



### Feature Column

## 24-hour Toxic Disaster Emergency Response System in Place

Toxic disaster emergency response information centers (TDERICs) were successively set up in northern, central and southern Taiwan last year. In June this year, the three TDERICs were integrated into a 24-hour toxic disaster emergency information system to ensure that sufficient personnel and equipment needs are met around the clock. In addition, the Executive Yuan has granted NT\$51 million in funds to be put toward improving local governments' and factories' ability to handle disasters on their own.

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sonnel and equipment needs are met around the clock. In addition, the Executive Yuan has granted NT\$51 million in funds to be put toward improving local governments' and factories' ability to handle disasters on their own.

With so many people living on such a small area of land, compounded by the fact that Taiwan has a highly developed chemical industry, the potential hazards of chemical substances on human health and the environment has become a topic of significant concern. For instance, a chemical tanker with a full load of acrylonitrile tipped over in Taichung in April this year spilling its contents and causing 10 people to seek

medical treatment due to poisoning. In order to prevent similar disasters involving toxic chemical substances, the EPA is actively promoting toxic chemical substances disaster prevention and response work in accordance with the framework laid down in the *Toxic Chemical Substances Control Act* (毒性化學物質管理法).

Many highly toxic substances often pose the greatest risk to the environment and people within a very brief period after an accident occurs due to their toxic, flammable or explosive nature. Therefore, most disasters involving toxic chemical substances require flawlessly capable rescue organizations,

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TDERIC personnel handling a steel canister leaking chlorine gas

manpower and equipment to control emergency conditions immediately after the disaster occurs and to minimize its negative impacts. The next crucial step is to undertake disaster recovery measures so as to ensure safety for human lives, health and property. Stepping up to this special task of toxic chemical disaster prevention and response, this year the EPA has drawn up the following strategies and objectives toward managing toxic chemical substances.

### Strengthened Emergency Response Technical Support System

The EPA Department of Environmental Sanitation and Toxic Substance Management, responsible for managing toxic chemical substances, expressed that in accordance with the *Disaster Prevention And Response Act* (災害防救法), the EPA acts as the central body in disaster prevention and response operations involving toxic chemical substances. This entails that the EPA is in charge of directing, supervising, and coordinating all levels of administrative organizations and public operations involved with disaster prevention and response, so that each agency can work together toward implementing toxic chemical disaster prevention and response work. In accordance with the *Disaster Prevention and Response Act*, the EPA has compiled the Toxic Chemical Substances Disaster Prevention Plan, which will be reviewed and revised every two years according to regulations.

While reviewing the explosion incident at the FuGuo Chemical Company in 2001, the EPA felt that on-site emergency advisory services in central and southern Taiwan were inadequate, and sought to strengthen management of toxic chemicals at the source. As prevention efforts are often more important than emergency

relief work, the EPA made plans to install regional toxic disaster emergency response information centers (TDERICs) in northern, central and southern Taiwan as a precaution against further disasters.

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## **TDERICs are the most mobile toxic disaster prevention and response mechanisms, allowing the toxic disaster emergency response capabilities reach their fullest potential.**

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Beginning last year, the EPA cooperated with relevant institutions in these three regions – the Center for Environmental, Safety and Health Technology Development (ITRI), National Yunlin University of Science and Technology, and the National Kaohsiung First University of Science and Technology – to set up TDERICs in northern, central and southern Taiwan. These centers provide information on toxic chemical substances disaster related prevention and response, toxic management, and technical services such as on-site emergency advisory and follow-up rehabilitation. This year the Executive Yuan shifted over NT\$50 million in funds, which the EPA used to proactively augment equipment and capabilities. On June 1, the northern, central and southern TDERICs implemented a 24-hour prevention and response system to provide prevention response services around the clock.

As for emergency protection measures at the three regional emergency response information centers, the EPA has supplied each center with personal protection equipment. This equipment is

provided for nearby local governments and other response organizations to use when necessary. In addition, the EPA has procured three airtight FTIR analysis instruments worth over NT\$9 million for the centers to use when examining ambient air quality in areas with toxic chemical substances operations. Thus local governments are able to immediately and effectively control hazardous conditions on the site during the incident as well as environmental pollution conditions after a disaster occurs.

### Enhanced Early Warning System and Industry Alliances

Response procedures at TDERICs currently entail that at least two to four professional emergency response information staff are on call at all times. Upon receiving a request for emergency response guidance, the centers immediately provide information on handling emergencies at factories with toxic chemical substances or emergencies involving toxic chemicals. Centers also promptly inform professionals to mobilize and provide response guidance on the site within one half hour to no later than one and a half hours after the accident occurs depending on distance from site. TDERICs also dispatch a monitoring team directly to the site to begin carrying out continuous monitoring of pollution and environmental damage, and take water and soil samples to environmental labs for analysis. After the toxic disaster is over, the centers coordinate professionals to carry out post-disaster investigation into the causes of the accident and complete a summary report on causes of the disaster.

The nation's TDERICs have shown brilliant success in the last year of operations. The EPA points out that statistics show a yearly average of 80 accidents involving chemical products in recent years; in 2002 there were 42 incidents requiring

TDERIC on-site assistance and emergency response guidance, and duties were carried out successfully in each case. Looking at an overview of incidents involving chemical products throughout Taiwan last year, 20 of them involved toxic chemical substances, six of which were transport related, eight were fire related and the remaining six were due to leakage. As for extent of damages incurred, the most serious toxic disaster last year occurred in Pingzhen, Taoyuan County (桃園縣平鎮市) when a corroded pipe at a water treatment plant caused a chlorine gas leak, injuring 38 people. Fortunately, appropriate relief measures were adopted without delay and the incident was prevented from causing further casualties or damages.

In addition to establishing a disaster information system, the EPA has also taken precautions against toxic disasters by setting up a reserve of experts, establishing a toxic management databank in Chinese, printing a toxic chemical substance toxic disaster prevention and response manual, providing emergency response cards, and moreover producing a CD-ROM, which proactively provides emergency information to emergency relief organizations. In addition, the EPA implements one to two large-scale drills each year as well as 90 unscheduled warning tests. Allied prevention organizations have already established 48 teams comprising 732 companies, and implemented over 60 on-site training sessions to augment each factory's ability to carry out their own disaster response and relief efforts. The EPA also established a toxic disaster emergency response mobilization system and a toxic disaster reporting system last year. This year the EPA will continue to conduct tests to ensure open horizontal and vertical communication and command links within related organizations.

## Reinforced Regional Disaster Response Capabilities

The NT\$51 million budget set aside for setting up TDERICs this year will be used to strengthen the following aspects: consultation in the event of a toxic disaster, research and development on emergency response technology and equipment, on-site emergency response coordination, enhanced TDERIC video imaging, intelligent emergency response databank inquiry system and toxic disaster prevention and response training to strengthen each region's professional disaster response capabilities.

Integration of the nation's northern, central and southern regional toxic disaster emergency prevention and response systems has worked to greatly enhance each region's ability to handle response operations on their own as well as the nation's overall capabilities of the entire prevention and response system. TDERICs are currently taking the following measures this year in order to put the abovementioned goals into action:

1. Evaluate future comprehensive plans for national toxic disaster prevention and response system – This entails, at the very least, collecting information on toxic chemical disaster prevention and response systems in Europe, the U.S. and Japan, as well as gathering current information related to domestic toxic chemical disaster prevention and response systems as well as response resources. An evaluation and plan should be drawn up to target the four areas of prevention, preparedness, response and follow-up measures for domestic toxic chemical disasters.

2. Enhance response techniques

and capabilities of the three regional TDERICs – Compile a reference databank for national toxic chemical emergency response, basic information on facilities and standard response procedures, and integrate electronic accident login forms; establish intelligent emergency response databank inquiry systems and provide information to the EPA along with its three regional inspection teams and advisory centers; develop video image monitoring and disaster related accident video systems to help assess conditions during toxic disaster emergencies.

3. Upgrade the complete preparatory and drill capacity of the three regional TDERICs – Finalize the establishment of 300 toxic chemical operation factories' air pollution concentration FTIR monitoring and complete the establishment of background values; complete on-site sampling analysis and background values of water and soil in the vicinity of facilities involved with toxic chemicals; hold 21 toxic disaster simulation drills in each county and city, and 30 professional investigations into causes after toxic pollution incidents occur.
4. Integrate basic prevention and response data on toxic chemical facilities within the three regions – Establish basic data on prevention and response measures of 2,400 toxic chemical substance facilities within the three regions; complete an inventory of disaster relief resources; update toxic chemical disaster prevention and response manual and MSDSs and toxicology related data.
5. Expand the three regions' disaster prevention and response systems and disaster



response capabilities – Complete operation and response checklists for facilities with toxic chemical substance operations to help guide such facilities; complete training for over 75 factories involved with toxic chemical substances transport management and response throughout the three regions; twice annually update related professional groups in each of the three regions; assist local environmental protection bureaus in planning 90 unscheduled tests of facilities that handle toxic chemicals.

6. Four personnel on call 24-hours to handle the following tasks – Year round non-stop 24-hour expert emergency response advisory personnel, monitoring staff and emergency response, sampling analysis staff on duty at all times.

TDERICs are currently the most mobile toxic disaster prevention and response mechanisms in Taiwan, allowing the nation's toxic disaster emergency response capabilities reach their fullest potential. Therefore, the EPA calls on industries to integrate existing resources so that they can assist their locality, carry out toxic chemical substance disaster prevention and response work, and let accident news reach their respective regional TDERIC in the shortest amount of time possible. This will ensure that the centers are able to immediately carry out the most effective response measures. Contact information for the three regional TDERICs: Northern Taiwan – Center for Environmental, Safety and Health Technology Development: 0800-057119; Central Taiwan – National Yunlin University of Science and Technology: 0800-329690; Southern Taiwan – National Kaohsiung First University of Science and Technology: (07) 6011235

## Waste Management

# 80% Reduction in Plastic Bag Consumption over Six Months

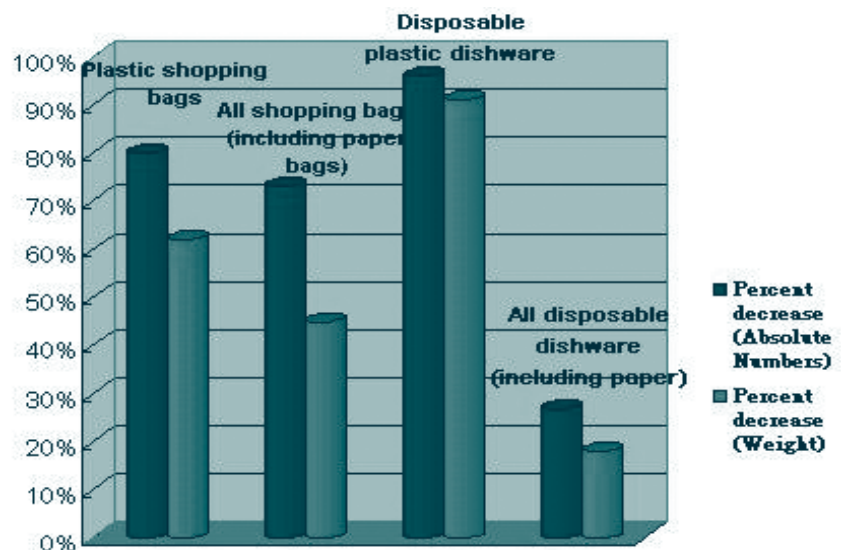
**After half a year of implementation of stage two of the plastic bag restricted use policy, the EPA has reviewed the results. Owing to thorough implementation by environmental agencies and widespread public support, the number of plastic shopping bags used has been reduced by more than 80%, and only 1.48% of businesses inspected were in violation of the regulation. Moreover, South Africa, among others, are using Taiwan's method to begin implementing limitations on the use of plastic bags. This shows that Taiwan's policy has already become an international example.**

Aiming to change the public's throwaway consumer habits and bring environmental concepts into people's lives, the EPA implemented the second stage of the Restricted Use Policy on Plastic Shopping Bags and Disposable Dishware starting on January 1, 2003. This second stage targets department stores and malls, hypermarkets, supermarkets, chain convenience stores, fast food chains and restaurants. After half a year of implementation, the policy has not only achieved its goals, but has also changed public consumer habits.

From the statistics, one can see that after the restricted use policy was implemented, there was a noticeable difference in people's acceptance to the policy and in

their consumer habits. Several polls have shown that almost 80% of the public support the restricted use policy. With regard to consumer habits, the number of people who bring their own shopping bags has risen from less than 20% before the policy was implemented, to about 50% after the first stage was implemented, and to 79% six months after the second stage has been in place. Furthermore, 86% of the population is using fewer plastic bags.

According to the EPA's survey on implementation results of the restricted use policy, there was an 80% decrease in total numbers of plastic shopping bags used (a 62% decrease in terms of weight). Taking into account the fact that paper bags are being used instead of



Results of the second stage of the Restricted Use Policy on Plastic Shopping Bags and Disposable Plastic Dishware

plastic, the total decrease in numbers of shopping bags is posted at 73% (45% by weight). Moreover, the amount of disposable plastic dishware has decreased by 96% (91% by weight). Considering that disposable paper dishware is replacing plastic, the total decrease in disposable dishware has reached 27% (18% by weight). Of all the businesses affected by the policy, snack shops posted less than ideal reductions of plastic bags and plastic disposable dishware, and this will be a focus of follow-up reinforcement by the EPA.

With regard to those in the plastic industry directly impacted by this policy, according to a blanket survey of plastics manufacturers carried out in April by local environmental protection bureaus, out of a total of 676 manufacturers interviewed, 307 produce plastic bags and disposable dishware, of which 165 are affected by the policy. This survey shows that the majority of manufacturers impacted by the restricted use policy are still able to continue operating, while the minority that have received greater impact have already been included under a special project by the Industrial Development Bureau which provides counseling in switching to a different market niche. Furthermore, as of the end of June, 39 of these manufacturers were approved for loan interest subsidies reaching a total loan of NT\$579 million.

At the same time, all levels of environmental agencies throughout Taiwan have begun undertaking inspections of all those targeted by this policy. As of the end of June, a total of 187,726 inspections have been carried out on over 79,000 businesses targeted in the second stage of the restricted use policy. Of these, 2,778 (1.48%) were in violation and each received a warning. Follow-up inspections after the warnings showed that

only two businesses were still in violation. The results of the survey showed that the violation rate was extremely low, and that most businesses targeted were able to coordinate with and implement the policy.

The EPA says that after half a year of implementation of the restricted use policy, not only the use of shopping bags and disposable dishware has decreased, but the policy has also raised the level of environmental consciousness in the public, improving on the throwaway consumer habits of

the people of Taiwan. This can be regarded as one of the restricted use policy's major concrete outcomes toward environmental protection. In addition, international media and environmental groups have shown a positive response toward Taiwan's implementation of the restricted use policy on plastic bags and dishware. South Africa will use this method to initiate implementation of plastic bag reduction measures, attesting to the fact that Taiwan's restricted use policy on plastics has already become an international example.

### General Policy

## Taiwan Announces Its First Sustainable Development Indicators

**On World Environment Day, June 5, 2003, the Executive Yuan for the first time announced a total of 42 "Taiwan Sustainable Development Core Indicators" in six categories. This holds great significance as it makes Taiwan the second country in the world, behind Canada, to officially announce a set of advisory environmental indicators.**

Secretary-General (CEO) of the Executive Yuan's National Council for Sustainable Development, Yeh Jiunn-rong (葉俊榮) indicated that World Environment Day originally came in to being on June 5 thirty-one years ago during the UN Conference on the Human Environment in Stockholm, Switzerland. Unfortunately, just before the meeting was convened, Taiwan left the UN. Over the last 32 years, although Taiwan has not been able to regain its former UN membership, she has nonetheless kept in stride with the rest of the world, and her desire to unite with the international community has never diminished.

NCSO Secretary-General Yeh underscored the fact that there are very few countries in the world that have officially promulgated sustainable development indicators endorsed by commit-

tees on sustainable development. Canada just announced a set of sustainable indicators in May of this year, and now Taiwan has taken the lead ahead of most countries as the National Council for Sustainable Development has already discussed, approved and established an indicator system. It shall be seen that this is a very significant act indeed.

Based on the year that the EPA was established, the 15-year period from 1987 to 2002 is regarded as the primary period of observation for Taiwan's sustainable development indicator system. The system includes the following six broad categories: ecological resources, environmental pollution, social pressure, economic pressure, systematic responses and urban sustainable development. Of the 42 indicators within this system, Taiwan has regrettably diverged from the focus of sustainable develop-

ment on 14 of these items, including infectious disease transmission rates, carbon dioxide emission amounts, ratio of less-than-slightly polluted rivers, land area used for betelnut cultivation, unemployment rate, deaths due to cancer, and available water resources. In contrast, the results of urban sustainable development over the past 15 years have shown strides toward sustainable development trends.

Yeh highlighted six particularly significant meanings behind the establishment of sustainable development indicators. Firstly, three fundamental mechanisms for promoting sustainable development have already been completed. Secondly, the establishment of a sustainable development indicator system is more important than the calculation of certain outcomes. Thirdly, sustainable development indicators show Taiwan's past course and future direction – they are not just a one-sided display of government achievements. Fourthly, sustainable indicators go one step further to manifest the fact that Taiwan is an island country with a high degree of urbanization. Fifthly, this is an organizational system beyond the space and time of any political party's administration. And sixthly, this is an important basis for links between Taiwan and the international community.

In conclusion, Yeh further explained the three fundamental mechanisms of sustainable development:

1. National Council for Sustainable Development – serves as a platform to integrate government and citizen powers and assist all government departments to promote mechanisms for sustainable development.

2. Sustainable Development

Action Plan – provides concrete plans for carrying out sustainable development and serves as a basis for compiling budgets and investing manpower. The Year of Sustainable Development also served as a foundation for action toward sustainable development.

3. Sustainable Development Indicators – serve as objective standards on which to measure the status of sustainable development, and provide the sort of objective information that both people and the government have been waiting

for.

With the promulgation of sustainable development indicators, NCSO Secretary-General Yeh indicates that it is possible to clearly see Taiwan's progress toward sustainable development as well as warning signs in certain development trends. From this it can be determined which areas to continue on with diligent effort and which administrative focuses should be reinforced. At the same time, these sustainable development indicators will help the people of Taiwan to gain a clearer sense of the outcomes, crises and turning points of Taiwan's development.

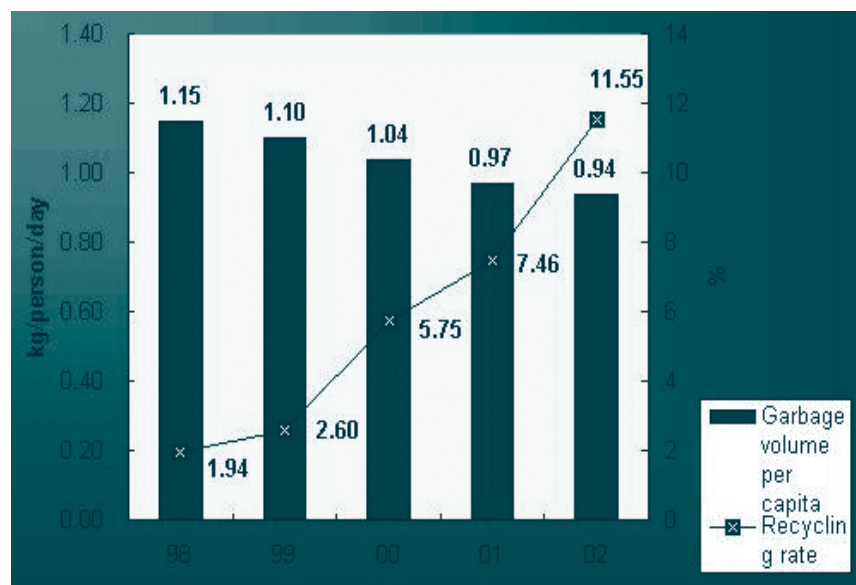
### Waste Management

## Citizens Vastly Reduced Waste by 10% Last Year

**Taiwan showed impressive results in reducing the volume of trash generated last year, thanks to the combination of a cooperative public and extensive government efforts to advocate resource recycling policies. Compared to the previous year, the per capita daily volume of garbage decreased 7.49% and last year the amount of resources recycled by the whole nation increased by a large margin of 22.63%. This clearly illustrates the current upward trend of the national recycling rate.**

The resource recycling policy has already showed evident results in reducing garbage volume. According to EPA statistics, the

amount of garbage cleared away in the Taiwan area has decreased from 7,278,000 tons in 2001 to 6,743,000 tons in 2002. This corre-



The national recycling rate is currently showing a steady increase year by year



lates with a decrease in the average daily per capita generation of garbage from 0.895 kg in 2001 to 0.828kg in 2002, meaning a 7.49% reduction in average per capita daily generation of trash. At the same time, the nation's overall resource recycling rate has risen from 12.68% in 2001 to 15.5% in 2002.

EPA data reveals that the volume of resources recycled by nationwide administrative organizations reached 880,700 tons in 2002 compared to 586,000 tons in the previous year – an increase of 294,700 tons. Moreover, administrative organizations' recycling rate rose from 7.46% of discarded waste in 2001 to 11.55% in 2002 – a 55.03% increase in just one year.

The overall volume of recycled resources in Taiwan *ew* including amounts of recycled materials from both administrative organizations and the public - reached 1,241,800 tons in 2002. This is 184,800 tons over the 2001 volume of 1,057,000 tons. The above figures translate into an overall resource recycling rate of 15.55% for the Taiwan area in 2002, up from 12.68% in 2001- a growth rate of 22.63%.

The EPA indicated that the above statistics show that resource recycling not only reduces administrative organizations' expenditures; if the funds earned from selling recyclables is used appropriately, recycling is also likely to reduce financial burdens for the government.

promulgated.

In order to make the best use of the water pollution fees as well as accelerate efforts to mitigate water pollution, Article 2 of the draft regulation explains that the EPA will regard each EPB's usage and implementation results of water pollution control fees in the previous year as an important indicator for assessing whether local governments are in urgent need of this fund and whether they have indeed carried out water pollution control tasks. At the same time, water pollution control implementation plans submitted in the second year by each local EPB will be used by the EPA as a gauge of whether or not EPBs indeed have drawn up water pollution control work plans and are an important basis for determining the need for water pollution control fees. The EPA will then compute the ratio of increase or decrease of each local government's allocation of water pollution control fees based on how each local government has applied fees as well as their implementation results for the previous year.

The draft regulation also clearly specifies the methods used by the EPA to assess the local EPB's previous use of water pollution control fees as well as methods to assess implementation results. Article 4 of the regulation specifies the following principles on which the EPA will base its assessment. First, each local government will, before the end of February each year, submit records on the previous year's use of water pollution control fees as well as implementation results. This information will be used for carrying out an assessment, which will be completed each year before the end of May. The EPA will then review and approve the ratio in which to allocate water pollution control fees for the next year. In addition, the EPA will

## Water Quality

# Water Pollution Fee Allocation Regulations Drafted

**In preparation for the collection of water pollution fees in the future, the EPA has announced the draft *Regulations Governing the Allocation of Water Pollution Control Fees to Central and Local Governments* in order to allocate resources appropriately and provide a means of earmarking funds for special purposes. The EPA will base the ratio of additions or deductions to local governments' water pollution fees on the use and implementation results of each local environmental protection bureau's water pollution fees for the previous year.**

Although there is no way to ascertain whether the water pollution fee collection policy will go into effect next year, the EPA is still actively in the midst of promoting a legal system for the collection of water pollution fees. According to EPA plans, industry groups have been targeted in the first stage of this policy.

In considering the work requirements for local environmental protection bureaus (EPBs) in the area of water pollution control, the EPA drafted the framework in which water pollution control fees will be allocated among central and local governments. In accordance with

stipulations in Article 11~5 of the revised *Water Pollution Control Act* (水污染防治法) promulgated on May 22, 2002, the EPA has announced the draft *Regulations Governing the Allocation of Water Pollution Control Fees to Central and Local Governments* (水污染防治費中央與地方分配辦法), containing a total of six articles. A preliminary announcement period of this draft regulation will conclude by July 30, and public hearings will be held in the near future. After all parties' suggestions have been taken into consideration, the regulation will be accordingly revised and

adopt unscheduled on-the-spot examinations when necessary.

For more information, please call (02) 2311-7722 ext. 2820

## Waste Management

# Reuse and Recycling Regulations Announced

**The EPA has announced regulations governing the reuse and recycling of renewable resources, respectively, adopting similar management methods for both operations. In the future, businesses whose resource reuse or recycling operations are over and beyond a certain scale will be required to first complete registration through their local government, as well as report operation data each quarter and retain records of operations over the past three years.**

Aiming to encourage resource recycling as well as prevent businesses from dodging control measures, the *Resource Recycling and Reuse Act* (資源回收再利用法) stipulates that businesses must adhere to management regulations laid down by the EPA and related authorities when reusing or recycling renewable resources. In an effort to provide clear-cut rules to follow, the EPA announced two new regulations on June 25, namely the *Regulations Governing the Recycling of Renewable Resources* (行政院環境保護署再生資源再生利用管理辦法) and the *Regulations Governing the Reuse of Renewable Resources* (再生資源再使用管理辦法) .

Although the *Resource Recycling and Reuse Act* holds different definitions for 'reuse' (再使用) and 'recycling' (再生利用) and has set different rules for each, the above two regulations announced by the EPA stipulate nearly identical management mechanisms and procedures for both reuse and recycling of resources.

According to the new regulations, businesses with reuse or recycling operations larger than a specified scale are required to register with the local city or county government where the plant is located. According to current plans, online reporting will be integrated with registration. In the future, infor-

mation regarding registered businesses will also be provided through an inquiry system, thus helping to open up more channels for reused products.

As for division of labor, reuse and recycling of household-generated renewable resources is the responsibility of the local sanitation crew. However, upon approval by the local government, the sanitation crew may entrust a legally registered firm to handle this task. In contrast, renewable resources generated by industrial sources should in principle be handled by the industry itself or entrusted to a legal, registered firm. Local sanitation crews can also be entrusted to handle reuse and recycling duties for an industry if they agree to do so.

To prevent businesses from misrepresenting themselves as resource recyclers while not actually owning up to waste disposal responsibilities, this regulation stipulates that businesses handling reuse and recycling operations must maintain records for the previous three years of operations. Also, at the beginning of each quarter, businesses are required to report operation information to the competent authorities.

As for clearance of renewable resources to be reused or recycled, operators must not only possess equipment that prevents pollution or hazards from occurring, but also must carry clearance certification documents in vehicles at all times (however, certain operators have been announced as exempt from this rule). In principle, different types of renewable resources should be sorted and cleared away separately. If an accident should occur during clearance, the operator should immediately adopt emergency response measures. Regarding the storage of renewable resources, both regulations have laid down explicit rules on storage methods and storage facilities for

## News Brief

### **AmCham, ECCT Give Advice on Taiwan's Environmental Protection Policies**

The Council for Economic Development and Planning, Executive Yuan, on June 10 convened the first session of a coordination meeting with the European Chamber of Commerce Taipei regarding recommendations for years 2002 and 2003, inviting ECCT representatives and officials from various departments in the Executive Yuan. Several different topics were addressed during this meeting. ECCT representatives pointed out that 80%

of the environmental problems addressed in the previous discussion had already been resolved. After the meeting, the EPA asked all related departments to submit reports on their status and current activities before the end of June. The EPA then plans to invite AmCham and ECCT representatives to another meeting in July to discuss issues relevant to soil and groundwater remediation, industrial waste disposal and the degree of transparency of regulations so that both sides can resolve any discrepancies.



both reusable and recyclable resources.

The EPA indicated that even though environmental protection agencies have consistently adopted a supportive stance toward resource recycling, in order to ensure efficient reuse of materials, reuse or recycling operations found in violation of these

new regulations will be fined NT\$30,000 to NT\$150,000 by environmental protection agencies and will be required to make improvements within a limited timeframe, according to Article 26 of the *Resource Recycling and Reuse Act*. It therefore behooves future reuse and recycling operators to adhere to the stipulations in these new regulations.

tinuous monitoring should be carried out for volatile organic compounds (VOCs). To coordinate with the *Semiconductor Manufacturers Air Pollution Control and Emission Standards*, and a recent announcement requiring the second set of waste incinerators to install monitoring equipment for hydrogen chloride, apart from particulate matter (such as sulfur dioxide, nitrogen oxide, carbon monoxide, total reduced sulfur), volatile organic compounds (VOCs) such as hydrogen chloride, total hydrocarbons (THC), and non-methane total hydrocarbons have been added as targets for continuous monitoring.

## Air Quality

# Stationary Pollution Source CEMS Regulations Drafted

**In coordination with stipulations laid down in last year's revisions to the *Air Pollution Control Act* the EPA has merged and revised three regulations including the *Management Guidelines for Stationary Pollution Source Air Pollution Continuous Emissions Monitoring Systems*. With this completed, the EPA then announced a draft *Regulations Governing Stationary Pollution Source Air Pollution Continuous Emissions Monitoring Systems*.**

In 1993 the EPA had separately announced the first, second and third sets of stationary pollution source listings required to install continuous emissions monitoring systems (CEMS). Tying in with the June 19, 2002 revisions to the *Air Pollution Control Act* (空氣污染防治法), according to Article 22~3 the EPA is authorized to determine regulations governing the recording, reporting, storing, online connection standards, completion of installation or deadlines for setting up online links and other rules that must be adhered to by stationary pollution source CEMS.

The *Air Pollution Control Act* authorizes the EPA to determine the specifications, installation, operation, inspection, maintenance, recording, and other regulations that must be adhered to by stationary pollution source monitoring equipment. Consequently the EPA has merged these three statutes: *Management Guidelines for Stationary Pollution Source Air Pollutant Continuous Emissions*

*Monitoring Systems* (固定污染源空氣污染物連續自動監測設施管理要點), *Quality Certification Standards for Stationary Pollution Source Air Pollution Continuous Emissions Monitoring Systems* (固定污染源空氣污染物連續自動監測設施品質保證作業規範) and Online Connection Standards for Stationary Pollution Source Air Pollution Continuous Emissions Monitoring Systems (固定污染源空氣污染物連續自動監測設施連線作業規範). A review and amendments have been made and the latest related regulations in other countries were also referenced. Finally, the draft *Regulations Governing Stationary Pollution Source Air Pollution Continuous Emissions Monitoring Systems* (固定污染源空氣污染物連續自動監測設施管理辦法) was announced on June 10 and a public hearing was convened on June 12.

As for newly added items to be monitored in this regulation, Article 2 of the draft stipulates that con-

Article 4 of the draft specifies the requirements for combining and selecting monitoring equipment in cases where two or more stationary pollution sources apply to the same emission standards. When two or more flue gases mix and are emitted at the same discharge point, monitoring equipment can be installed in the flue at a point after the gases mix. However, if the same pollution source has two or more separate emission flues then each flue must be equipped with a monitoring device. If approval has been granted by the competent authority, monitoring equipment may be installed at the discharge point with the greatest emission volume.

As for disciplinary action, Article 22 of the draft stipulates that a fine ranging from NT\$100,000 to NT\$1,000,000 will be levied and that penalties will be strictly appraised and enforced upon each inspection in accordance to Article 56 of the *Air Pollution Control Act* for all those who do not submit CEMS installation plans, details regarding monitoring measures, monitoring equipment verification reports and online connection planning manuals, or for those who have not conducted routine calibration tests, those

whose seasonal effective monitoring hours do not comply with standards, those who have not recorded the stipulated items, those who have not reported

monitoring data, or those who have not maintained records and online transmission of records.

For more information, please call (02) 2311-7722-2770.

den discharge pipes during this round of inspections, ten were turned in by volunteer river patrols, while the remaining 33 were jointly investigated by the EPA and local environmental protection bureaus. Investigation procedures require staff to go through painstaking efforts to traverse through dense vegetation or sparsely inhabited areas, and trudge through wastewater laden with strong acid and heavy metals to investigate hidden discharge pipes upstream.

According to EPA statistics, the top three areas that conducted the most frequent inspections were Tainan County, Yunlin County and Taoyuan County. Most cases requiring suspended operations and sealing off or removal of discharge pipes were in Tainan County. Taoyuan County had the most cases in which fines of NT\$600,000 or under were doled out. On the whole, Tainan County and Taoyuan County showed the best performance in the first five months of 2003. The EPA indicated that the implementation results of key river basin pollution cleanups will be the most significant indicator in this year's assessment of results of water pollution prevention work. There is still leeway for counties and cities to demonstrate their ability to implement controls. Those that show good performance should keep up their current work while those with less-than-adequate performance should work harder to confront shortcomings head-on and get abreast of any problems.

The EPA indicated that in many instances, illegal discharges enter water bodies that are used by farmers to irrigate crops. In such cases, pollution enters the food chain via plant uptake and may therefore have an impact on human health. The EPA calls on businesses to make sure that they dispose of industrial wastewater

## Water Quality

# Inspections and Citizen Reports Aid River Pollution Cleanup

**Achievements in river pollution cleanup have been outstanding thanks to integrated efforts by both the government and citizens. The EPA announced that it made a total of 3,431 inspections within the two months from March to the end of May. These inspections revealed 43 hidden discharge pipes or illegal discharges, 23% of which were uncovered by citizen volunteers patrolling the waterways. This dedication shows that local citizen awareness of environmental protection concepts is on an upward trend.**

The Water and Green Architecture Plan (水與綠建設計畫) to restore river ecology and build river access areas is an important part of the Executive Yuan's Challenge 2008 - National Development Key-Point Plan. While continuing implementation of the Taiwan River Basin and Ocean Management Program (台灣地區河川流域及海洋經營管理方案), the EPA has placed a high priority on investigating hidden discharge pipes and illegal discharges in 13 of Taiwan's rivers this year.

Recognizing illegal discharge of industrial wastewater as one of the major causes behind domestic river pollution, the EPA has compiled inspection guidelines for wastewater cases in 2003. The EPA also continues to target five major categories of industries prone to generating water pollution and has begun to carry out inspections. Forty-two industrial parks' unified wastewater treatment plants have been selected as primary targets for future inspections. In addition, atypical industries have been screened for intensified inspection from among the 4,960 firms under regulatory listing and located near the 13 rivers prioritized for cleanup. In spe-

cial investigation cases, volunteer patrols and citizen informants as well as video surveillance systems are adopted to assist with investigation, and inspection raids are arranged during holidays or in the nighttime for those firms highly suspected of abnormal operations.

According to EPA statistics, up to May 2003, a total of 3,431 inspections have been conducted. Among these, 43 were found to have hidden discharge pipes or illegal discharges, 35 were discharging without permits, and 163 did not meet standards for water quality or incurred other violations. Of these businesses, seven were required to suspend operations, seven were required to completely seal off discharge pipes, two had responsible personnel taken to court for prosecution, six were fined the maximum fee of NT\$600,000, and 213 businesses incurred fines of over NT\$60,000. Those firms found to be discharging untreated wastewater or without a permit were required to relocate wastewater outlet signs from the inside of the plant to the outside where the discharge pipes enter water bodies.

Of the 43 firms found to have hid-

properly and keep in mind the analogy that river health can be seriously damaged by effluent containing strongly acidic or basic substances or heavy metals, much like how human health is seriously impaired by the SARS virus. En-

vironmental protection bureaus will go all-out in future investigations of hidden pipes in order to safeguard river water quality and citizens' health.

For more information, please call (02)2311-7722-2830

results, as well as responses and handling of important environmental protection affairs.

According to last year's assessment results, the top six outstanding cities and counties were chosen primarily because they earned affirmation for handling certain significant environmental protection affairs. Assessment review categories now not only include interactions between central and local governments, but also grade performance based on mutual support and cooperation between local governments.

### General Policy

## Top Six Outstanding Environmental Counties/Cities in 2002

**According to performance assessment results of local environmental agencies in 2002, Taipei City, Kaohsiung City, Taipei County, Taichung City, Miaoli County and Jiayi County were the top six counties and cities showing the best overall performance, while the remaining 17 cities and counties also showed grade-A performance. With a projected goal of raising overall achievements in environmental protection, performance assessments now not only scrutinize interactions between central and local governments, but also consider the degree of mutual support and cooperation between local governments.**

Central and local governments must cooperate with each other in order for environmental protection work to be carried out successfully and with good performance results. The EPA has shown that within the past year, assistance from local environmental protection bureaus (EPBs) has led to the smooth implementation of central environmental protection policies. In order to get a grasp of each city and county's environmental protection achievements and weigh the different rates of performance for each locality, the EPA carries out an annual performance assessment of each local EPB.

The EPA indicated that 23 county and city EPBs were evaluated for their work performance during the period from January 1, 2002 to December 31, 2002, according to the 2002 performance assessment plan for local EPBs. At the time of assessment, ample consideration had been made regarding the differences in each locality's environmental loadings and conditions. According to the score results, the top six achievers were Taipei City,

Kaohsiung City, Taipei County, Taichung City, Miaoli County and Jiayi County. The method adopted in this year's assessment was primarily a review of written records, and future assessments will require reviews on location.

The EPA related that each local EPB is required to undergo reviews in two main categories, namely pollution control and integrated work affairs. The first review category of pollution control is divided into air, noise and water pollution controls, waste management, soil pollution prevention, environmental sanitation and toxic chemical substances management, large-scale incinerator construction, serious pollution control, double-checking of results, environmental monitoring, public nuisance report handling and measures to offer greater convenience to the people. The second category of integrated work affairs is divided into information, local environmental plans, environmental education, review and tracking of EIA system, reviews of public affairs statistic forms, educational training, subsidy fund implemental

## News Briefs

### **Recycling Rewards to be Granted Next Year**

Tying in with the *Resource Recycling and Reuse Act* (資源回收再利用法), which became effective as of July 3 this year, the EPA has announced the *Regulations Governing Performance Incentives for Recycling and Reuse* (再生資源回收再利用績效優良獎勵辦法). This regulation calls for screening outstanding individuals, groups or businesses excelling in source management measures, reuse and recycling technology development, or those actually carrying out reuse and recycling of resources. Grant money or rewards will then be given to the top candidates. This regulation is expected to go into effect next year.

### **First Plant to Reuse Incinerator Bottom Ash Passes EIA Review**

Environmental impact assessment results have come out for Taiwan's first factory planning to reuse preliminarily screened garbage incinerator bottom ash. The Tainan factory's plan has passed the EIA review based on the conditions that the developer makes the following improvements: the plant must put more effort into beautification of the area surrounding the plant, a professional or academic archeologist should be hired to make an investigation of the area before construction begins, the developer should abide by *Cultural Asset Preservation Act* regulations, and the developer should draw up a construction environmental protection implementation plan according to the contents of the environmental impact assessment guidelines and results conclusion.



## Activities

### Premier Yu: Water and Green Architecture to Become Policy Focus

Accompanied by EPA Administrator Hau Lung-bin (郝龍斌) and other officials, Premier Yu Shyi-kun paid a visit to the EPA's environmental analysis laboratory in Chungli on June 24 to get a better understanding of the implementation status of the Water and Green Architecture Plan (水與綠建設計畫), which is part of the National Development Plan. The government has already listed the Water and Green Architecture Plan in the Challenge 2008 - National Development Key-Point Plan (挑戰2008國家發展重點計畫), a crucial component of the government's plan to create a Green Silicon Island. Premier Yu also underscored that the Water and Green Architecture Plan is one of the nation's ten major plans. Accordingly, each government department should include this plan in their implementation focus in order to actualize the Green Silicon Island goal. Yu called on all related departments to finalize the legal and standard work procedures within three months so as to push ahead full force with green architecture.

### "Bottles for Sale?" Becomes Recycling Theme Song

To advocate resource recycling the EPA has chosen "Bottles for Sale?" (酒研倘賣無) as the recycling theme song to be used by sanitation crew trucks starting from July 1. The recycling song, written by Hou Te-jian

(侯德健), will be broadcast in the streets when recycling trucks pass by to remind people to bring out their recyclables. Also, a rock-n-roll version of the same song will be played in nearly 600 fast food chains to tie in with the recent implementation of the policy requiring fast food restaurants to sort and recycle.

Original songwriter Hou Te-jian has agreed to authorize the EPA to broadcast this song and has chosen not to collect royalties. To show the EPA's gratitude for Hou's support for environmental protection policies, Administrator Hau Lung-bin presented him a trophy made of recycled glass.

### Seminar on Environmental Applications of Nanotechnology

The EPA held the second seminar on environmental applications of

nanotechnology and related topics on June 18. The main sponsors of this activity were the EPA's Office of Science and Technology Advisors and ITRI's Center for Environmental, Safety and Health Technology Development. Nearly 100 people in the domestic environmental protection field attended and many papers were presented, including such topics as treatment and environmental impact of nanoparticles in high-tech industrial wastewater, nanophotocatalysts in pollution control applications, and nanotechnology in the development of biological microsensors for environmental monitoring. Most discussion revolved around the newest research and development trends in current domestic nanotechnology applications for wastewater treatment and pollution control.



Administrator Hau presented Hou Te-jian a trophy made of recycled glass.

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