



Eco-Labeling

Green Mark – The New Trend in Green Consumerism

This is the most pivotal year for green consumerism since the government began promoting the concept in 1993. Why? Because the *Program for the Advancement of Green Procurement by Government Organizations*, approved by the Executive Yuan in August 2001, stipulates that purchases of products meeting Green Mark requirements must account for 50% of the procurement budgets of government agencies and state-run enterprises by this year. The EPA shall assess implementation results, and organizations and individuals demonstrating outstanding performance may receive public commendations. If the 50% goal can be reached, this will affirm the progress made by green consumerism in Taiwan, and also induce more citizens to put their strength behind international environmental protection trends.

The EPA began implementation of the Green Mark system in 1993 in an effort to promote green consumerism and encourage firms to make “recyclable, low-pollution, resource-conserving” products. The *Government Green Procurement Statues* (綠色採購條款), which is contained in Article 96 of the *Government Procurement Act* (政府採購法; enacted on May 27, 1999), provides govern-

ment agencies greater flexibility to grant priority to the procurement of environmentally-friendly products by allowing price differentials of up to 10% with products that are not certified as environmentally friendly. The related *Regulations for the Priority Procurement of Eco-Products by Government Organizations* (機關優先採購環保產品辦法; referred to below as “these regulations”) were enacted on the same day and have the goal of encouraging green consumerism through the purchasing power of government agencies.

These regulations classify environmentally-friendly products in three categories. Article 3 of the regulations specifies that Green Mark products are Type 1 products. If the production, use and disposal of products or their raw materials meet conditions for reused, recyclable, low-pollution, or energy-saving goods, and are certified as being so in EPA documents, they are defined as Type 2 products. Because Type 3 products generally indicate those that increase social welfare or reduce social cost, they are not discussed in this article.

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President Chen Shui-bian meets with award-winning environmental groups, volunteers and environmental protection bureau personnel (see page 7).

In order to effectively implement these regulations, the EPA has drafted the *Program for the Advancement of Green Procurement by Government Organizations* (機關採購綠色產品推行方案), which was approved and implemented by the Executive Yuan in August 2001 (see feature article in EPM Vol. IV, Issue 2). While 2001 was a promotion and encouragement period under this program, the scope of implementation is to be expanded and assessments conducted in 2002. Starting this year, the scope of the program includes all county, city, town and township public offices, and the green procurement target has been raised in one step to 50%. This is to say that the value of environmentally-friendly office supplies, paper and office equipment purchased by government organizations must equal at least 50% of the total value of all such products purchased during the year.

With the active support of the government, green consumerism has become a rising trend over the past decade. The growing number of Green Marks issued testifies to this trend.

According to EPA statistics, 72 product categories with standards specifications have been made available to applicant manufacturers, a total of 1,058 products produced by 264 firms received Green Mark certification,

and more than 2.5 billion (2,529,196,900) Green Marks have been stamped on certified products from the time the program began in 1993 to the end of 2001. Compared with other nations promoting eco-labeling, these results have given Taiwan a rank of fourth worldwide and second in Asia. The Green Mark specifications announced thus far cover most electrical appliances, information products, business machines, paper and office supplies, and cleaning agents.

In addition, with regard to items not in announced Green Mark product categories, thirteen Type 2 eco-friendly products made by nine firms meeting reuse, recycling, low-pollution, or energy-saving conditions passed review by the EPA in 2000; most of these products were building materials.

In spite of these rather satisfying achievements, it can be seen that product types are still somewhat limited. There is obviously not the diverse a range of products needed to meet consumers' requirements, and for some EPA Green Mark product categories only a single manufacturer or product has been approved. For instance, while there are 63 products in the category of aluminum beverage cans with attached pull-tabs, which are numerically the most important Green Mark products, there is only a single product in the second

most important category of products made of reused glass containers.

Addressing this problem, the EPA points out that Article 96 of the *Government Procurement Act* states that consumers are encouraged to deal with this situation by purchasing "products whose effectiveness is identical with or similar to" that of Green Mark products, and thus would deliver tangible environmental benefits. Moreover, the EPA actively provides information on potential Green Mark products at appropriate times to relevant industry associations, encouraging able and interested firms to participate in the development of eco-products. The government also welcomes foreign manufacturers approved by international certification organizations to apply to produce environmentally-friendly products in Taiwan.

Apart from promoting green procurement among government organizations, the EPA has also striven to encourage the private sector to take part in green consumerism. For instance, the EPA holds regular "Office Environmental Protection" contests each year. And beginning at the end of last year, the EPA teamed up with mass retail franchise chains to plan special markings for Green Mark products, making it easier for consumers to find and purchase these products. The

Top Ten Green Mark Product Categories

| Rank | Category | Number of products | Number of Green Marks through 2001 |
|------|--|--------------------|------------------------------------|
| 1 | Beverage cans with attached pull-tabs | 63 | 1,276,303,300 |
| 2 | Goods made of reused glass containers | 1 | 1,132,177,258 |
| 3 | Packaging products made of recycled paper | 54 | 61,897,204 |
| 4 | Water-soluble paints | 14 | 13,162,030 |
| 5 | Goods made of reused rubber and plastic | 27 | 12,643,349 |
| 6 | Sanitation products made of recycled paper | 5 | 10,042,043 |
| 7 | OA (office use automation) paper made of recycled paper | 4 | 6,296,071 |
| 8 | Dishwashing detergent | 3 | 4,030,750 |
| 9 | Stationary articles and writing paper made of recycled paper | 68 | 3,834,613 |
| 10 | Insulating materials used in building construction | 11 | 2,700,808 |

(Data source: EPA, <http://www.greenmark.org.tw/data/MarksUse.asp>)

French retailer Carrefour has already confirmed that it wishes to take the lead in implementing this program at its 26 stores in Taiwan.

Looking ahead to the future, the Green Mark system will undergo a major transformation when it is put under private administration.

Green Mark Trends: Globalization and Privatization

The EPA is currently in the midst of drafting regulations governing the privatization of the Green Mark system. Taiwan has been a WTO member since January of this year, and globalization and privatization are mainstream trends in international trade and environmental protection. After close to ten years, the EPA has preliminarily decided to privatize the Green Mark system starting in 2004. The EPA has commissioned the Environment and Development Foundation (also known as the Environmental Development Fund; a non-profit organization established through technology transfer and full funding from the Industrial Technology Research Institute in 1997; it has been in charge of Green Mark clerical tasks since that time) to take full control of the system in that year.

According to the EPA, Green Mark certification work is performed on behalf of the government by private organizations in Canada and many other nations, and Sweden even has several private Green Mark systems. Manufacturers in these nations can apply for certification to the organization that is responsible for the product type and possesses the most credibility.

The EPA points out that Taiwan's Green Mark system is becoming relatively mature and has achieved considerable credibility. Apart from improving operating efficiency, putting management of

the system into private hands will spare the government the close to NT\$10 million it spends each year contracting out Green Mark tasks. Instead, the system will operate self-sufficiently under private management.

Privatization of the Green Mark system cannot be accomplished all at once, however. A vital precondition is that the system be self-sufficient. It is therefore inevitable that fee standards will have to be adjusted to cover the system's operating costs after privatization. Along the same lines, in a matter currently of concern for some manufacturers, when certain products are reviewed for Green Mark certification, it is currently



GreenMark

possible to submit all items in an entire product series together for a single review and to pay just a single fee for this review. After privatization however, each item will be reviewed and charged separately. But since fees will still be based on number of products after privatization, and not on the number of labels, the cost to manufacturers will not necessarily increase.

Apart from the need to cover costs and put the system on a sound footing, the privatization of the Green Mark system must also

take into consideration two major environmental factors, namely the willingness of manufacturers to participate, and the state of the economy as a whole. These two factors are seen as keys to successful privatization. Despite the many layers of obstacles remaining to be overcome, EPA Administrator Hau Lung-bin is not only 100% behind privatization, but also feels that it is part of an unstoppable trend. Hau has therefore instructed EPA personnel to plan for the completion of privatization at an early date.

While taking active steps to privatize the Green Mark system, the EPA also hopes to share its Green Mark experience and knowledge through fuller participation in relevant international organizations. Today the country's performance as a member of the Global Ecolabelling Network (GEN) has earned it the favorable attention of other member states, which commonly seek to share our information and experience. GEN's 26 current members include both industrialized and developing nations, notably the US, Japan, Canada, and European countries.

GEN's annual international Green Mark seminar came to Taiwan for the first time last year when it was held in Taipei. Presentations were given by many Green Mark specialists from Taiwan and abroad, and trainees included many persons from Southeast Asia, Japan and Korea. This year Taiwan has the honor of hosting GEN's 2002 annual convention in Taipei in October. As far as reciprocal Green Mark certification is concerned, Taiwan has signed mutual recognition agreements with the US, Thailand and Canada, and hopes to negotiate agreements with Japan and South Korea this year.

For more information, please call 02-2311-7722 ext. 2920.

General Policy

Premier Yu Highlights Innovation in EPA Talk

Premier Yu Shyi-kun stressed the importance of innovation in approaching environmental issues in his first visit to the EPA as Premier. Yu also issued directives on a number of policies, including the phasing out of plastic shopping bags and disposable dishes, the establishment of environmental industry zones, soil and groundwater remediation, environmental sanitation, and river remediation.

Newly-appointed Executive Yuan Premier Yu Shyi-kun on February 8, Chinese New Years Eve, visited the EPA in order to inspect EPA operations and receive a briefing delivered by EPA Administrator Hau Lung-bin. In addressing the EPA, the Premier first stated that the improvement of environmental quality involves a multitude of issues including economic development, ecological preservation, harmonious community relations, and the advancement of culture. Yu added that balancing the improvement of environmental protection with economic and technological development is the path along which a sustainable Taiwan must advance, and that this is also the path that President Chen Shui-bian has always promoted in his efforts to transform Taiwan into a "Green Silicon Island."

Premier Yu highlighted his experience as Ilan County Commissioner in urging the EPA to work with a spirit of innovation. Yu noted that,

when he had just been elected as commissioner in 1991, a dispute erupted between Taiwan Cement Corp. (台灣水泥公司) and local residents concerning the expansion of the company's Ilan plant. The dispute settled down following the signing of an environmental accord between the county government and Taiwan Cement, the first of its kind in Taiwan. Yu said his government reached a similar agreement with Hsing Ta Cement Co. (信大水泥) over its pollution of the Wulaokeng Creek (武荖坑溪). It was difficult to conduct inspections of the cement plant because it was located deep within wooded mountains. Following the Ilan County government's survey of fish species in the creek, Hsing Ta signed an environmental accord which adopted the presence of fish in the creek and the clearness of the creek's water as its monitoring standard, and ultimately ended the pollution of this creek. These two anecdotes highlight the importance of innovative thinking on the part of civil servants.

Following Premier Yu's comments, Administrator Hau elaborated on a number of EPA

the use of plastic bags and disposable dishes and the establishment of environmental industry zones.

After Hau's briefing, Premier Yu issued a number of specific directives concerning future environmental policy. First, Yu stated that restricting the use of plastic bags and disposable dishes is an excellent approach to reducing waste, and that these policies should be introduced gradually and systematically. He pointed out that policies such as plans for the establishment of environmental industry zones will facilitate the development of environmental enterprises in Taiwan and called for the further promotion of green lifestyles, green construction and river ecology protection work. Yu raised the example of Germany's establishment of ecological communities, in which all garbage and wastewater is handled within the community, as a direction in which the EPA should endeavor. Conceding that the authority of the EPA is limited because its policies are often related to those of other government agencies, Yu urged government officials to coordinate in order to solve

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policies, including the relocation of metal smelters from the Erhjen River, the removal of hog raisers from major river basins, the implementation of resolutions announced at the Economic Development Advisory Conference, the promotion of the appropriate treatment of industrial waste, and the strengthening of marine pollution prevention policies. Hau also went on to brief Premier Yu on future EPA policy priorities such as restrictions on

problems.

Secondly, the Premier addressed soil and groundwater pollution issues. He called on the EPA to coordinate with the Ministry of Economic Affairs and the Council of Agriculture in separating irrigation and sewer systems and in facilitating the movement of enterprises into industrial parks in order to ensure that agricultural products are not polluted. He also stressed that the government

needs urgently to take an aggressive approach to the problem of soil and groundwater pollution that results from the illegal or excessive collection of sand and gravel from agricultural land and the illegal dumping of waste on agricultural land. Once again noting the EPA's limited authority, Yu requested that the EPA compile information and work together with other government agencies in devising plans for resolving these problems.

Yu's third topic was river

remediation. Noting that 2002 is "River and Waterway Pollution Clean-up Action Year," Yu commended the EPA for the success it has already achieved in this area. He encouraged the EPA to keep up the good work by actively promoting the importance of river remediation around the nation and by garnering the support of the public in order to make Taiwan's rivers clean again. Yu went on to urge the EPA to appreciate the importance of riverside recreational areas. He said that, while

avoiding damage to riverbanks, the EPA should establish more such recreational areas so that the people can spend more of their lives close to rivers.

Finally, speaking on environmental sanitation work, Yu declared that "no trash in view" and "no mess in view" should be the goals of this work. This will ensure the cleanliness of all the communities, roads, public toilets, rivers and sewer systems of Taiwan. He called for the promotion of public participation in environmental sanitation work, for an aggressive crackdown on littering and illegal waste dumping, and for the adoption of heavy compensation and penalties to accompany environmental policies. Yu urged the EPA to formulate specific measures and to be scrupulous in its enforcement of these measures.

Administrator Hau thanked Premier Yu for these directives and proclaimed that he and all EPA personnel would strive for the promotion of environmental policies in order to make Taiwan a beautiful island where the mountains are always green and the waters always flow clean.



Premier Yu Shyi-kun, during his visit to the EPA, calls on EPA personnel to work with a spirit of innovation. Seated beside Yu are, from left to right, EPA Deputy Administrator Chang Juu-en, EPA Administrator Hau Lung-bin and Vice Premier Lin Hsin-yi.

News Briefs

Encouraging Citizens to Keep Watch over the Aquatic Environment

To promote "River and Waterway Pollution Cleanup Year" and encourage citizens to participate in environmental protection work, the EPA will provide subsidies to the Chiayi County government for assigning aquatic environment watch work to twenty communities. This work, to be conducted in parallel with pollution cleanup work in the Putzu River basin, will be accompanied by aquatic ecological surveys, establishment of river and waterway biological indicators and ecological databases, and implementation of taxonomical skills training. Providing environmental and ecological education will help

the public understand the importance of protecting rivers and the natural ecology, strengthening their sense of identification and participation with regard to this work. The EPA hopes that this undertaking will help restore the original scenic beauty and ecological richness of the Putzu River in the shortest possible time.

Small Alcohol Producers Exempt from Air Permits

The EPA announced in a policy revision on February 4 that only alcohol producers with an annual output in excess of 1 million liters (equivalent to 140,000 dozen bottles, with each bottle containing 600cc) must apply for an establishment or operating permit for air pollution control. This implies that ordinary small breweries, distilleries and drinking establishments need not apply for such a permit.

Gasoline Vapor Recovery Equipment Compulsory at New Filling Stations

The EPA formally announced and immediately implemented the *New Filling Station Vapor Recovery Equipment Standards* (新設加油站油氣回收設施標準) on February 27. These standards are applicable to future filling stations whose construction licenses are issued after these standards are announced. Filling station operators must install fuel vapor recovery equipment at places where fumes are likely to escape, and must maintain a certain recovery rate. In particular, such equipment must be used when loading fuel from a tank truck, opening fuel tank respirator valves, and pumping fuel.

Recycling

Termination of PET Bottle Recycling Refunds

Following numerous declarations by Administrator Hau that it is imperative to bring an end to PET bottle recycling refunds, the EPA is finally preparing to begin the termination of these NT\$0.5 refunds on May 1. However, the public will still be able to turn in old PET bottles for refunds up to September 30.

Facing the years of heavy losses racked up by the PET Bottle Recycling Fund, Administrator Hau Lung-bin demanded that the Recycling Fund Management Committee propose methods for rectifying the situation when he took charge of the EPA in March 2001. Consequently, in the second half of 2001, the EPA conducted a series of auditing inspections aimed at uncovering the illegal exploitation of the fund. These illegal practices include the failure to report or under-reporting of production and usage volumes by manufacturers and users of recyclable materials and the over-reporting of recycling volumes by recycling firms. The EPA also initiated a readjustment of the responsibilities of the management committee in order to attack the fund's financial losses from an administrative and organizational level. On another front, in order to protect those underprivileged individuals who sustain themselves by collecting recyclable garbage, Administrator Hau last year demanded that these recycling refunds remain in place until at least the end of 2001, and said an evaluation of a timetable for eliminating the refunds would be conducted in early 2002 (see EPM Vol. 4, Issue 9).

Following the EPA's aggressive auditing of illegally operating enterprises and its demands for back payments, the PET bottle recycling rate has fallen and the fund's losses have begun to shrink. However, these improvements merely amount to a drop in the bucket compared to the massive losses accumulated over the last ten years. Therefore, Administrator Hau, at a Legislative Yuan budget review in January, publicly announced that it was "imperative" to terminate PET bottle recycling refunds in order to resolve the problem of the fund's accumulated losses.

In the personnel reassignments announced in February, the EPA reassigned National Institute of Environmental Analysis Director General Chen Hsiung-wen (陳雄文) as director general of the Bureau of Waste Management. Chen also maintained his position as supervisor of the Recycling Fund Management Committee. This has effectively put the management of both the Bureau of Waste Management and the management fund under the same person's charge. With this transfer, the Bureau of Waste Management promptly formulated regulations for abolishing PET bottle refunds and submitted them to Administrator Hau for approval. These regulations were originally scheduled for promulgation before the end of March.

However, due to the concerns of environmental groups, the EPA decided to postpone the promulgation of these regulations by two months and allow the public to return old PET bottles for refunds up until September 30. This date will see the NT\$0.5 PET bottle refund at long last become a part of history.

The EPA, aiming to promote environmental consciousness, introduced NT\$2 deposits on PET



PET bottle refunds, doled out for the last decade, will be terminated on Sept. 30.

bottles in March 1992. It substituted NT\$1 refunds in January 1997 and then reduced these refunds to NT\$0.5 in April 2000. The EPA says that the PET bottle refund system has fulfilled its transitional mission, pointing out that, with the numerous government-regulated recyclable materials, it would be unfair to continue granting refunds only for PET bottles.

While the refund's fate is sealed, the EPA is currently drawing up a package of supplementary measures in order to prevent a reduction in recycling rates for PET bottles and other recyclable containers following the termination of the refund. For instance, it is considering raising industry subsidies for recycling and waste clearance and disposal fees. Also, the EPA, on March 1, increased its subsidies for the recycling of six items: aluminum, non-foamed polystyrene, glass, paper containers, pesticide containers and dry cell batteries. Apart from these measures, the EPA will set up more recycling points in public places such as bus stops and hospitals in order to make recycling more convenient for the public.

For more information, please call 02-2370-5888 ext. 350.

Environmental Analysis

Standardization of Soil Pollution Analysis Methods

The EPA has been gradually completing soil pollution standards and methods to be used in standardized analysis. In accordance with the *Soil and Groundwater Pollution Remediation Act*, future soil pollution analysis work will be conducted by commissioned analysis organizations that have been licensed by the EPA. The EPA appeals to all analysis organizations wishing to take advantage of this opportunity to quickly submit license applications.

According to General Director Wang Pih, the newly-appointed head of the EPA's National Institute of Environmental

agencies and organizations are representative, the EPA has compiled the document *Soil Sampling Methods*. This document, which explicitly specifies sampling equipment, materials, methods, and relevant QC and safety measures, is intended to enable the collection of high-quality, low-cost, representative samples.

The EPA currently lists 39 soil pollutants as controlled, including eight heavy metals, fifteen VOCs, eight pesticides, six semi-volatile organic compounds (SVOCs), dioxin and PCBs. Of these items, heavy metals attract the most attention. Apart from often accumulating to high concentrations, possessing low mobility, and not being decomposed by microbes, heavy metals are difficult to clean up, may be absorbed by crops and enter the food chain, and can be concentrated by living organisms. This accounts for the severe threat they pose to human health.

that a strong acid—*aqua regia*—will be henceforth used as a standard solvent in soil tests.

EPA has announced standard methods of analysis for the presence of the eight heavy metals—lead, cadmium, copper, zinc, nickel, chromium, arsenic and mercury—in the soil. In addition, the EPA plans to announce waste analysis methods for the remaining 31 controlled organic pollutants.

Future soil pollution survey work shall proceed smoothly now that up-to-date analysis methods are available. General Director Pih has therefore appealed to analysis companies and academic organizations to quickly apply to central government authorities for licensing and soil analysis laboratory certification. Doing so will enable them to take part in survey and cleanup work at soil pollution sites slated for remediation.

For more information, please visit the National Institute of Environmental Analysis website at http://www.niea.gov.tw/analysis/epa_www.htm or call the Institute at 03-491-5818 ext. 4409.

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Analysis, the Institute has successfully completed drafting of standardized soil pollution analysis methods providing a unified basis for soil analysis in Taiwan. These methods not only comply with international standards, but also meet domestic needs and conform to domestic soil geology and pollution types.

Though small in land area, Taiwan has a diverse and complex geology. As an illustration, Taiwan possesses eleven of the twelve soil types contained in the US Department of Agriculture soil classification scheme. To insure that soil samples collected by

Past efforts to survey the heavy metal content of soils in Taiwan mainly sought to understand the degree of danger these pollutants posed to the food chain. A weak acid (0.1M hydrochloric acid) was consequently used as the extraction solvent for determining the absorption of heavy metals by crops. In contrast, the current *Soil Pollution Control Standards* (土壤污染管制標準) take into consideration the full environmental effects and impacts of heavy metals, and therefore specifies full quantitative values as control standards. For this reason, the EPA announced in January 2002

Activity

President Chen Honors Meritorious Environmental Groups and Individuals

President Chen Shui-bian met with praiseworthy environmental groups, environmental volunteers, and environmental protection bureau personnel on February 20 (see picture on page 1). The EPA used this event to single out and honor groups and individuals who have enthusiastically promoted environmental protection and achieved noteworthy results by strengthening local government's administrative effectiveness, tapping private resources, and encouraging public participation. On this occasion superior awards were given to ten organizations and first-class awards to eleven organizations. Also, ten environmental volunteers were presented with superior awards and ten with first-class awards.

Air Quality

Taiwan's Air Quality Shows Yearly Improvement

The EPA's recently announced 2001 air quality monitoring results indicate that Taiwan's air is gradually growing cleaner. A poor air quality ratio of 3.03% in 2001 shows an improvement of 26% over 2000.

The results of EPA air quality monitoring for all of Taiwan between January and December of last year show that the Kaohsiung-Pingtung air quality district still has the worst air quality with a poor air quality ratio of 8.1%. This is still a 23% improvement over 2000. The Kaohsiung-Pingtung region is followed in order of worst to best air quality by Yunlin-Chiayi-Tainan, northern Taiwan, central Taiwan, Hsinchu-Miaoli, Hualien-Taitung and Ilan.

After analyzing five air pollution indices, the EPA announced that Taiwan's air quality over the past year had improved the most in concentrations of suspended particulate matter (PM₁₀). A total of 826 station-days (the number of days during the year that monitoring stations recorded contaminant concentration levels which exceeded standards) were recorded for poor air quality in 2001, a one-third reduction from 1268 station-days in 2000. Ozone pollution continued to worsen, however, with last year's total of 488 station-days exceeding the 2000 total by 51 station-days. The EPA has already made improving ozone pollution one of its major policies. The remaining three PSI values have not changed greatly over the past two years.

Overall, the air pollution index exceeded 100 3.03% of the days in 2001, a rate of improvement of 26% compared to 2000. Air quality monitoring for Taiwan over the years show that the percentage of days where the PSI is greater than 100 has steadily declined each year, with the exception of 1996.

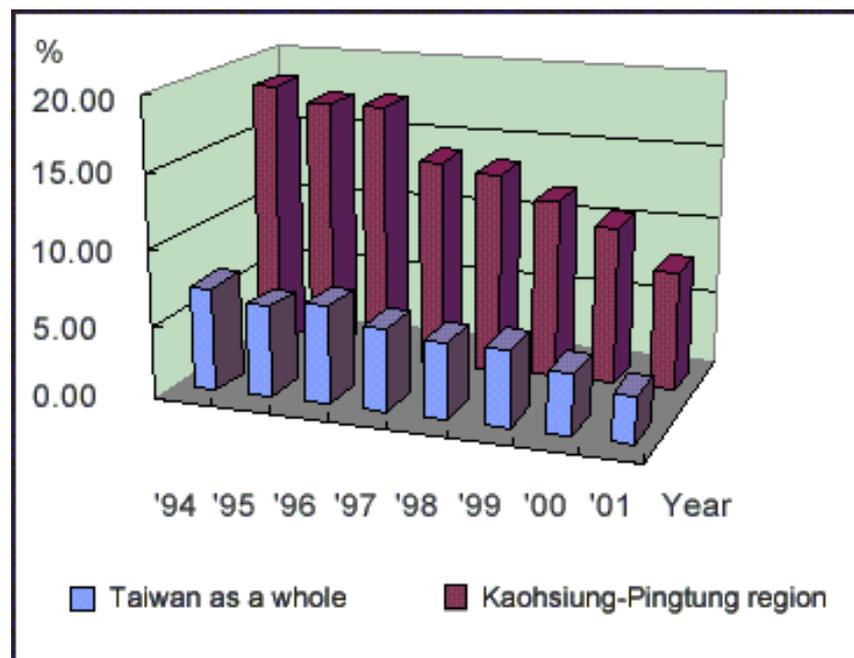
According to the EPA, Taiwan was affected by sandstorms from mainland China seven times last year, three more than in 2000. The sandstorms increased concentrations of PM₁₀ over a wide area. Sandstorms from mainland China are increasing in frequency each year and will become an important monitoring item in the air quality index.

The EPA also announced that each region in Taiwan is experiencing climatic warming and the average temperature continues to rise. Last year the average temperature for the northern region was 23.8 degrees Celsius, higher than the average 23.5 degrees Celsius for 2000. The average temperature for the Taichung region was 24.1 degrees Celsius, an increase of 0.1

degrees, and the Kaohsiung region had an average temperature of 25.5, also an increase of 0.1.

Since the establishment of the Kaohsiung-Pingtung project office in August 1997, in which the resources of county and city environmental agencies were combined to implement the "Kaohsiung-Pingtung Region Air Quality Improvement Plan," the poor air quality ratio has dropped from 17.5% in 1996 to 10.6% in 2000. Initial monitoring data for 2001 indicates that the poor air quality ratio fell even further to 8.1%, an improvement rate of 50% since 1996. This shows the great success already seen in the improvement of air quality in the Kaohsiung-Pingtung region since the beginning of this plan. The implementation of the "Kaohsiung-Pingtung Region Total Quantity Control Plan" beginning in 2001 (see Vol. IV, Issue 10) will employ economic incentives to reduce air pollutant emissions and further improve the air quality of the Kaohsiung-Pingtung region.

For more information, please call 02-2311-7722 ext. 2761.



The difference in annual poor air quality ratios between Taiwan as a whole and the Kaohsiung-Pingtung region

Waste Management

Establishment of Four Environmental Industry Zones

With the volume of Taiwan's waste steadily increasing, choosing the proper methods for waste recycling and reuse is essential to the advancement of the sustainable use of resources and to fostering the development of the recycling and reuse industry in Taiwan. Therefore the EPA, in coordination with the *Resource Recycling and Reuse Act*, is planning the establishment of four environmental industry zones. A draft of this plan has already been sent to the Executive Yuan for review.

The EPA, after nearly a year of planning, has decided to invest nearly NT\$2.5 billion over a ten-year period in order to establish four environmental industry zones around Taiwan. Through its "Plan for the Promotion of Environmental Industry Zones," the EPA aims to promote the development of technology and a system for domestic recycling and reuse work so as to further foster a consciousness of recycling in the industrial community and in society as a whole.

While the earliest version of this plan called for the establishment of a single 100-hectare recycling demonstration zone (see EPM Vol. 4, Issue 11), evaluations showed that a zone of this size would not be economically viable. Therefore, the EPA decided instead to set up over two stages four individual environmental industry zones with a combined area of 100 hectares. This new plan calls for the establishment of

three 20-hectare zones within existing industrial parks in northern, central and southern Taiwan and the additional construction of a 40-hectare zone at an as yet undecided location.

To bring this plan into play at the earliest possible date, the first stage will see the establishment of the three smaller environmental industry zones between the

precious metal. These enterprises will be offered such incentives as land lease subsidies, income tax deductions, tariff exemptions, special financing, and subsidies for hardware and R&D expenses. Also, foreign enterprises will be encouraged to set up in these zones through special tax deductions under Article 13 of the *Statute for Upgrading Industries*.

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second half of 2002 and the first half of 2004. The second stage will ensure the comprehensiveness of the plan by making up for the handling demands and facility requirements not met in the first stage.

Under the current draft of this plan, these zones will recycle two general categories of recyclable materials. The first category includes materials the government currently regulates as recyclable materials and other recyclable materials that possess recycling value, but are not presently under regulation. These materials will be recycled for reuse. The second category covers industrial waste and other waste materials with a relatively consistent makeup. These materials will be recycled into secondary materials, such as recycled plastic pellets, and construction materials for further use.

The plan will encourage recycling enterprises that handle such waste materials as dry cell batteries, motors, electronics, optical electronics, furniture, monitors and CD-ROM for the reclamation of metal, wood, glass, plastic and

Apart from improving recycling technology and advancing the sustainable use of resources in Taiwan, these environmental industry zones will also help alleviate unemployment problems. It is estimated that the first stage of this plan will lead to the employment of over 250 people.

For more information, please call 02-2311-7722 ext. 2640.

Activity

Meeting Held for Vehicle Fuel Quality Standards

Responding to the need to improve air quality and the worldwide trend of reducing the sulfur content of petroleum products, the EPA has drafted near-, mid-, and long-term fuel quality control standards. The EPA convened a meeting on February 7 to discuss the Mid- and Long-term Standards for the Composition and Properties of Automobile Gasoline and Diesel Fuels (專用汽柴油成分及性能中、長期管制標準), and invited automotive petroleum product suppliers, vehicle industry associations, and experts and specialists to participate in the discussion. Feasible and reasonable mid-term (2006) and long-term (2011) standards were formulated in an effort to keep improving air quality.

Air Quality

Remote Sensing Nets "Squid Cars"

The EPA has conducted a total of 6.7 million vehicle emissions inspections using remote emissions sensing since this program began six years ago. The EPA estimates that in 2001 alone this program cut carbon monoxide emission by 446 kilotons, non-methane hydrocarbon emissions by 28 kilotons and nitrogen oxide emissions by 24 kilotons. These figures reflect both the importance and success of this cost effective program in fighting vehicular air pollution.

As the number of automobiles in Taiwan has increased, so has the volume of air pollution they produce. The EPA has adopted many measures aimed at reducing automobile-generated air pollution levels. These include more stringent vehicular emissions standards, stricter new vehicle reviews, and measures aimed at removing aging, high-pollution vehicles, in Taiwan called "squid cars" (烏賊車) because of the heavy smoke they spew, from the streets. Another method, which has proven to be quite cost effective and efficient, is remote emissions sensing of vehicles in use on the road. This method uses infrared technology to identify gross polluters. These drivers are then instructed to conduct further inspections and maintenance.

In remote emissions sensing, a continuous infrared beam is projected across the tailpipe exhaust of vehicles as they drive by. A sensor estimates the concentration of various pollutants by measuring the amount of the beam's energy that is absorbed by

the exhaust. The advantages of remote sensing are that it requires few technicians, the sensing time is short, it does not interfere with the flow of traffic, it is easy to set up, and it can detect the level of pollutants emitted from vehicles as they are being driven. These advantages make remote sensing an excellent tool for identifying gross polluters.

...the EPA used remote sensing to conduct approximately 500,000 vehicle inspections in 2001. From the beginning of the program, 6.7 million vehicle inspections have been conducted.

In coordination with the introduction of this sensing technology, the *Air Pollution Control Act* lists remote sensing technology as one of the legally recognized methods for identifying high pollution vehicles. Regulations under this act state that vehicles that have been identified as exceeding emissions standards must be taken

These remote sensing inspections have made a significant contribution to reducing air pollution levels. Studies of vehicles taken in for idle testing show that remote sensing has achieved a 60% rate of accuracy. Tune-ups on these high pollution vehicles can greatly reduce the concentration of pollution they emit. The EPA



Infrared remote sensing equipment in operation (photo source: EnviMac (榮諾科技))

in for inspections and maintenance within a specified period of time. The act also includes penalties for drivers whose vehicles do not meet standards and do not undergo the required inspections and maintenance.

The EPA began its remote sensing

estimates that in 2001 alone its remote sensing program cut carbon monoxide (CO) emission by 446 kilotons, non-methane hydrocarbon (NMHC) emissions by 28 kilotons and nitrogen oxide (NO_x) emissions by 24 kilotons. And with an average cost of NT\$38 per vehicle inspected, this

program is much less expensive than the traditional method of inspection.

Each year the EPA identifies gross polluters one-by-one and then sends out notification letters at the end of the year. Owners of these “squad cars” are required to take their vehicles in for inspections and maintenance once they are notified. Compliance will ensure that these vehicles function normally and that their pollution emissions remain within legal limits.

Waste Management

New Management Regulations for Industrial Waste

The EPA is presently drafting new management regulations to accompany the newly-revised *Waste Disposal Act*. These regulations aim to expand the participation of waste clearance and disposal enterprises in industrial waste disposal work so as to ensure that all of Taiwan’s industrial waste is disposed of through proper channels.

The EPA is currently drafting three sets of management regulations aimed at fully realizing the spirit of the newly-revised *Waste Disposal Act* (廢棄物清理法). These regulations, named *Permit Management Regulations for Surplus Treatment Volume at Industrial Waste Treatment Facilities*, *Management Regulations for the Establishment of Waste Clearance and Disposal Facilities by Designated Public Enterprises*, and *Management Regulations for Signing Investment Contracts With Responsible Authorities for the Establishment of Waste Disposal and Clearance Facilities by Private Enterprises Under the Law to*

Promote Citizen Participation in Public Construction, are being designed to speed up the establishment of and more efficiently utilize industrial waste treatment facilities. The EPA’s ultimate goal in devising these regulations is to establish proper channels for the disposal of all of Taiwan’s industrial waste before the end of 2003.

The draft of the *Permit Management Regulations for Surplus Treatment Volume at Industrial Waste Treatment Facilities* (事業廢棄物處理設施餘裕處理容量許可管理辦法), which the EPA is formulating in line with Article 29-2 of the *Waste Disposal Act*, will ensure that Taiwan’s industrial waste treatment facilities are utilized to their fullest potential. These regulations lay out management regulations for required documents, application procedures, application timetables, and other details to be followed when enterprises wish to apply to their local competent authorities for approval to provide the surplus treatment capacity of their facilities. When an enterprise finds it has surplus treatment capacity, it may follow these regulations in order to apply for permits to treat industrial waste on behalf of other enterprises. This will ensure Taiwan’s industrial waste treatment resources are used with the greatest efficiency.

In the past, industrial waste was not always properly treated in part because public and private waste clearance and disposal enterprises were unable to completely provide their full treatment capacity and treat the entire range of waste items. Therefore the EPA is drafting the *Management Regulations for the Establishment of Waste Clearance and Disposal Facilities by Designated Public Enterprises* (指定公營事業設置廢棄物清除處理設施管理辦法) based on Article 28 of the *Waste Disposal Act*. Through

these regulations, the EPA will establish a complete management system and supply technology so that public enterprises can provide comprehensive industrial waste treatment channels.

At the same time, in order to speed up the establishment of intermediate and final industrial waste treatment sites and encourage private investment in these facilities, the EPA is drawing up, in line with both the *Law to Promote Citizen Participation in Public Construction* and the *Waste Disposal Act*, the *Management Regulations for Signing Investment Contracts With Sponsor Organizations for the Establishment of Waste Disposal and Clearance Facilities by Private Enterprises Under the Law to Promote Citizen Participation in Public Construction* (依促進民間參與公共建設法與主辦機關簽訂投資契約之民間機構設置之廢棄物處理、清理設施管理辦法). These lay out management regulations for the employment of specialized environmental personnel and the keeping of operational records for these facilities.

The Bureau of Waste Management notes that these three sets of management regulations are all being formulated in the spirit of the *Waste Disposal Act*. It says that, through them, the EPA hopes to establish more open and diverse channels for the treatment of industrial waste and to encourage private investment in waste treatment facilities so as to guarantee that all of Taiwan’s industrial waste is treated through proper channels. However, in relaxing these waste treatment regulations, the EPA is aware that it must remain vigilant and provide effective management in order to prevent enterprises from taking advantages of existing legal loopholes.

News Briefs

Year's First Sandstorms from China Relatively Mild

The EPA formally began the *Chinese Sandstorm Intensive Observation Plan* (大陸沙塵暴密集觀測計畫; see feature article in EPM Vol. IV, Issue 9) in February, and this year's first sandstorm affected air in northern and northeastern Taiwan around February 10. Particulate matter was approximately 100 micrograms per cubic meter in the Taipei area, showing that the dust had only a very mild influence on air quality. Because the weather has continued to remain dry in northern China, more sandstorms are likely to form and affect the air in Taiwan. The EPA will therefore keep a close eye on the possible effects of Chinese sandstorms in the weeks and months to come, and will notify the public when a storm occurs.

New Emission Standards for Diesel Cars

The EPA announced the revision of Article 5 of *Emission Standards for Vehicular Air Pollutants* (交通工具空氣污染物排放標準) on February 20. The two main changes in this article include the imposition of emission standards on small diesel passenger vehicles, which may be manufactured or imported as of January 1, 2004 in accordance with Taiwan's WTO commitments, and also the specification of pollutant emission standards for diesel and alternative clean fuel engine vehicles that will take effect on

January 1, 2007. Besides being stricter than the previous standards (1999), the new standards also add emission standards for non-methane organic gas (NMOG) and non-methane hydrocarbons (NMHC) + NO_x, and specify that engine durability testing be raised from five to ten years.

EPA Reassigns Top Executives

EPA Administrator Hau Lung-bin reassigned many of the EPA's executives with a rank of deputy director and above during February of this year in what has been the largest reorganization of personnel since Hau took the EPA's helm. According to Hau, the recent move represents only a small-scale readjustment reflecting the executives' professional abilities and on-the-job performance. He added that, when any vacancies appear at the EPA, they will be filled by individuals promoted on the basis of work performance. Among the changes in this round of reassignments were the transfer of Chen Hsiung-wen (陳雄文), head of the National Institute of Environmental Analysis, to the director-generalship of the Bureau of Waste Management; the promotion of Wang Pih (王碧), deputy director of the National Institute of Environmental Analysis to director general of this organization (making her the sole female department director at the EPA); the reassignment of Leu Horng-guang (呂鴻光), director general of the Bureau of Waste Management, as director general of the Bureau of Air Quality Protection and Noise Control; the transfer of Lin Ta-hsiung (林火達雄), deputy director of the Bureau of Water Quality Protection, to the deputy direc-

torship of the National Institute of Environmental Training; the transfer of Ho Soon-ching (何舜琴), deputy director of the National Institute of Environmental Training, to the deputy directorship of the Bureau of Environmental Sanitation and Toxic Chemicals; the assignment of Lin Chien-hui (林建輝), who will remain executive secretary of the Soil and Groundwater Pollution Remediation Fund Management Committee, to the deputy directorship of the Bureau of Water Quality Protection; and the promotion of Senior Specialist Tsai Hung-teh (蔡鴻德) of the Bureau of Water Quality Protection to the deputy director post at the National Institute of Environmental Analysis.

Resolving Waste Problems in the Pachang River

The EPA has decided to spend NT\$290 million to thoroughly clean up the more than 700,000m³ of humus soil that has been piled in the bed of the Pachang River at Hunei Community in Chiayi City for close to 20 years. In conjunction with the river and waterway administration plans of water conservancy agencies, the EPA will classify and reuse the soil in the riverbed, and plans to recycle steel and aluminum cans, plastic bags, PET bottles, glass, gravel and humus soil. Combustible materials will be taken away to be burned at an incinerator after separation. This plan will thoroughly resolve the problem of waste disposal in the riverbed, improving flow in the river channel and relieving flooding.

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