



Environmental Policy Monthly

Environmental Protection Administration, R.O.C. (Taiwan)

Feature Column

EPA Birthday Wish: Environmental Health and Sustainability

The Taiwan EPA celebrated its 21st birthday on 22 August 2008, inviting former ministers, former deputy ministers and retired staff to join the occasion. The EPA signed an “energy conservation and carbon reduction” declaration and held an environmental forum.

Minister Stephen Shen presided over the EPA birthday celebration, first thanking the long-term concern and efforts of all fields toward environmental protection. The minister showed special gratitude to former ministers for their contributions toward establishing environmental regulations and the organizational framework to ensure long-term sustainability of environmental work. Among the former EPA ministers to attend the event were Eugene Chien, Jaw Shaw-kong, Hau Lung-bin, Chang Chu-enn, and Winston Dang.

The EPA was officially established 21 years ago on 22 August 1987. Through the joint cooperation of past ministers and the entire staff, the EPA has gone all out to integrate the strengths and resources of civil organizations and government agencies. Active

endeavors to promote environmental protection affairs, strengthen pollution prevention measures and maintain the ecological environment have positively enhanced environmental quality and people’s quality of life.

The high point of the celebration was the signing by past ministers of the “energy conservation and carbon reduction” declaration, which will initiate an action network throughout the citizenry. Minister Shen said that energy conservation and carbon reduction is connected to everyone’s future survival and requires the cooperation of all. The event broadcasted a film looking back on the past 21 years of the EPA’s administrative achievements as well as an outlook on the future in hopes that past struggles and achievements will help firm the future vision for the environment.

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The event wrapped up with a forum among former EPA ministers, deputy ministers, county/city environmental protection bureau directors, and EPA department directors to discuss countermeasures to pressing environmental issues and how to draw on public opinion. This discussion helped pass on

experience of former employees and inspire the current leadership. The EPA called on citizens to cooperate in promoting sustainable development and help make the EPA's birthday wish—"Blue Skies, Green Land, Verdant Mountains and Clean Waters for Health and Sustainability"—come true.

Feature Column

Waste Electronic and Electrical Product Recycling Measures

Taiwan has seen a dramatic increase in the volume of waste electronic and electrical products in recent years. Following several years of implementation of the "4-in-1" recycling scheme, the recycling rate of these products has now surpassed an impressive 50%. Working to put the Extended Producer Responsibility (EPR) system into full play, and make recycling targets more easily achievable, the EPA is actively guiding manufacturers in the setting up of self-administered recycling, clearance and treatment systems.

The EU's Waste Electronics and Electrical Equipment Directive came into force on 13 August 2005, compelling each nation in the EU to establish their own system for recycling and disposing of WEEE according to the standards laid out in the directive.

The EU recycling effort is based on the principles

of competitiveness and EPR. Besides encouraging manufacturers to fulfill their social responsibility, this approach also reduces costs to manufacturers, and ultimately the consumer, by stimulating competition between different recycling systems and treatment plants. It also promotes the continuous upgrading of the whole recycling industry. Japan is also implementing a system of recycling based on similar



▶ Computer monitors are sorted and stored at a treatment facility

principles.

Taiwan's Recycling Performance in Step with International Trends

The implementation of the Waste Disposal Act (廢棄物清理法) and the Resource Recycling Act (資源回收再利用法) has demonstrated that both the spirit and scope of Taiwan's recycling policies are in accord with international standards, as is actual recycling performance. The excellent operating performance of reuse facilities has led to the development of similar systems in China and Japan. Experts from Germany, Japan, the Netherlands, the Republic of South Africa and some countries in Central America and South America have come to Taiwan to observe in detail how recycling facilities here operate.

Domestic recycling operating models rely on full public participation in an open and comprehensive 4-in-1 system: The "4" being the public, local refuse collection crews, recycling and treatment organizations, and recycling funds. This guarantees that waste electronic and electrical products are recycled and reused or disposed of properly.

Waste electronic and electrical products are collected

through private recycling systems, government refuse collection crews, individual recyclers, and direct from the manufacturers. The products are then sent to licensed operators who have the facilities and procedures to disassemble, pulverize and separate the component materials while carefully avoiding the creation of secondary pollution. Reusable materials are sent back to the manufacturers.

The Resource Recycling Management Fund is a scheme in which the EPA announces items and containers as mandatory recyclables and requires manufacturers or importers of recyclable products and containers to pay for collection, clearance and treatment. They are then partly compensated with money from the fund after the accreditation bodies confirm that the stated amount of material has been recycled or disposed of properly.

Recycling Rate Exceeds 50% within a Decade

The following are the categories of electronic and electrical products that have been declared recyclable:

1. Domestic appliances – televisions, refrigerators, heaters, washing machines, electric fans



 Personnel handling disassembled cathode ray tube television screens

2. Electronic devices – notebook computers, monitoring devices, motherboards, recordable disks, casings, power source devices, keyboards, and printers.

Recycling of these items started in 1998, and in the 10 years to 2007 12.84 million domestic appliances and 14.71 million electronic devices were recycled. For the last few years the recycling rate has averaged over 50%.

Although the number of different items currently declared as mandatory recyclables in Taiwan is still far below that of the EU (where over 100 products in 10 main categories are listed) the domestic recycling value of 3.9 kg per person annually achieved in 2007 compares favorably with the EU target for member states of 4 kg per person annually.

Electronic and electrical devices are made of composite materials and have a life of anywhere between two and ten years, which makes estimating the volumes of materials to be disposed of or recycled difficult. This in turn makes environmental impact and cost difficult to assess and makes overall management of recycling of these products more troublesome. The EPA is attempting to overcome these problems by putting much effort into evaluating current overall environmental costs by proxy through evaluations of secondary pollution prevention costs, regeneration costs, and waste disposal costs. The EPA is also actively promoting green production and green design, adopting source management to reduce the degree of environmental impact and management complexity.

Policy Adjusted to Put EPR into Effect

Following the EU's promulgation of the WEEE and Restriction of Hazardous Substances (RoHS) directives, the US, Japan and other nations also introduced similar environmental protection regulations. Taiwan stands out among other nations in its introduction of a recycling system managed and operated by the government. This means that there is now the need to revise policy and regulations to comprehensively put Extended Producer Responsibility (EPR) into play and bring Taiwan more into line with international practice. The government intends to offer assistance and supervision under normal market mechanisms to ensure firms are able to introduce EPR into their business and management

models. This will hopefully reduce the costs of recycling or disposing of waste for both consumers and manufacturers and increase the efficiency of recycling efforts.

EPR is now a part of the international environmental protection mainstream. Manufacturers should thus adopt a proactive attitude in shouldering their social responsibilities in this aspect of their business. The government intends to do its part by offering financial and planning guidance to manufacturers who wish to set up systems similar to the European Recycling Platform or the Swiss Association for Information, Communications and Organization Technology (SWICO). The aim is to help firms meet their recycling targets while allowing the business of recycling electronic and electrical products to be conducted under normal market mechanisms.

The EPA expects that in the future the burden of recycling and disposing of these products will not be born by the government alone but also by manufacturers. This approach is in keeping with international trends and will give manufacturers the satisfaction of knowing that they are fulfilling their corporate social responsibilities.

Aside from assisting manufacturers to set up their own recycling and disposal systems, the EPA is also encouraging retailers to cooperate with licensed recycling operators in establishing a system that will allow consumers return unwanted household appliances and electronic devices to designated retail outlets for collection by operators. This measure aims to raise the effectiveness of recycling efforts and prevent illegal disassembling or dumping of waste electronic and electrical products.

In light of the wide scope of the EU WEEE directive, which covers ten product categories (including IT products, telecommunication equipment, and consumer electronics), the EPA is also considering extending the range of recyclable electronic and electrical products beyond the current five major listed categories (televisions, washing machines, refrigerators, air-conditioners, and computers). More products will be added to the list according to their characteristics, popularity, and environmental impact. The ultimate goal is to ensure that all such unwanted devices and appliances are dealt with in the most ecologically-friendly way possible.

Soil & Groundwater

Scope of Groundwater Pollution Controls to Be Expanded

To more effectively treat groundwater pollution, the EPA issued a preannouncement on 21 August 2008 of draft revisions to the Groundwater Pollution Control Standards. New controls have been added and control values have been set.

The EPA indicates six years have passed since the promulgation of the Groundwater Pollution Control Standards (地下水污染管制標準) on 21 November 2001. Revisions were drafted after reviewing the existing articles and looking at implementation problems, incomplete parts, information on the characteristics of domestic industry, frequent pollutants and related regulations in the US and the EU. The focus of revisions is as follows:

1. As the makeup of domestic industry includes not only traditional industry, but also highly-developed high-tech industries such as electronics, optoelectronics, and semiconductors, the chemical substances present in these industries' raw materials, by-products and waste are quite different from those used in traditional industries. To prevent these substances from causing pollution due to insufficient control standards, the EPA has selected three chemicals that affect human health and are in high use and frequently detected in the environment: dichloromethane, 1,1,2-trichloroethane, and cyanide. These have been added to the list of controlled

chemicals in groundwater and standard values have been determined for each.

2. According to data on land currently announced as groundwater control and remediation sites, petroleum products are a common source of domestic pollution. A general pollution index has been adopted focusing on BTEX (benzene, toluene, ethylbenzene, and xylenes), with base standards only set for benzene, toluene and naphthalene. Three more chemical substances in petroleum products - xylenes, ethylbenzene and total petroleum hydrocarbons - have been added to the groundwater control standards, and control values have been set.

3. Control standards have been revised according to control, testing and analysis, changing the effective digits from three to two. Those that previously only had one effective digit were revised to have two.

Details on the above draft revisions can be found on the EPA website at <http://ivy3.epa.gov.tw/epalaw/index.aspx>

Air Quality

Reduced Fee Rate for Installing NO_x Prevention Equipment

To further encourage enterprises to make every effort to reduce NO_x emissions, the EPA announced revisions to the Stationary Pollution Source Air Pollution Prevention Fee Rate on 5 August 2008. A 40% fee rate reduction will be granted to enterprises that install selective catalytic reduction (SCR) equipment and reduce NO_x emissions to under 40ppm or under 80% of the emissions promised in their environmental impact assessment (a figure based on the Emission Standards).

The EPA expressed that at least 38 private and public companies will apply to the new measure once it takes effect. These companies have invested in SCR equipment to increase the effectiveness of prevention measures from 70% to 90%. This will reduce annual NO_x emissions from 79,700 tonnes to 63,131 tonnes for a total estimated reduction of over

16,000 tonnes per year.

To increase the incentives for other enterprises to make similar improvements and reduce NO_x, the current Stationary Pollution Source Air Pollution Prevention Fee Rate (固定污染源空氣污染防制費收費率) stipulates a 20% fee rate reduction for

enterprises that install Stationary Pollution Source Best Available Control Technology (BACT), provided that their NO_x emissions are under 100ppm, or over 50% less than the value stated in the Emission Standards and provided that these emissions comprise over 30% of the factory's total emissions. A maximum fee rate reduction of 60% was allowed. If emissions were under 50ppm their fee rate would be based on 10% the actual emission volume. The greater the reductions, the higher fee reductions were offered and the less the enterprise had to pay.

The current measure calls for the replacement of BACT equipment with SCR equipment, which can increase control efficiency to 90%, up from the former 70%. However, the high costs of installing and

operating SCR technology add over NT\$10 million in annual operating costs. Therefore a 40% fee rate reduction is offered to businesses that install SCR equipment to reduce NO_x emissions under 40ppm so that emissions are either below emission standards or below 80% of the value promised on the company's environmental impact assessment. This measure makes use of economic incentives and air pollution prevention fees to achieve NO_x emission reductions and improve air quality.

This revision will take effect on 1 October 2008, in time for the reporting of the fourth quarter air pollution control fees. Enterprises are encouraged to take advantage of these reduced fee rates and strengthen NO_x emission reductions.

EIA

EIA Passes Revised Plan for Interim Storage of Nuclear Waste

Two proposals submitted by Taipower – Environmental Differences Analysis and Countermeasures Review of the Plan for the Interim Storage of Spent Nuclear Fuel from Nuclear Power Plant 1 and Tables Showing the Changes to the Plan for the Interim Storage of Spent Nuclear Fuel from Nuclear Power Plant 1 – were revised and passed at the 170th meeting of the EPA's Environmental Impact Assessment Committee on 27 August 2008.

The EPA points out that the Environmental Impact Statement of Taipower's Plan for the Interim Storage of Spent Nuclear Fuel from Nuclear Power Plant 1 had already been passed by the same committee as early as 28 June 1995. This opened the door for the construction of storage facilities for spent nuclear fuel. However, three years passed without action being taken, which meant that an environmental status differences analysis and countermeasure evaluation report must be submitted to the committee in accordance with Article 16-1 of the Environmental Impact Assessment Act (環境影響評估法). Taipower has also abided by the revision of the Building Code (建築技術規則) by reducing the area of its storage facility, which originally had capacity to store 8,448 sets of spent nuclear fuel rods but can now only hold 1,680 sets. The remainder will be kept in the power plant's spent fuel storage pool.

The EPA says that this project was first evaluated in 2005 and was discussed at nine meetings of a team of experts and three meetings of the EPA's Environmental Assessment Committee. The many

discussions centered on assessments of geological conditions, accident response, and safety issues arising from the shift from wet storage to dry storage, among other topics. At the ninth meeting convened by the team of experts, Taipower offered explanations as to how they would deal with the issues mentioned above. After ten separate detailed examinations by the Executive Yuan's Atomic Energy Council the project was deemed to be of "acceptable" risk and the team of experts recommended that Taipower's two proposals be revised and passed. The recommendation was then discussed at the 170th meeting of the EPA's Environmental Assessment Committee on 27 August 2008.

Many environmental protection groups and local residents also presented their opinions at the meeting; they were mainly opposed to nuclear power in general and concerned about nuclear safety issues. Although the committee eventually passed the revision based on the recommendation of the team of experts, it also took into account the concerns of the groups present and added three concluding recommendations to the

revision:

1. Controversial health and safety issues regarding nuclear power should be examined and debated at a conference attended by teams of experts assembled by the development agency, local governments, and other relevant departments. Their expert consensus should then be presented to the decision-making body before any decisions are made.

2. The development agency should give a commitment that the spent nuclear fuel will be moved from the interim storage facilities mentioned in the plan after 40 years and that the storage facilities will not be used as the final storage location for the fuel.

3. The EPA intends to form a committee to start monitoring operations at the No.1 Nuclear Power Plant as is done at the No. 4 Nuclear Power Plant. The EPA will also recommend to Taipower that they buy up all neighboring residences, including those located more than 100 meters from the planned storage facilities.

The EPA stresses that it intends to increase monitoring of this project and push the development agency in question to improve the transparency and disclosure of information deemed to be in the public interest. Only by acting decisively on the results of investigations can the worries of local residents be alleviated.

Air Quality

Summer Air Quality Hits Five-Year High

Based on EPA data, this summer has shown the lowest rate of poor air quality days in the last five years, indicating that air quality this summer is the best it has been in five years.

The EPA indicates that air quality is best during the summer months of the year but when regional circulating airstreams fail to circulate areas or downdrafts occur on the outer edges of typhoons, it is easy for ozone concentrations to increase during intense periods of sunlight, so much as to cause poor air quality.

The EPA's statistics on poor air quality periods during summer months over the last five years from 2004 to 2008 show poor air quality 3.3% of the time in 2004, 3.1% in 2005, 2.4% in 2006, 3.4% in 2007, and a marked drop to 1.6% this year (2008), the lowest it has been in five years. Typhoons are a frequent occurrence during the summer months in Taiwan. When typhoons are still over the ocean their outer edges create downdrafts that hinder the dispersal of air pollutants and lead to poor air quality. The EPA has found that during recent summers typhoons approaching Taiwan have caused poor air quality on 20 days in 2004, 18 days in 2005, 15 days in 2006, 9 days in 2007 and 9 days in 2008. Despite typhoons Kalmaegi and Phoenix this summer, poor air quality due to typhoon circumfluence has been infrequent.

Weather conditions and air pollutant emissions are the main factors affecting air quality. According

to the EPA's analysis, successive typhoons this summer have caused copious rainfall all over Taiwan accompanied by a noticeable decrease in air pollutants. The EPA's records of rainfall over the last five years show the highest number of days with heavy rains (50mm/24 hrs) and torrential rains (130 mm/24 hrs) have occurred in the Kaoping region. A highly active southern airstream this summer has brought abundant rainfall to Taiwan, helping to lower the concentrations of air pollutants.

According to the Bureau of Energy, Ministry of Economic Affairs' statistics on national energy supply and demand from January to June 2008, energy use for transportation decreased 3.7%. According to the Taiwan Area National Freeway Bureau, traffic decreased 8% in June 2008 compared to last year, suggesting that transportation emissions may be undergoing an overall decline this year.

The EPA indicates that air quality is updated hourly on its website (<http://www.epa.gov.tw/>) throughout the year. The website shows regional air quality and instant monitoring data on the concentrations of various air pollutants. Air quality is forecasted for each region at five o'clock every afternoon.

Waste Management

GPS Installed on 1,700 More Waste Clearance Vehicles

To effectively keep track of industrial waste flow, the EPA announced revisions to the Industrial Waste Clearance Vehicles Required to Install Real Time Tracking Systems, on 25 August 2008. The revisions will expand the number of waste clearance vehicles under the tracking management system, requiring about 1,700 more vehicles to install GPS equipment. This will be carried out in three stages.

Among the targets to be included in the first stage of this measure are clearance and disposal vehicles that carry non-hazardous precipitator ash or mixtures of it, furnace residue, residual oil fly ash, general fly ash, or bottom ash composites, metal smelter residue (including raw steel residue), non-hazardous mineral residue, impure minerals, rejected ore, metal smelter slag, furnace slag or mineral slag composites, waste refractory material, mixed construction or building waste materials, and waste stone materials. These vehicles must obtain certification before 1 November 2008 to show that they have installed GPS equipment.

The second stage will target vehicles carrying boiler precipitator ash, precipitator ash from second grade

aluminum smelting processes, coal ash, bagasse ash, cobalt-manganese ash, submerged arc welding residue, waste casting sand, electric arc furnace slag, reactor electric furnace slag, cupola furnace slag, blast furnace sludge, converter sludge, hot-rolling sludge, and rotary kiln slag. These vehicles must obtain certification before 1 November 2009 to show that they have installed GPS equipment.

The third stage targets third class publicly operated waste clearance or disposal vehicles including troughs, tankers, trough-tankers, and atmospheric-pressure trough-tankers. These vehicles must obtain certification before 1 July 2009 to show that they have installed GPS equipment. For more information, please see the EPA website (<http://waste.epa.gov.tw/>).

Water Quality

Erren River Remediation Yields Good Results

EPA Minister Stephen Shen recently met with related agencies on 29 August 2008 for a grounds inspection of remediation work along the Erren River. The minister called on all environmental agencies to strengthen pollution inspection, expedite water quality improvement measures, see to the completion of sewer system construction and ensure waste undergoes appropriate treatment.

Minister Shen met with the Water Resources Agency, Tainan County, Tainan City Government, and Kaohsiung County government officials, as well as local residents and local representatives for a grounds inspection of the Erren River on 29 August 2008. The first stop was the Erren River embankment construction site to check on the progress of waste treatment at the Dajia construction site in Tainan County.

The EPA said that when the Water Resources Agency's Sixth River Management Bureau (RMB) was carrying out construction of the embankment along Erren River, some areas including the Dajia construction site showed signs of waste burial. The Sixth RMB packaged up the uncovered waste for

temporary storage on and under waterproof covers in an appropriate spot beyond the area affected by embankment construction. Follow-up treatment of this waste will take place as soon as possible.

Minister Shen said the EPA has provided assistance to Tainan County, Kaohsiung County and Tainan City environmental protection bureaus in 2007 to conduct a detailed survey and draft cleanup plans for the dumping site. This plan is now underway and is expected to yield initial results by the end of 2008.

After patrolling along the Erren River in a raft, Minister Shen noted that the Erren River has suffered many years of pollution, making remediation and restoration work quite arduous. Fortunately, through cooperation

among the EPA, local governments and the people, the percentage of river segments suffering serious pollution have dropped from 100% in 2003 to 35% in 2007. This was a result of inspections and control, riverbank garbage clean-up, the establishment of a river patrol team, and construction of water quality purification facilities. Preliminary results can be seen by the annual average biological oxygen demand (BOD) measured at the Nanding Bridge monitoring station, dropping from 10.2 mg/L in 2002 to 6.3 mg/L in 2007. The completion of sewer systems in the future will sharply reduce the amount of household wastewater entering the river from the Sanye Stream.

This is expected to further increase the water quality of the Erren River.

While remediation work along the Erren River has already seen initial results, there is still room for improvement. In the future the EPA will continue to work closely with related central and local government agencies, civil groups and volunteers to improve river water quality. The EPA calls on citizens to report any illegal discharging of wastewater to environmental authorities and to take action to protect our rivers (environmental protection hotline: 0800-066-666).

Environmental Inspection

Public Landfill Management Enhanced through Inspections

The quality of operations and management at public landfills has a bearing on the environmental sanitation of nearby areas. Management standards must be upheld in order to effectively safeguard the environment and sanitation of these areas. The EPA began inviting experts, scholars, and environmental groups in 2006 to join landfill inspection efforts.

The EPA indicates that by 2007, 27 active landfills and 3 closed public landfills had undergone inspections. This also included the analysis of 70 samples taken from 35 groundwater quality monitoring wells. The results of these 30 inspections revealed that some landfills are still lacking in terms of: implementing controls, upkeeping and recording management data, covering up garbage with soil, maintaining environmental and labor safety technicians, labor health inspections, and safety training. This shows there is still room for improvement in terms of the operation and management of public landfills.

Some landfills showed better performance, including the Anding regional ash and residue sanitary landfill in Tainan County. The regional leachate treatment

plant at this landfill treats the landfill leachate of all townships within the county. Under the joint management by the county environmental protection bureau and the plant's operating organization, overall operation and management was deemed sound and can serve as a model for other landfills.

In 2008 the EPA has continued to invite experts, scholars and environmental groups to join in onsite inspections, to offer instruction to management organizations on how to improve, and to provide consultation on related technology. Landfills suspected of polluting will be investigated into to better understand their current operations and deficiencies. These landfills will be advised on making improvements for more effective operation and management.

Recycling

Winning Green Packaging Designs Announced

The EPA held an awarding ceremony for the "2008 Green Packaging Design Contest" on 2 September 2008 to commend ten of the best designs. The goal of the contest is to encourage more creative environmental packaging design. Among the winners in the category of industrial packaging included AU Optronics Corp. and Wayzgoose.

The EPA indicated that many companies registered for this year's contest with a total of 86 unique product entries. The EPA invited scholars and experts in the fields of packaging design and environmental protection to evaluate contest entries. From a total of 32 industrial packaging designs, 4 outstanding designs were chosen. From a total of 54 commercial packaging designs, 6 outstanding designs were chosen.

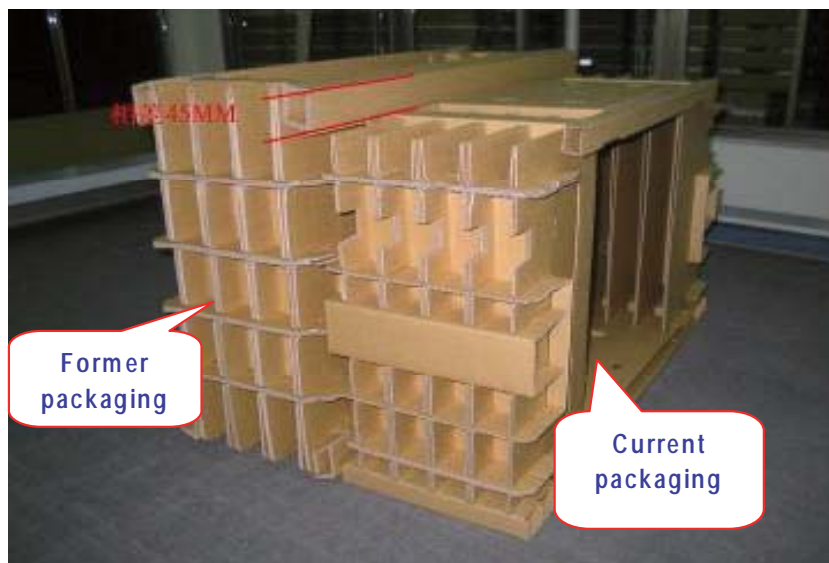
The EPA indicated that the contest was divided into two categories for industrial packaging and commercial packaging. Selection criteria included three areas: green concepts (saves resources, easy to recycle, low polluting) accounting for 60% of scores, economic and environmental benefits accounting for 10% of scores, and creativity accounting for 30%.

Among those designs selected in the industrial packaging category, AU Optronics Corp.'s newest LCD packaging design reduces packaging materials and maximizes cargo space to cut down on transportation costs. Sunwell Materials Technology Co. created a combination pallet and cardboard box

out of one piece of material that can be recycled and reused. Trican Co. designed industrial packaging for five notebook computers using structural cardboard in a way that no plastic or staples are necessary, making it easy to recycle and reuse. Airbag Packaging designed a box for notebook computers using air-filled bags as buffers to replace polystyrene, making it easier to recycle and reuse.

As for commercial packaging, Wayzgoose's packaging for bicycle seats uses one-piece structural cardboard to reduce the cost of original packaging by over a half. Magic Creative's tea packaging uses a single-material packaging mold so that paper bags are no longer necessary, making it easier to take apart. Sinyi Township Department of Agriculture uses uncolored cardboard in their miso packaging and minimized their use of paper.

The EPA states that green packaging not only reduces packaging costs but also cuts down on storage space, transportation costs and improves one's corporate image. Consumers benefit from lower prices making it worth the company's efforts to adopt green design.



- ▶ Improved packaging for LCD panels optimizes cargo space and reduces transportation costs
- ▶ Packaging for bicycle seats uses a one-piece cardboard design

Recycling

Waste Cooking Oil Recycling Exceeds Goal

The EPA has been promoting the recycling of waste cooking oil since June 2007. After one year a total of 5,370 kl of waste cooking oil has been recycled, far exceeding the original estimated goal.

The EPA is working together with the Bureau of Energy, Ministry of Economic Affairs, on the "Green Urban/Rural Application Promotion Plan," in which the EPA has been instrumental in building the capacity of the waste cooking oil recycling system. From 1 September 2007, the EPA has required all households, government organizations, schools and businesses, including large-scale fast food chains and noodle manufacturers, to give their waste cooking oil to garbage collection crews or recycling organizations for reuse. The amounts collected are recorded and posted online. In the period between July 2007 to the end of June 2008, already 5,370 kl of waste cooking oil has been collected and recycled, far surpassing the original goal of 4,692 kl.

The EPA indicated that in order to effectively promote the waste cooking oil recycling plan, it has adopted reporting, promotion, subsidies for collection buckets and other measures and policies to aid recycling of waste cooking oil from the three largest sources (households, government organizations, and industry). According to statistics, implementing agencies (garbage collection crews) have collected 280 kl of oil from households, schools and government organizations. Collection from central and county/city government agencies, and industries amounted to

about 2,342 kl and 2,748 kl, respectively, for a total of about 5,370 kl.

The EPA calls on citizens to not dump waste cooking oil into gutters, which leads to pollution and odors. People are asked to refrigerate their waste cooking oil and store it in a closed, transparent container that can be handed to their garbage collection crew for collection. County and municipality garbage collection crews can also complement garbage trucks with rigs or fixed, designed buckets for waste cooking oil. This offers citizens a more convenient recycling channel.

The EPA indicates that in principle it does not want to encroach on the existing waste cooking oil recycling system. People give their waste cooking oil to the garbage collection crew, which gives it to recycling organizations, which process it into products like biodiesel, soap, food additives, or stearic salts. This prevents the incineration of waste cooking oil which would increase air pollution including the generation of dioxin from the combustion of salts and other chlorides present after boiling cooking oil. Thus the promotion of a waste cooking oil recycling plan not only recycles this resource and but also effectively reduces air pollution.

Recycling

Lead Battery Recycling Rate Over 70%

Taiwan currently recycles about 45,000 tonnes of lead batteries per year for a recycling rate of over 70%.

The multiple functions of lead make it hard to replace with other materials. Lead batteries enjoy the highest recycling and reuse rates among consumables in all the world's countries. The EPA emphasizes the importance of getting industries to recycle lead batteries.

Everyone knows it is time to take your vehicle into the shop when your battery doesn't have enough juice to start the engine. But not everyone knows that lead batteries are a mandatory recyclable waste.

The EPA explains that waste lead batteries are on the list of regulated hazardous waste items in the Basel Convention due to the harmful nature of lead. Early on in 1997, the EPA announced lead batteries as a mandatory recyclable waste. According to EPA

statistics, each year Taiwan recycles 45,000 tonnes of lead batteries for a recycling rate of over 70%. The main sources of batteries for recycling are motor vehicle repair factories, vehicle wreckers, factories, automobile electronics repair factories and lead battery retailers. Recycling and treatment is carried out by local government sanitation crews and qualified waste lead battery recyclers. After batteries are collected they are sent to domestic registered treatment enterprises to ensure all materials are recycled.

The EPA explains that although lead is a hazardous substance, the lead in waste lead batteries is the main source of recycled lead. Recycled lead fetches a high price and is highly reusable. Lead is resistant to acid, wind erosion and blocks energy rays and noise; these multiple functions make it hard to replace. This is one reason why lead batteries enjoy the highest recycling and reuse rates among consumables in all the world's countries.

The EPA reminds people that waste lead batteries fetch a high price for recycling, and in order to reduce the impacts of lead on the environment and human health, it is urgent that lead batteries are recycled. Recycling and treatment is currently carried out by local government sanitation crews and qualified waste lead battery recyclers. Inquiries about the recycling of lead batteries can be directed to the recycling hotline at 0800-085717.

Briefs

Cleanest Counties, Cities, Townships and Boroughs Commended

Counties, cities, townships, and boroughs have been evaluated for their implementation of a national project to clean up residential environments. This plan mobilizes the citizens of Taiwan's 7,828 boroughs to clean up their living environment. The results of the 2007 evaluation show consistently high performance with 23 of Taiwan's 25 counties/municipalities showing outstanding performance. Tainan City, Taipei County and Yilan County ranked first place. Five townships were ranked as having superior performance: Toucheng Township in Yilan County, Fengyuan City in Taichung County, Shihding Township in Taipei County, Dongyin Township in Lianchiang County, and Lieyu Township in Kinmen County.

Battery Recycling Rate Exceeds 30% Average

The results are out from the EPA's 2007 evaluation of school promotion of battery recycling. A total of 570 tonnes of batteries were collected throughout the school year of 2007. Batteries recycled by participating schools accounted for 16% of all batteries recycled during the same period throughout the island. A total of 2,304 schools were evaluated, including public and private colleges, high schools, vocational schools, junior high schools and elementary schools. Of these, 221 schools were selected for outstanding performance. The EPA's statistics show Taiwan's battery recycling rate has averaged over 30% for three consecutive years, already

achieving the EU's targeted battery recycling rate of 25% by 2012.

Central Government Recycling Performance Good in 2007

In an effort to promote recycling throughout government agencies, the EPA has drafted the "Resource Recycling Promotion Plan" with all government ministries, entailing measures to jointly promote source reductions, advance recycling efforts, strengthen education, establish an information system and evaluate performance every two years. The first performance evaluation for the years 2006 and 2007 was good with related information already put on the EPA website under the section on national recycling information (http://waste1.epa.gov.tw/ier_web/).

The EPA indicates that one noteworthy part of the performance outcomes is that the EPA and the Ministry of Economic Affairs have both listed waste silicon wafers as an industrial waste material in demand as a raw material that can be directly reused. This measure will help ensure this resource is recycled and will assist related industries. The EPA says waste silicon wafers fetch a high price on the international market, rising from two to three million NTD per tonne in 2007 to eight to nine million NTD in 2008. Moreover, data on online applications for industrial waste shows the reuse rate has increased from 72.6% in 2002 to 76% in 2007. This attests to the perseverance of each ministry and shows related policies are reaching expected performance rates.

Environmental Policy Monthly
R.O.C. (Taiwan)

Publisher
Stephen Shu-hung Shen, Minister

Editor-in-Chief
Y. F. Liang

Executive Editors
Yu-ling Yang; Hui-kuo Consulting Co., Ltd.

Editorial and translation support
provided by:

Hui-kuo Consulting, Ltd.,
The EPM is available on the EPA website at http://english.epa.gov.tw/en/FileDownloadPage_EN.aspx?path=420

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Environmental Policy Monthly
Environmental Protection Administration
International Affairs Office

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tel: 886-2-2311-7722, ext. 2211
fax: 886-2-2311-5486
e-mail: umail@epa.gov.tw

ISSN: 1811-4008
GPN: 2008600068
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