concerns of the general public and the business community regarding whether current levels of electromagnetic waves from mobile phone base stations in Taiwan complied with the EPA's *Recommended Reference Levels for Non-Ionizing Radiation in the Environment*. Thanks to the full cooperation of Taiwan's four telecom companies, the project was implemented without any difficulties. The EPA stated that the primary sources of non-ionizing radiation (NIR) in Taiwan are mobile phone base stations, and radio and television broadcasting towers. Due to the dramatic development of the telecommunications industry in Taiwan, there are currently 21,300 registered mobile phone base stations in Taiwan according to the Directorate General of Telecommunications (DGT) of the Ministry of Transportation and Communications (MOTC). 10,200 stations are located in northern Taiwan, 5,200 in central Taiwan, and 5,800 in southern Taiwan.

The monitoring project selected the greater Taipei, greater Taichung and greater Kaohsiung areas as areas representative of the situation for Taiwan as a whole and conducted monitoring in three stages starting in Taipei and ending in Kaohsiung. It also took samples from the different types of base stations in these areas. In the first stage, a total of 140 stations in the greater Taipei area were selected for testing, accounting for 2.4% of the total number of stations in the area. These included 82 jointly-operated stations, 40 independently-operated stations and 18 indoor stations. In response to public concern regarding the level of electromagnetic waves in the areas surrounding base stations, researchers also took measurements in commonly used public areas such as playgrounds, markets and temples. A total of 10 places were selected for monitoring.

Test results from areas surrounding base stations showed that both the highest readings (Xmax) and average readings (Xavg) were respectively 1/2700 and 1/18000 of the EPA's recommended reference levels. Furthermore, regardless of whether readings were taken at jointly-operated stations, independently-operated stations, indoor stations or outdoor public areas, all measurements were within the ranges announced in *Recommended Reference Levels for Non-Ionizing Radiation in the Environment*.

The EPA plans to invite the DGT to continue cooperation on further projects to test mobile phone base stations in the greater Taichung and greater Kaohsiung areas. The results of testing projects will not only provide the EPA with valuable data for helping to set future standards for non-ionizing radiation, but will also provide useful reference information for related government agencies (such as the MOTC and the Ministry of Economic Affairs), academic researchers and the business community. One of the most important contributions of the recent testing project was to allow Taiwan to take a major step forward in compiling baseline data on ambient environmental non-ionizing radiation for future research use.

The project's testing and measurement methodologies were based on the international IEEE Standard C95.3-1991 (1997 Revised) and the current monitoring draft under review. The implementation period was from May 2, 2001 to June 15, 2001, and measured a total of 1,569 points.



EPA to Track Overseas Treatment of Solid Waste

Management of industrial hazardous waste sent overseas for treatment has become an important focus for the EPA, and it has now commissioned a group of specialists and scholars to inspect overseas waste treatment sites. This move is intended to improve overall tracking of industrial waste that is treated overseas, prevent this waste from causing secondary pollution overseas, and help Taiwan honor the spirit of the Basel Convention.

In order to improve the tracking of industrial hazardous waste sent overseas for treatment, the EPA has commissioned National Taipei University of Technology to conduct inspections of overseas waste treatment facilities that have previously treated industrial hazardous waste shipped from Taiwan. These inspections are due to start in July and will be completed in September. This project will strengthen the EPA's knowledge of the overseas treatment facilities handling Taiwan's industrial waste and the management practices of local environmental authorities. In addition, it will also help Taiwan meet its international responsibilities in promoting environmental protection.

The EPA stated that inspections are planned for ten facilities located in the United States, France, Finland, Belgium, and China. It plans to invite domestic specialists and scholars who are knowledgeable about the Basel Convention to participate in these inspections. The inspection teams will review the waste treatment processes utilized by the facilities, assess measures for preventing secondary pollution, and investigate the operational history of the facility. In addition, the teams will also visit local and central environmental authorities to better understand national-level industrial hazardous waste management systems and the relevant local regulations.

In the spirit of the Basel Convention, exporters of industrial hazardous waste are obliged to understand the treatment conditions and methodologies used in the country importing the waste. In reality, however, very few of the signatories to the

Convention have actually sent representatives to visit the sites importing their waste. Therefore, the EPA commissioned this project with the goal of complying with the spirit of the convention and explicitly incorporating it into the process for reviewing applications for shipping hazardous waste overseas. Through these efforts, the EPA seeks to ensure that the export of hazardous waste does not result in secondary pollution in other countries, thereby sparking international disputes.

The EPA has previously approved a total of 82,600 tons of industrial hazardous waste for treatment overseas. This total includes: 38,000 tons of electroplating sludge sent to the United States for recycling and treatment; 5,400 tons of transformers containing polychlorinated biphenyls (PCB) sent to France and Finland for incineration; 37,000 tons of mixed metal waste sent to China and Europe for recycling and treatment; and 2,300 tons of chromium-contaminated ash from the stainless steel industry sent to France for recycling and treatment.

The EPA says that in the past the agency has been unable to send representatives overseas to inspect facilities due to a lack of funds and restrictions on government officials traveling to China. As a result, the EPA was previously forced to rely on documents submitted by the companies involved for verification. When necessary, the EPA used Taiwan's overseas representative organizations to confirm the details of these documents and sometimes required businesses to video tape the process from shipment through final treatment for EPA inspectors to review.

Starting this year, however, the EPA will commission academic organizations to conduct on-site inspections of overseas facilities in order to more accurately assess their treatment conditions and previous operational records. The EPA is confident that the inspections will allow the government to more effectively oversee and manage the overseas treatment of hazardous industrial waste. 

News Briefs

Strongest Compliance with EIA Requirements

A review of the EPA's on-site oversight of environmental impact assessment (EIA) cases conducted during the first half of 2001 indicated that the requirements of the EIA Act were violated in 8 out of 48 cases. Fines were assessed in 7 of the 8 cases,

and a deadline for submission of an environmental impact survey report was given in the remaining case. According to EPA statistics, colleges, universities, hospitals, transportation projects, environmental protection projects, and other public construction projects complied best with EIA requirements.

News Briefs

More Recycling Collection Points Announced

The EPA-announced Regulations Governing the Registration of Product or Packaged Good Vendors and Management of Recycling Facilities will go into force on October 1 of this year. It is anticipated that the number of recycling locations will be increased to 25,000, making it even more convenient for the public to recycle. The regulations will also make the establishment of recycling facilities by vendors compulsory. For instance, the regulations stipulate that "convenience stores in transportation stations," "motor vehicle filling stations," "packaged beverage vendors in filling stations," "wireless telecommunications equipment retailers," and "photographic equipment retailers" must establish recycling facilities for use by consumers.

Extension of Compensation for Hog Farmers in Water Source Zones

To resolve the problem of pollution of drinking water sources by wastewater from hog farmers, which has long afflicted southern Taiwan, speed up action by local government, simplify documentation procedures, and enable hog farmers to obtain compensation or relief at the earliest possible date, the EPA has requested that local governments extend the compensation program by one month to August 31. The way things currently stand, hog farmers should take immediate steps to move their facilities in accordance with existing regulations. No applications submitted by hog farmers after the deadline will be accepted under this program (*Framework Plan for Protecting the Quality of Drinking Water Sources -Kaoping River, Tamshui River, Touchien River, Tachia River, and Tzengwen River Portions*).

Encroachment on Water Source Protection Zones Require Policy EIAs

The EPA announced in June that whenever any development encroaches on a water source/water quality/water volume protection zone, a policy EIA must be performed in accordance with the government's policy EIA operating procedures. Development of water source land is controlled by the government's land use policies and is not considered ordinary land development. "Encroachment on Water Source/Water Quality/Water Volume Protection Zones" is one of three new items added to policy EIAs; the other two items are "Golf Course Installations" and "Large-scale Conversion of Agricultural Land and Conservation Land to Non-agricultural Use."

Unlawful Labeling of Bottled Water to be Punished

The EPA recently released the results of testing conducted on different brands of bottled drinking water in April. This testing showed that many unlawful water bottlers sell tap water bottled as mountain spring water and also evade water source and bottled water inspections. In addition to increasing penalties on these unlawful enterprises, the EPA has also reminded consumers who wish to protect their health not to purchase bottled water that has not met government standards.

Testing of Waters at Recreational Beaches

With the arrival of hot summer weather many people enjoy participating in various water sports and going to public beaches. Therefore, the EPA conducted a series of tests of coastal waters in June and July. These tests were conducted in order to gain an understanding of water quality at beaches and coastal areas frequented by holidaymakers and in order to provide the public with the latest water quality information.

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