



Feature Column

Industrial Waste Control System Fast and Effective

With sights firmly set on the goal of "zero waste," Taiwan's industrial waste policy has directed its focus on source control and real-time tracking of waste flow. While past efforts to integrate online reporting and install new GPS technology have pushed industry to greatly improve performance in reporting waste, there is still room for further improvement in the area of resource recycling and reuse.

Interdepartmental Cooperation to Fully Control Industrial Waste

Industrial waste in Taiwan currently includes manufacture waste, medical waste, agricultural waste, education institution waste, military waste and waste from tele-

communications and construction operations. Control over these various sources of industrial waste is delegated to the related corresponding government departments, for example the Ministry of Economic Affairs, the National Science Council, the Department of Health, the Ministry of Agriculture, the Ministry of Education, education institutions, the Ministry of National Defense and so forth.

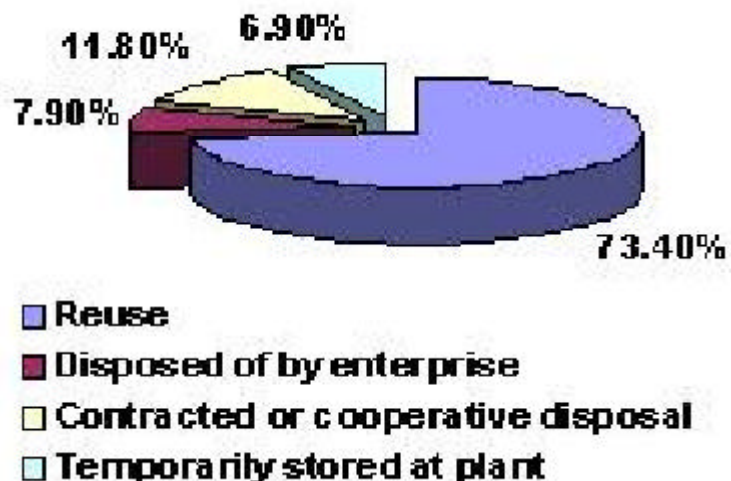
Established on October 21, 2000, the Industrial Waste Control Center's (IWCC) primary realm of authority includes reinforcing source management, flow report management, inspections and enforcement of regulations. Of all industrial waste reported to the IWCC in 2003, approximately 12.26 million tonnes were classi-

fied as general industrial waste, while 1.16 million tonnes (8.6% of total) were classified as hazardous industrial waste. Based on these reported volumes, it is estimated that the actual total volume of general industrial waste is around 20.71 million tonnes, while the total volume of hazardous industrial waste is around 1.49 million tonnes.

Concrete achievements in recent years in terms of industrial waste control can primarily be seen in four areas, most noticeably in the area of treatment facilities. In the past, insufficient treatment capacity and inadequate treatment facilities for industrial waste have led to serious cases of illegal dumping. Given the recent increase in the number of incinerators in Taiwan, there is now extra incineration ca-

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General industrial waste flow: reported clearance and disposal rates

capacity to help with the disposal of industrial waste. Currently, incineration plants in Taipei City, Jiayi County, Houli (Taichung) and Gangshan (Kaohsiung) help dispose of general industrial waste in their respective regions. These plants alone incinerated between 1.28 and 1.40 million tonnes of industrial waste, relieving the burden of a substantial portion of the nation's industrial waste.

As for hazardous industrial waste, due to the relatively higher costs of disposal facilities and technology, the costs for enterprises to contract treatment services are quite high and give no indication of decreasing. The Industrial Development Bureau (IDB) under the Ministry of Economic Affairs (MOEA) has therefore established hazardous industrial waste disposal centers in northern, central and southern Taiwan, which help enterprises reduce hazardous industrial waste disposal costs.

To decrease the disposal costs of waste solvents, which are now in widespread use, a directive was set forth on November 7, 2000, in which the EPA approved the IDB's plan to let cement kilns use waste solvents as an alternative fuel source. There are now three cement kilns in Taiwan that help dispose of waste solvents in this way. Statistics show last year's reported volume of waste solvents nationwide amounted to 115,963 tonnes, 19,807 tonnes of which were combusted in cement kilns.

Online Reporting and GPS Tracking Proves Effective

In contrast to the traditional method of reporting waste using six manifest forms, the new Internet report system not only saves a considerable amount of

manpower, material resources and time, but is also a faster and more efficient way to manage and track industrial waste. The traditional report system required each industrial waste source, clearance enterprise and disposal enterprise to send in separate report data. This method required long hours of painstaking work and the EPA had no way of verifying the flow and volume of any given batch of industrial waste. Equally problematic was the low rate of enterprises that actually submitted reports.

Since the establishment of the online report system, the report rate has increased by a large margin to the current rate of 85%.

Ever since the online report system was established in 2000, the manufacture source, clearance enterprise and disposal enterprise have all been required to assign one code number to the same batch of industrial waste. This method allows for inspection at any time to ensure consistent report data before and after each process. In the event of false reporting or violations during any step, the perpetrator will be penalized and requested to make improvements before a certain deadline. Since the establishment of the online report system, the report rate has increased by a large margin to the current rate of 85%.

Obligatory installation of GPS equipment has become a necessity for controlling hazardous industrial waste. The EPA has already announced the first and second groups of clearance vehicles required to install GPS, for a total of 800 vehicles. The third group of vehicles will be announced before the end of this year (2004), at which time all of the nation's estimated 2,000 hazardous industrial waste clearance vehicles will be fitted with GPS. GPS allows the

EPA to keep precise track of real-time movement of waste, keeping enterprises attentive and in compliance at all times. Results so far show a 100% installation rate among the designated industries, and no dumping violations have occurred to date.

Comparatively speaking, Taiwan has made considerable achievements in the area of industrial waste control. However, the current stage presents certain obstacles. For example, compared to recycling rates of other devel-

oped countries, Taiwan still shows much room for improvement. Although we have already reached a reuse rate of 73.37% for general industrial waste, over 3.26 million tonnes must still be disposed of. A considerable amount of this, however, can be reused.

Room for Improvement in Industrial Waste Reuse

The reuse rate of hazardous industrial waste is only around 40%, while the ratios of hazardous industrial waste in temporary storage and exported to other countries are 14.5% and 6.4%, respectively. Thus there is an urgent need for reuse and treatment technology. Considering the demands of related industries, current problems include: lack of effective integration of industrial waste recycling and reuse system; prohibitively low costs of secondary materials and obstructions to the waste flow; high costs and difficulties associated with recycling and treatment technologies; and difficulties in obtaining land for recycling.

Future industrial waste control clearance plans will focus on the

following points:

1. Strengthen source management, flow reporting, investigation and enforcement: this has already become the primary focus of the IWCC's administrative work.
2. Actively install or encourage the private sector to invest in treatment and disposal facilities: adopt BOT or BOO methods to encourage the private sector to build their own facilities.
3. Revise related regulations: the EPA has already revised and promulgated the *Waste Disposal Act* (廢棄物清理法), the *Standards for Defining Hazardous Industrial Waste* (有害事業廢棄物認定標準) and the *Regulations for Permitting Public and Private Waste Clearance and Disposal Organizations* (公民營廢棄物清除處理機構許可管理辦法).
4. Strengthen pollution site clean-up: already 175 pollution sites nationwide have undergone investigation, evaluation and classification. Clean-up has already been completed at 12 of the 17 more seriously polluted sites. The remaining five are still undergoing clean-up procedures.

nation's manufacture waste reuse rate has reached 70% (including for example, furnace residue and coal ash). However there is still room for improvement regarding treatment status and reuse rates of some waste generated by certain industries, in particular the construction industry.

General waste left over after construction includes bricks, wood, earth, and stones, all of which can be reused. Yet when not handled appropriately, these items often end up as wasted resources or even become the source of environmental pollution. To effectively solve reuse and disposal problems for excavated earth and construction waste, under the Executive Yuan's leadership the EPA has already worked with the IDB to jointly draft the "Excavated Earth and Mixed Construction Waste Disposal and Reuse Implementation Plan" (加強推動營建剩餘土石方與營建混合物處理及再利用實施計畫). This plan is likely to be discussed and approved this year, and will allow for the effective reuse of leftover construction materials in the future.

To further promote the reuse and recycling of industrial "resource waste," the EPA has already laid down the *Resource Recycling Act* (資源回收再利用法). Aiming

product specifications or design to ensure that enterprises take the whole environment into consideration as they work to attain recycling goals.

Air Quality

Policy on Regular Testing of Vehicle Exhaust to Be Modified

The EPA has reached a consensus with the motor vehicle office of the Ministry of Transportation and Communications to transfer the task of vehicle exhaust testing to the EPA's jurisdiction. This gradual change of duties will be complete by 2008, at which time all commissioned testing stations and their staff must have undergone accreditation. Testing instruments must also undergo regular calibration. While vehicle exhaust checks will be stricter in the future, from next year new motorbikes will be exempt from regular exhaust testing for the first three years after purchase.

The national system for regular testing of vehicle exhaust has been under the authority of the motor vehicle office of the Ministry of Transportation and Communications (MOTC). The motor vehicle office currently entrusts over 300 private exhaust testing organizations, which operate over 400 testing stations. This system claims that 100% of vehicles tested are up to standard. In contrast, testing stations under direct authority of the motor vehicle office claim only 70% to 80% of vehicles are up to standard. There is a wide range of discrepancy between the two.

The draft "Excavated Earth and Mixed Construction Waste Disposal and Reuse Implementation Plan," likely to be approved this year, will allow for the reuse of leftover construction materials.

As for foreseeable improvements, the EPA is now endeavoring to engage in cross-departmental cooperation with those enterprises that are still not included in industrial waste controls. Currently, the

for source management, this act demands enterprises to consider product life and use materials that are biodegradable, recyclable or can be easily taken apart. These criteria should become part of

In the interest of ensuring proper and strict execution of the nation's vehicle exhaust inspection system, the EPA met with the MOTC in early August, at which time it was decided that according to the *Air Pollution Control Act* (空氣污染防治法), authority over regular exhaust testing operations shall be transferred from the MOTC to the EPA.

The EPA Department of Air Quality Protection and Noise Control indicates that the new system for cars will be similar to that of the existing regular exhaust inspection system for motorbikes. The restructured regular exhaust testing system for cars will require motor vehicle departments and private testing stations to obtain new certification from an environmental protection agency. All testing personnel will be additionally required to undergo training and obtain licenses.

The EPA points out that instruments used to test idle car emissions of carbon monoxide and hydrocarbons must undergo regular calibration and pass blind inspections in the future. The EPA will also commission consultancies to administer unscheduled random inspections. Substandard cars will be driven to entrusted testing stations; all stations that deliberately allow such cars pass inspections will have their licenses revoked.

For convenience sake, for yearly inspections drivers need only go to one location to undergo the entire scope of testing, including the annual safety check required by the transportation authority as well as the exhaust pollution check required by the environmental authority. A priority will be put on assisting existing testing stations to obtain accreditation, however if they are unable to fulfill the requirements the EPA will not allow them to continue testing citizens' cars.

The EPA further requires public motor vehicle offices to undergo equipment and personnel accreditation. Otherwise even if testing stations are directly subordinate to motor vehicle offices, they may be unable to administer exhaust tests in the future, and may only be allowed to administer automobile safety inspections. Citizens testing their cars at such a motor vehicle office will still need to go to an EPA certified station for exhaust testing.

The EPA will begin commissioning related work based on the *Administrative Procedures Act* and all testing for car emissions will be officially transferred to environmental protection agencies by 2008. In the meantime, tasks such as certifying testing personnel and testing stations, and calibrating testing instruments, will soon be transferred to the EPA's jurisdiction.

On a related topic, significant revisions have been made to the once-per-year regular exhaust examination system for motorbikes. The EPA has stipulated that from January 1, 2005, newly purchased motorbikes need not undergo regular testing for the first three years from purchase date. An estimated two million motorbike riders will benefit every year from this change. At the outset, the EPA stipulated in 1996 that motorbikes should undergo regular testing every year to reduce pollution from motorbikes, which are widespread in Taiwan. However, based on testing results over the years, nearly one-hundred percent of new motorbikes are now passing initial inspections. With the EPA spending about NT\$500 million each year on testing, it was decided that new motorbikes can be exempt from testing for the first three years, which will save around NT\$200 million in expenses.

Recycling

Compulsory Food Waste Recycling in Effect from 2006

New initiatives to implement compulsory recycling of food waste have met success in some counties and cities in Taiwan. Food waste recycling is not only a crucial part of the "zero waste" policy, but also is bound to bring considerable economic benefits. The EPA recently announced that a full-scale food waste recycling policy will be formally implemented from January 1, 2006.

The EPA has taken the initiative to cooperate with the Executive Yuan's "Challenge 2008 National Development Plan – Green Resource Reuse Plan" (挑戰2008國家發展計畫 綠色資源再生計畫) from 2003 to 2007. A total of NT\$1.4 billion has been allocated to execute the "Compulsory Sorting and Recycling of Food Waste" plan. The project is expected to yield an annual economic benefit of NT\$2.4 billion in the future.

The EPA is currently aggressively implementing the "Complete Sorting for Zero Waste" plan and expects that by January 2006 all of the nation's food waste will be collected via compulsory sorting programs. So far already 254 townships and cities throughout all 25 counties have set up food waste recycling systems, which collect a combined volume of 907 tonnes of food waste per day. It is projected that 319 townships and cities will have joined the ranks by 2007, recycling a total of 1,600 tonnes of food waste per day.

In the interest of enhancing the results of each county and city's

food waste recycling efforts and staying abreast of each locality's merits and shortcomings in implementing food waste recycling, the EPA invites experts and scholars to assess the results of each local program every year. Results of the 2003 evaluation showed that Taichung City, Keelung City, Yilan County and Taipei City have the best performance so far.

The EPA indicated that food waste makes up 25% of household garbage and the nation generates as much as 4,500 tonnes of food waste per day. The EPA calls on citizens to "eat green" by cooking only as much as you can eat and ordering only as much food as you

can eat when eating out. Any leftover organic matter generated in the process of preparing food should be sorted from general waste and recycled. Such practices not only reduce pollution but also contribute greatly to the sustainable reuse of resources.

The EPA points out that compulsory sorting and recycling of food waste will be fully implemented from January 2006 in all counties, cities and townships. It is hoped that citizens make their best effort to cooperate with this plan and work together to create a sustainable society that recycles all resources.

tious diseases. It is therefore recommended that the waste from these three industries be officially classified as industrial waste and be subject to the appropriate controls.

Motorbike repair shop owners attending the public hearing voiced an opposing view that all waste products from motorbikes such as waste machine oil, spent batteries, old tires and scrap iron, are all valuable as recyclables. Therefore, these items are already covered under existing recycling mechanisms laid down by the EPA. It is their opinion that demanding motorbike repair shops to install recycling and storage equipment is an unnecessary move that will only increase burdens for the industry.

The EPA states the reason for gradually including more industries in controls for industrial waste is to strengthen source management and flow tracking of industrial waste. The EPA therefore first held a public hearing to hear opinions from all sides concerned about this issue. It has not yet been ruled out whether or not to follow the motorbike repair shop owners' advice to exclude this particular industry from controls. Nonetheless, all industries will still be counseled in strengthening waste controls to prevent hazard-

Waste Management

Tightened Control of Waste from Dry Cleaning and Airline Industries

The EPA held a public hearing on August 9 regarding a proposed revision to regulations that would include dry cleaning enterprises, motorbike repair shops and the air transport industry among those industries subject to industrial waste controls. These industries will be required to install recycling equipment, report waste amounts and submit waste clearance plans after revisions are promulgated in the near future.

In the interest of strengthening inspection and control of hazardous industrial waste, effectively controlling the quality and quantity of hazardous industrial waste, and preventing unscrupulous enterprises from illegally disposing of waste, the EPA has drafted revisions to existing regulations which would require three more industries to be subject to industrial waste controls. Dry cleaning enterprises, motorbike repair shops and air transport industries will be required to strengthen the storage, clearance and disposal of industrial waste to prevent chances of environmental pollution in the future.

The rationale behind this revision is that dry cleaning enterprises and motorbike repair shops generate

hazardous organic solvents such as perchloroethylene and waste machine oil, and waste generated by the air transport industry has the potential of harboring infec-



Motorbike repair shops will soon be subject to industrial waste controls.

ous industrial waste from being carelessly released into the envi-

ronment and jeopardizing public health and safety.

lecting air pollution control fees, promoting controls of stationary pollution sources, inspecting construction sites and testing vehicle exhaust.

General Policy

Report Released on 2002 Green GDP

Just how big of an impact do environmental pollution and ecological destruction have on the gross domestic product? According to the Directorate General of Budget, Accounting and Statistics, Executive Yuan, natural resources depletion and environmental degradation in 2002 cost the nation NT\$97.7 billion, and accounted for 1.12% of the net domestic product. Taiwan's green GDP in 2002 was NT\$8.65 trillion.

Among the developed nations that have already established methods for calculating green GDP include the US, Germany, Canada, Holland, Norway, and Finland. Developing nations such as the Philippines, Mexico, Indonesia, India, Thailand, Korea and China are also beginning to calculate green GDP according to the System for Integrated Environmental and Economic Accounting (SEEA) framework and under the

guidance of the United Nations and the World Bank.

From 2000, the Directorate General of Budget, Accounting and Statistics, Executive Yuan (DGBAS), began compiling Taiwan's green GDP, using the major categories in the SEEA model. Green GDP approximately estimates and accounts for the costs of natural resources depletion, costs of controlling all types of pollution, and costs of any other losses caused by pollution.

Estimated costs of natural resources depletion and environmental degradation in 2000 came to NT\$119.3 billion, or 1.36% of the net domestic product (NDP). One year later in 2001, these figures dropped to NT\$106.4 billion and 1.24% of the NDP. The latest estimates for 2002 in the areas of natural resources depletion and environmental degradation are even more moderate compared to the previous two years. DGBAS deduces that this is because of an increase in citizens' environmental awareness, as well as active promotion of government policies.

Related government measures include prohibiting excessive pumping of groundwater, controlling subsidence and salinization, strengthening garbage clearance, building landfills and incinerators, promoting waste reduction, col-

On August 30, DGBAS submitted the 2002 "Taiwan Area Green GDP Trial Compilation" report. The report shows that domestic production in 2002 reached NT\$9.748 trillion. After deducting NT\$997.9 billion for consumption of fixed capital, the NDP comes to nearly NT\$8.751 trillion. However, natural resources depletion and environmental degradation cost a total of NT\$97.7 billion, thus putting Taiwan's green GDP at NT\$8.653 trillion.

In 2002, natural resources depletion accounted for NT\$15.7 billion and included the following costs: NT\$10.2 billion for groundwater resources; NT\$300 million for non-metal mineral resources; NT\$4.1 billion for energy resources; and NT\$1.1 billion for soil resources.

A breakdown of the NT\$82 billion lost on environmental degradation includes NT\$21.4 for air pollution, NT\$45.3 for water pollution, and NT\$15.3 for waste pollution. The sum total of costs of natural resource depletion and environmental degradation came to NT\$97.7 billion.

The above figures show that among the different categories of pollution, water quality pollution caused the largest amount of environmental degradation. In 2000, Taiwan lost about NT\$57.4 billion to water quality pollution. This figure dropped to NT\$50.4 billion in 2001 and further to NT\$45.3 billion in 2002. Water quality pollution makes up a large proportion of environmental costs due to the low percentage of sewerage systems (only 10.1% of households served by waste water treatment plants in 2002) and the difficulties in providing effective treatment of household wastewater.

News Brief

EPA Celebrates 17th Anniversary

August 22 marked the 17th anniversary of the Environmental Protection Administration, which has been raised in statue since the establishment of the Bureau of Environmental Protection under the Department of Health, Executive Yuan in 1987. On the day of commemoration, EPA Administrator Chang Juu-en stated that the EPA will continue to uphold its outstanding service attitude and enthusiastic spirit to take the initiative. The EPA will continue to promote nationwide environmental protection work and enhance the quality of our living environment. Chang expressed hope that his colleagues can adopt the EPA's core values to be "innovative, progressive, and professional" and to hold a common ideal and objective as we walk the path of environmental protection and sustainable development.

Recycling

Straight Fluorescent Lights to Be Recycled by Vendors

Starting this November, spent straight fluorescent light tubes can be taken in for recycling at stores where they are sold. With over 3,000 shops throughout Taiwan selling straight fluorescent tubes, this new measure will make it much more convenient for people to recycle this item.

From the beginning of January to the end of June 2002, the EPA recorded 15,900 tonnes of old straight fluorescent light tubes that had been inspected and certified for recycling, marking a recycling rate of about 50%. Currently there are three ways to recycle straight fluorescent tubes: they can be given to the local county/city sanitation crew's recycling truck, turned in to a certified recycling organization, or to a vendor that sells such lights. In order to prevent the fluorescent powder from leaking out or the tubes from getting damaged and causing injury during the recycling process, people are asked to put discarded tubes in a new paper sheathing before recycling.

With over three thousand vendors of straight fluorescent tubes throughout Taiwan in every community, citizens have a convenient channel in which to recycle their old straight fluorescent tubes. From November 1, vendors are required to continue to accept straight fluorescent tubes for recycling and may not opt out of collecting and transporting this recyclable just because a person has not made a purchase or for any other reason. Vendors who refuse to recycle straight fluorescent tubes

may be subject to a fine ranging from NT\$60,000 to NT\$300,000 according to the *Waste Disposal Act* (廢棄物清理法).

In fact, five counties and cities in southern Taiwan have already taken the lead in launching fluorescent tube recycling mechanisms before the EPA enforces penalties in November for failing to recycle this item. These local initiatives not only familiarize citizens with recycling channels for fluorescents but also set exemplary models for the nation.

Waste Management

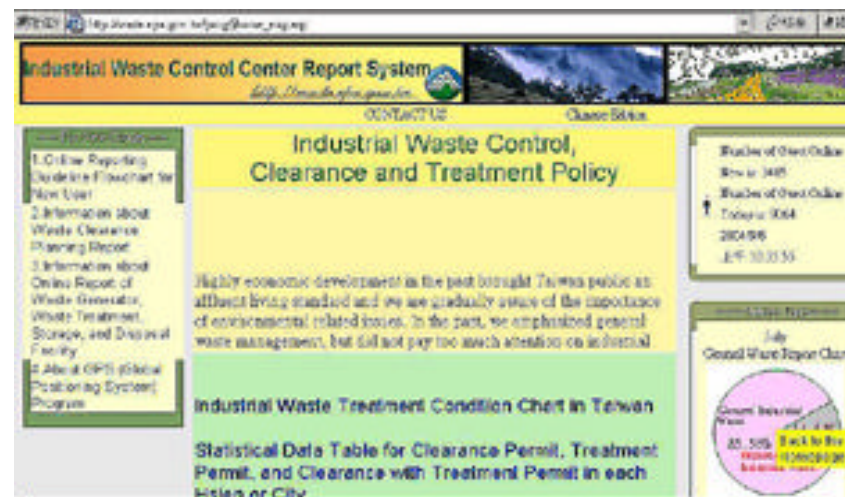
Enhanced Industrial Waste Report System

To improve the nation's industrial waste reporting service and demand stronger controls over waste flow, from now on the time limit for transporting waste from the source location to the treatment location has been considerably shortened to 48 hours. Enterprises are accordingly required to confirm waste clearance reports in a shorter time frame. These measures enhance the real-time element of the industrial waste control system.

Working to exact tighter controls over the industrial waste flow, the EPA's Industrial Waste Control Center has revised regulations under the *Waste Disposal Act* (廢棄物清理法) concerning methods of reporting the source and flow of industrial waste on the Internet. The new revision took effect on September 6, 2004.

Kaohsiung City has joined with environmental protection bureau representatives from the aforementioned five counties and cities and the EPA Recycling Fund Management Board to announce a month-long activity entitled "Save the Earth – Recycle Fluorescent Lights." Citizens are called on to join this pollution reduction initiative. Anyone who brings in two straight fluorescent tubes for recycling will receive one free fluorescent tube in exchange from any of several designated retailers in southern Taiwan.

The revision stipulates that the time in which waste clearance organizations must transport waste from the source to the treatment location has been shortened from ten days to 48 hours. The enterprise generating the waste is required to verify within 84 hours whether the information reported online by the clearance organiza-



English webpage of the Industrial Waste Control Center Report System.

tion is correct, and must also contact the disposal organization within 35 days to confirm whether the waste has been properly treated.

This year the EPA has developed a new waste code system to gain full command over the waste source, the manufacture process, physical properties of waste, main ingredients, the hazardous qualities and disposal methods. Tying in with the abovementioned revised report methods put into effect on September 6, enterprises must also first make the necessary changes to accommodate the new coding system before reporting industrial waste.

In coordination with the promulgation of this revision, the EPA has already prepared an instructive CD on data reporting, and collecting and compiling related information. This CD is provided to industries as a reference when filing reports. Sixty-three workshops were held throughout the island in August. If enterprises still have questions about related stipulations, they can contact the toll-free service center hotline at 0800-059777, ask their local environmental protection bureau or send an email to the EPA at iwcc@sun.epa.gov.tw.

Following up on the implementation of this new revision and responding to dubious interpretation of the new measures in the new system, the EPA has enhanced the quality of service by expanding the service hours of personnel and the 0800 toll-free hotline from now until October 5. The number of staff available to answer calls has been increased to thirty and the daily service hours have been extended by two hours until 8:00 pm. Service personnel can also be reached during weekends from 8:30 am to 5:30 pm, to ensure that enterprises have no difficulties in filing reports.

Air Quality

Cleaner Fuel and Vehicles Enter Consumer Mainstream

The EPA has been working for many years to reduce vehicle exhaust pollution. The use of liquid petroleum gas by cars has been steadily increasing. A newly developed low-polluting 100cc fuel injection motorbike has entered the scene, giving the public more options to consume cleaner fuel.

Encouraging citizens to use liquid petroleum gas (LPG) as an alternative fuel and reduce the amount of volatile organic compounds (VOCs), toxic substances and particulate matter (PM) emitted from cars, the EPA has applied the Air Pollution Control Fund to subsidize the cost of LPG since 2001. The average monthly volume of LPG distributed by the nation's LPG filling stations has increased from 2.1 million liters at the outset of subsidization to 3.0 million liters by June 2004, showing an increased usage of 43%.

With gas prices continually on the rise, the EPA now provides a NT\$3 subsidy per liter of LPG, cutting the price of LPG to half that of unleaded gasoline. LPG is predominantly used by taxicabs. Assuming that each taxi drives 5,000 km per month, each driver

enjoys a savings of NT\$7,000 per month or over NT\$80,000 per year. For occupations that involve long hours of driving, LPG is the most environmental and the most economical choice.

Despite the relatively higher price of low-polluting fuel injection motorbikes compared to traditional carburetor engine bikes, more and more people are purchasing low-polluting motorbikes. By the end of June 2004, already 31,452 such motorbikes had been sold, showing that consumers already accept this product. Manufacturers currently offer 125cc models, but now a newer 100cc model has entered the arena thanks to aggressive promotion by the EPA. These new generation low-polluting fuel injection motorbikes have already passed 15,000 km exhaust tests and will soon be available on the market, expanding options for consumers.

EPA Considers Halting Construction of Three Incinerators

In response to the Executive Yuan's request, the EPA has made a review of the incinerator policy and has accordingly carried out a new assessment of existing and planned incinerators throughout the nation's 25 counties and cities. Evaluation results show that in consideration of waste disposal volume and economic benefits, the option of halting plans to build three incinerators in Linnei (林內, Yunlin County), Zhunan (竹南, Miaoli County) and Hsinchu County in the future has not been ruled out. The EPA indicated on August 24 that it expects to submit its review report to the Executive

Yuan within one month at the soonest.

The EPA emphasized that the main direction of the national overall garbage disposal policy is toward waste reduction, with consideration given to each locality's waste generation and disposal volumes. In order to avoid inapt use of national resources and excessive building of incinerators, the EPA will reconsider whether to halt the construction of incinerators that may not bring economic benefits in the future. The EPA will also actively coordinate cooperation between city and county governments to achieve waste disposal objectives through the most advantageous and cost efficient methods.

Toxic Substance Management

Over 98% of Environmental Agent Labels Pass Audits

The EPA has aggressively strengthened the auditing of environmental agents. The EPA audited labels of 18,881 environmental agents in the first half of this year, and 18,537 (over 98%) of these were up to standard.

With the objective of protecting public health and rights, the EPA has actively worked to strengthen auditing of environmental agents. Out of 18,881 labeled environmental agents audited in the first half of this year, 18,537 (98.37%) were up to standard. The main reason why products failed to pass standards was because they were still on store shelves after the expiration date. The second most common reason was because they were not labeled according to regulations.

The EPA requires enterprises to recall all environmental agents with labels that failed to pass inspections, and make the necessary improvements before a given deadline according to the *Environmental Agents Control Act* (環境用藥管理法). The EPA reminds the public to take note of the contents of package labeling when purchasing pesticides or disinfectants for household environmental sanitation. The EPA also provides the following simple checklist for determining whether contents written on package labels are legally registered environmental agents:

1. Company name and address are clearly labeled: this shows that the product is from a reliable, responsible company.
2. The product has a permit number: this shows the product has been approved by the EPA and has been registered on government records; consideration has already been given to the detrimental effects of toxicity on human health.

3. Product name and active ingredients are clearly labeled: all active chemical ingredients should be written clearly to make it easier for consumers to make their purchase selection. Active chemical ingredients such as pyrethrum or organic phosphorus compounds should be listed for the consumers' reference. In cases of poisoning due to accidental use, labels can be provided to doctors regarding emergency treatment and detoxification procedures.
4. The manufacture date, batch number and expiration date should be included on the label to facilitate tracking of bad products. The expiration date can help consumers judge whether or not they are buying an old product, and can also help the EPA perform audits and demand recalls of expired products.
5. Warnings, instructions for use and emergency/detoxification

procedures are written on the outside label: the public should be able to read this information before using the product; proper, safe methods of use should be provided to consumers; emergency/detoxification procedures should be provided for doctors' reference. In the event of poisoning, the product and label can be brought to the hospital along with the patient.

The EPA also provides the public with accurate usage methods for environmental agents. Consumers are reminded to read labels in detail and use the product according to instructions. For example, users should not mix together different types of environmental agents. There should be plenty of air circulation when applying the product and users should avoid contamination of food or clothing. Users should not eat, drink or smoke while applying environmental agents and should wash hands before eating or drinking.

The EPA also reminds the public that all empty containers and packaging that once contained environmental sanitation agents should not be arbitrarily disposed of or mixed with household waste. Such items should be given to resource recycling trucks. People who find environmental agents on the market that lack clear or complete labels or have labels that obviously exagger-



Environmental agents are in everyday use by most citizens and should be used with caution.

ate the truth, are asked to report such products to their local environmental protection bureau or the EPA. Such initiatives taken by citizens will help protect the safety of

other consumers of environmental agents. The toll-free EPA public nuisance complaint hotlines are 0800-231885, 0800-231995 and 0800-066666.

effective curb on illegal dumping of waste.

Industrial sludge and hazardous waste liquid were targeted during inspections carried out from January to June 2004. Violations were discovered in 34 of the 269 inspections of sludge. The main cause for violations was due to or underreporting of wastewater treatment sludge or of copper sludge generated during manufacture process. Violations were discovered in five of the 63 inspections of hazardous waste liquid. These were primarily due to underreporting of reuse and disposal of waste acid etching solution.

Violations were discovered in 37 of the 169 inspections carried out at reuse, clearance and disposal organizations. The main causes for violations were nonconformance with reuse regulations, installation of private storage facilities and transfer posts without permission, and inconsistent reporting of clearance dates. Related inspections of each county and city's environmental protection bureau has cooperated with the EPA's steps in this area to achieve effective and thorough checking.

Since late 2002, the EPA has successively announced two groups of industrial waste clearance vehicles required to install GPS, allowing the EPA to track the trajectory of a total of 815 of these clearance vehicles. By using report data from the waste source, the EPA can also check for excessive waste amounts and illegal transport. From March to May this year, already 52 clearance organizations were found lacking GPS equipment on some of their vehicles. Thirty vehicles belonging to twelve clearance organizations were found in May to have exceeded the stated clearance transport volume and are currently being further inspected and

Waste Management

Inspection and Guidance Enhance Control of Industrial Waste Flow

As part of the strategy to control industrial waste, the EPA has not only strengthened inspection and required clearance vehicles to install GPS, but also counsels and evaluates industries with the help of related industry associations. This two-pronged approach of inspection and guidance is expected to enhance the efficiency of industrial waste management.

To gain better command over the industrial waste flow and prevent unscrupulous businesses from illegally dumping waste, in the first half of this year, the EPA has drawn up an inspection plan that

called on each regional environmental inspection team to carry out onsite inspections. Violations were reported in 96 of the 1,739 inspections carried out, demonstrating that there is already an

News Brief

Fengshan River Remediation Plan Inaugurated

EPA Administrator Chang Juu-en went to Fengshan City (鳳山, Kaohsiung County) on August 9 to attend the groundbreaking ceremony of the "Fengshan River Remediation Project." Chang also visited upstream areas of the Fengshan River (鳳山溪) to get a better understanding of the status of illegal currieries that are polluting the river. Addressing this situation, which has already seriously degraded the water quality of the Fengshan River, Administrator Chang requested EPA colleagues to put forth the greatest effort to assist the Kaohsiung County government to thoroughly carry out inspection and enforcement work. Chang also highlighted the necessity to cooperate with the progress of river remediation engineering downstream in order to restore the Fengshan River to its original crystal-clear state. The EPA estimates around NT\$400 billion in subsidies will be allocated to the Kaohsiung County government to carry out the remediation project. All construction work will be completed before the end of next year.

Taiwan to Conditionally Accept Import of Recyclable Resources

Providing impetus to the growth of the domestic environmental service industry, EPA Administrator Chang Juu-en stated on September 1 that Taiwan will conditionally open its doors to foreign recyclable resources in the future. As part of the service industry masterplan put forth by the Executive Yuan, the EPA has proposed to develop the resource recycling industry, which is already considered an important government policy. In addition to calling for compulsory sorting of garbage, the EPA aims to foster a resource recycling society and create employment opportunities by accepting the import of recyclable resources from other countries after first establishing standards. It is hoped that citizens embrace the concept of efficient reuse of resources and that Taiwan's southern Environmental Science and Technology Park will play a role in international environmental protection, similar to that of northern Kyushu, Japan.

penalized.

Before the end of this year, the EPA expects to announce a third group of waste clearance vehicles required to install GPS. Meanwhile the EPA has already made real-time and past trajectory information available to vehicle proprietors, in hopes that joint supervision of driver's clearance

routes will prevent illegal actions. Apart from integrating GPS to strengthen inspection, the EPA has also integrated efforts with related industry associations to provide guidance and evaluations of industry performance. It is hoped that the combined use of inspection and guidance will lead to more effective management of industrial waste.

sults showed that 22.5% of respondents were dissatisfied with the amount of time for the EPA to review cases, while 74.6% were satisfied. Comparing these figures to survey results in 2003, the ratio of dissatisfied responses has dropped by 5.4 percentage point while the ratio of satisfied responses has increased by 6.2 percentage points. This shows the EPA has already made a noticeable improvement in terms of inspection efficiency. There is still room for reviewing current practices in order to better accord with applicants' demands.

The EPA indicates plans to carry out a satisfaction poll on application cases each year. Survey results will be used to get a better picture of applicants' satisfaction with EPA administrative procedures and staff attitude. Further discussion and review will focus on reasons for dissatisfied responses and the EPA will continue to improve work procedures, raise the efficiency of application procedures and strengthen the professional knowledge and service attitude of its workers. The EPA strives to keep up the good work

General Policy

80% of Applicants Satisfied with Administrative Procedures

The EPA carried out a citizen satisfaction poll in the first half of this year (2004) to gain a better understanding of applicants' satisfaction with the EPA's service and application filing procedures. Survey topics included service attitude, investigation efficiency and the occurrence of bribery. Poll results showed 80% of responding applicants expressed overall satisfaction with how the EPA handles applications.

To find out the degree of satisfaction with how applications are handled, the EPA contracted a public polling organization to do a phone survey of all 841 applications filed from January to June this year. The survey results will be a useful reference when making future improvements to administrative tasks and services. A total of 508 responses were received for a successful response rate of 60.4%. Polled items included application form design, staff service attitude, efficiency of case examination, service attitude when supplemental information is required, and the occurrence of bribery.

As for bribery and illegal lobbying, none of the respondents felt that it was necessary to give gifts or find someone to lobby in their favor when filing applications with the EPA. This shows that most applicants highly appreciate the EPA's overall lack of corruption. The survey showed that the highest area of satisfaction was the service attitude of EPA

personnel. Respondents gave a high degree of approval with 84.3% expressing satisfaction and only 6.7% expressing dissatisfaction.

Among the five survey items that received the lowest rating of satisfaction were the time required to carry out application reviews. Re-

News Brief

Penghu to Launch "Complete Sorting / Zero Waste" Demonstration Project

The EPA has assisted Penghu County with the formulation of the "Complete Sorting for Zero Waste Demonstration Plan," which has already been approved by the Executive Yuan. The plan calls for replacing plans for an incinerator with source reduction and resource recycling strategies. Penghu County will soon become a model for other counties to follow in terms of garbage reduction, resource recycling and creating a sustainable environment. The "Complete Sorting for Zero Waste" plan initiated by Penghu County includes education regarding reducing garbage at its source, sorting and recycling of all

resources, food waste recycling and basic environmental knowledge. Waste treatment facilities include storage and sorting of garbage, volume reduction by drying out garbage, and processing waste into fuel pellets. As for the daily garbage generated in Penghu County, all trash should first pass through the garbage collection system before entering the sorting facilities of resource recycling plants. All garbage that enters such plants will be separated into the three main categories of "resource waste," "non-resource combustibles" and "non-resource non-combustibles." Items sorted out as "resource waste" will enter the existing resource recycling system.

in those areas that have received public affirmation and will perse-

vere in its efforts to eradicate corruption by encouraging citi-

zens to report any illegal affairs.

Activities

EPA and TFT-LCD Industry Reach Agreement to Reduce PFCs

The EPA signed the "PFC Emissions Reduction Memorandum of Cooperation" with the Taiwan TFT-LCD Association (TTLA) on August 27. The memorandum was signed by EPA Deputy Administrator Lin Ta-hsiung (林達雄) and Chairman Lin Zhen-hong (林鎮弘). Dr. Hideki Nishida and Mr. Tai-Ryong Lee, representatives from TFT-LCD industry associations in Japan and Korea, respectively, were also present during the signing ceremony to witness Taiwan's determination to play a major role in reducing global greenhouse gas emissions.

According to the criteria in the memorandum of cooperation, the TTLA is committed to reducing PFC emissions from the manufacture of thin-film transistor liquid-crystal display (TFT-LCD) substrates down to 2002 levels by the year 2010. This effort to produce environmentally friendly products is a step in the direction of sustainable development.

To meet this emission reduction target, all member companies of TTLA must install equipment that eliminates at least 90% of their total PFC emissions in new plants built after 2003 and all plants engaged in mass production after 2004. Enterprises are expected to invest nearly

NT\$2 billion toward pollution control over the next few years.

Discussions to Revise National Environmental Protection Plan

The EPA held a series of national environmental plan revision work discussions throughout the island on July 9, July 12 and August 12 in southern, central and northern Taiwan. Opinions from all different circles were gathered during these discussions and will serve as an important reference when revising the National Environmental Protection Plan. It has been over six years since the National Environmental Protection Plan was ratified and promulgated by the Executive Yuan in 1998. The discussions were held in response to changes that have happened over the years as well as to the changing level of environmental awareness. Environmental NGOs, experts, scholars and related government organizations were invited to submit their views during the discussion including aspects of the Plan's vision, environmental indicators, strategy framework and participation mechanisms. The EPA has already compiled detailed minutes of the discussions and will review its content and consider adding suggestions to the revised National Environmental Protection Plan.



EPA Deputy Administrator Lin Ta-hsiung (second right) and TTLA Chairman Lin Zhen-hong (second left) jointly sign the memorandum of cooperation.

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