

Environmental Policy Monthly



Taiwan R.O.C.

Volume IV, Issue 2 (Published Monthly)

February 2001

Environmental Protection Administration

GPN: 2008600068

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Recycling and Conservation Stepped Up in EPA Offices

The EPA, Taiwan's highest environmental protection authority, in promoting domestic environmental protection work, has also aggressively thrown its self into the improvement of the EPA's own office environment. This includes a complete ban on smoking in EPA office areas and a prohibition on the use of Styrofoam eating utensils within the EPA building. With the beginning of the new year, the EPA is taking steps to recycle kitchen leftovers and ban the use of disposable chopsticks within the EPA.

The EPA has met with quite a high degree of success in the initial stages of its efforts to improve the environment in its offices. This success includes the implementation of a complete ban on smoking in EPA office areas and a prohibition on the use of Styrofoam eating utensils within the EPA. As it moves into a new millennium, the EPA is stepping up its work to create a better office environment for its employees. New policies aimed at achieving this goal include the following:

1. Food leftovers recycling: The EPA is aiming for the complete recycling of food leftovers at the EPA. Leftovers recycling bins will be placed in employee kitchens located on each floor of the EPA office building. EPA employees have been instructed to dispose of their food leftovers in these bins. Cleaning personnel will place these leftovers in a leftovers recycling bin behind the EPA building and members of the ROC Swine Association will collect these leftovers everyday.
2. Ban on the use of disposable chopsticks: EPA employees will need to possess their own personal set of reusable chopsticks at their offices. Cafeteria managers will notify food catering companies that deliver meals to the EPA building that they should not deliver disposable chopsticks to EPA offices. For special occasions, such as conferences, where group meals are ordered for
- people from outside of the EPA, event organizers will need to inform event participants that disposable chopsticks will not be provided. The cafeteria office will purchase reusable chopsticks for use by guests of the EPA.
3. Reuse and Recycling: This includes the improvement of recycling work in printing and photocopying rooms and employee kitchens. Paper and mail must be categorized into specific categories for reuse and recycling in printing and photocopying rooms. Also, in order to simplify the recycling work of office cleaning crews, both plastic and paper recycling bins will be placed in employee kitchens for the disposal of employees' meal box waste.
4. Ban on Personal Waste Bins: Individual employees are requested to do their best in order to avoid the use of personal waste bins. Those employees with special needs for individual waste bins must register their waste bins with the Secretary's Office and personally dispose of this waste themselves. EPA employees have also been instructed to place waste paper in paper recycling boxes.

Each EPA office will continue to provide space for the implementation of office environment improvement programs despite the constraints placed on them by the relatively old condition and limited space of the EPA office building. The EPA also intends to gradually introduce additional improvement measures including trash reduction, water and electricity conservation, mail reduction and office beautification and greenification. Further, so as to ensure these measures are implemented, the EPA will continue to make evaluations of office environmental protection work within EPA offices on a quarterly basis. 

90% of Hog Farms in Water Supply Areas Apply for Shut Down Compensation

After completing the educational phase of a plan to compensate the removal of hog farms illegally located in water source areas, nearly 90% of hog farmers have applied for the subsidy. In the future the EPA will continue to promote onsite inspections, application reviews, and issue compensation. Farmers that have not applied for compensated shut down will face a joint inspection and prohibition taskforce organized by the EPA and other relevant agencies.

Hog farming operations located in water

source areas are a serious threat to the provision of safe drinking water. For this reason, drinking water statutes in Taiwan were amended to clearly prohibit hog farming in protected water source areas. There are nearly 800,000 hogs along the flow of the Kaoping river, and an estimate shows that nearly 58% of ammonia-nitrogen pollution affecting drinking water sources comes from the livestock industry, making it the largest single source of water pollution. To resolve these problems, in December of

1998 the Executive Yuan approved a framework plan to improve drinking water quality. One of the important measures included in the plan was the legal removal and compensation of the nearly 640,000 hogs located in Taiwan's key water source protection areas.

The EPA expressed that a consensus was reached on guidelines for compensating farmers that removed their hog farming operations from protected water source areas after numerous meetings with industry representatives and local governments. The guidelines were approved by the Executive Yuan and promulgated on August 29, 2000, as well as investigation and control plans for hog farms in protected water quality areas. Kaohsiung County and nine other county and city governments completed announcement of affected regions and progress schedules in September of 2000, and began to receive and process applications from hog farms for compensated removal. Processing of applications should be finished before December 2001.

To allow hog farmers to fully understand the application procedures and other related regulations after their announcement, the EPA and county and city governments held 51 training and explanation sessions for hog farmers. The EPA also instructed Kaohsiung County and 9 other County and City governments to make the information widespread through farm-by-farm notifications, press releases, educational activities and passing information to neighborhood representatives. As of January 2, 2001 (the last day for filing) initial statistics showed that in 10 county and city governments including 48 townships, application rates reached nearly 89.5%. Out of all the counties and cities involved, application rates reached 100% in Taipei County and

Keelung City, 98% in Hsinchu City, 97% in Tainan County, 94% in Kaohsiung County, and 90% in Pingtung County. As of May 2001 98% of all onsite inspections had been completed as well as 46% of application reviews.

An EPA study shows that of the farms on record that did not apply for compensated removal, most were small not for profit household farms or were no longer raising hogs. However, a small number of those still had hog rearing operations, which they hoped to illicitly continue running into the future.

The EPA notes that they will continue to help local governments accelerate onsite inspections, application reviews, and issuing of compensation. As for those who have not yet applied for compensation and prepared to shut down their operations, the EPA, Ministry of Economic Affairs, and Council of Agriculture will establish a joint inspection and prohibition taskforce which will take aggressive enforcement action against illegal hog rearing operations.

In addition, to prevent hog farmers from restarting operations once they've shut down, the EPA will make use of aerial and remote sensing and geographic information systems (GIS) for hog farms located in water source areas along the flows of the Kaoping and four other rivers. The GIS system will be used to fix the locations of hog farms in water resource areas and then aerial and remote sensing technology used to determine whether or not hog farming activities have been resumed. County and city governments will carry out investigation and prohibition activities in accordance with the regulations in order to put a stop to any resumed hog farming activities and protect water source quality. ♀

EPA Promotes Treatment of Sterilized Medical Waste in Municipal Incinerators

Public protests in Taiwan have caused a bottleneck in the treatment of medical wastes. The EPA recently invited local officials and medical organizations for a demonstration of how medical waste can be safely incinerated after separation and sterilization. This type of treatment also conforms with good health, environment, and economic principles.

Of late Taiwan has been experiencing a medical waste disposal crisis. Although the country has sufficient disposal capacity, illegal competitive practices between waste handlers and local protests have led to the shut down of treatment facilities. These factors have created a breakdown in medical waste

disposal that threaten the environment and public health.

On January 19 the EPA invited representatives of local environmental and health agencies and medical organizations to visit a hospital and municipal incinerator in Taichung City for an onsite demonstration of medical waste clearance and treatment practices. From the exchange of experiences during the onsite demonstration and symposium, the participants learned about how to manage medical waste and take emergency response waste clear-

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ance and treatment measures.

In fact, after proper separation and disinfection or high temperature sterilization, medical waste is just like any other normal non-hazardous industrial waste and can be safely disposed of in a municipal incinerator. At the end of the year 2000, after multiple discussions the EPA, the Department of Health and the Taipei City EPB agreed to allow emergency treatment of sterilized medical waste in Taipei City's municipal incinerators. Technically Taipei City's incinerators, which handle over a thousand tons of waste daily, are capable of processing sterilized medical waste in accordance with environmental and health codes. However, after local protests Taipei City was forced to begin putting their medical waste into temporary cold storage. Similar events have also unfolded in Kaohsiung City, making this problem one of the greatest obstacles to the future development of environmental work. Medical waste is produced in medical clinics through efforts to protect the health and quality of life of Taiwan's people. If all people were to take a selfish not-in-my-backyard attitude then environmental work would come to a grinding halt.

The point of this onsite demonstration of the cooperation between Taichung's large hospitals and their EPB was to prove to that the treatment of properly separated and sterilized medical waste is both

safe and environmental. Based on this example, and to strengthen the legal basis for this type of treatment method, the EPA has already moved to revise the *Standards for Defining Hazardous Industrial Waste*. The revisions state that after sterilization, sharp implements, waste from surgical procedures or autopsy, experimental waste, and yellow container infectious wastes will be legally considered as general industrial wastes. After revision of the standards, after undergoing proper separation and sterilization most medical wastes can be disposed of in the same manner as general industrial wastes. This will greatly improve the efficiency of medical waste disposal.

In recent years Taiwan's citizens have protested the development of any type of environmental facility, creating one of the biggest head aches in environmental protection work. Environmental protection is inextricably linked to quality of life, the economy and national competitiveness. Protests in the face of any and all environmental projects make it impossible to raise living standards in Taiwan, and will adversely affect national economic activities and social welfare. The EPA calls on all county and city government leaders to take a stance and use their influence to put an end to unreasonable protests and ensure the implementation of legal environmental protection work. The EPA has committed itself to using all of its civil authority to remove unlawful environmental protests and return to Taiwan a clean, orderly and comfortable environment. ♻️

Military Gives Recycling A Big Push

Taiwan's military is giving a big push to recycling. The EPA and the Ministry of National Defense have teamed up to promote a special program aimed at implementing recycling in military units. The program includes training of military "Seed Teachers," assistance and review work. EPA Administrator Edgar Lin recently issued commendations for units with exemplary recycling achievements.

On January 3, EPA Administrator Edgar Lin commended military units that had performed exceptionally at recycling and other environmental work. A number of high ranking military officials were present to receive the commendation. Lin stated that in traditional thinking "military" is another word for "off limits." However, Lin said that he was very happy to see the military cooperate in the thorough implementation of recycling, and set an excellent example for all of Taiwan's people to follow.

In the year 2000 the EPA held its first spe-


cial program for the implementation of recycling programs in the military, which mainly incorporated training for military recycling "Seed Teachers," assistance and performance reviews. Although this was the first time carrying out such activities, a total of 27 military units throughout Taiwan partook in the exercise and had their performance reviewed. After a strict screening process ten military units with exceptional performance, such as the Armed Forces Police 202 Command Post, were selected for special recognition.

The military units selected made full scale efforts to promote recycling, for example one unit, the Armed Forces Police 202 Command Post, was able to reduce daily waste to 0.53kg per person and raise recycling rates to nearly 40%. In addition, the Combined Service Forces 204th and 205th plants and the National Military Taichung Central Hospital had excellent results in recycling kitchen leftovers and reducing trash volumes. The Com-

bined Service Forces units also did an outstanding job at implementing a digital documentation system to save paper.

The EPA expressed the nation's military is the best organization in terms of implementing administrative orders and centralizing education, and would certainly have continuing effects on the public's thoughts and actions. It was for these reasons that the EPA chose to cooperate with the MND in promoting this plan. Because of the special nature of the military in carrying out orders, in truth all of the 27 military units reviewed performed above standard. In the future, besides continuing promotion of trash reduction and recycling in the military,

the EPA will continue to find ways to integrate surrounding base communities in the "4-in1" recycling plan. The EPA hopes that the concept of trash reduction and increased recycling will continue to grow in the military.

The MND Deputy Minister Sun Tao-Yu (孫韜玉) expressed that promoting the concept of resource recycling has already helped the military to reduce trash generation. He further pointed out that the nation's military is not just dedicated to protecting Taiwan's territory, but were also crack environmental soldiers. Not only do they have top notch military prowess, they also have top notch recycling abilities. 

Tests Show Marine Water Quality Good Around Coastal Aquaculture

Media reports of coastal oyster farms being polluted has captured the attention of Taiwanese society. In response, the EPA made a comparison of yearly oceanographic records which revealed that coastal water quality is still acceptable. Furthermore, in January the EPA performed water quality tests to help get a better grasp of overall marine water quality conditions. From the tests the EPA discovered that copper levels in Taiwan's western coastal waters are slightly high, but that other areas all tested very good.

Recent media reports of polluted oysters in Taiwan's coastal aquaculture due to poor marine water quality have generated anxiety, a slump in sales of aquaculture products and protests from fisherman. After looking into the situation the EPA discovered that their understanding of risk assessment was quite different than that of the publication *Environmental Pollution*. *Environmental Pollution* ran an article entitled, "Higher Risk of Cancer from Taiwan's Oysters," that was widely reported by Taiwan's media. A proper risk assessment study must include local ingestion volumes and human physical conditions, factors that were left out of the *Environmental Pollution* study. EPA testing of Taiwan's coastal waters shows a non-compliance rate with standards of only 2.5%, showing that on the whole Taiwan has good marine water quality.


The analysis in the *Environmental Pollution* article was drawn from data spanning 1991 to 1998. However, in 1994 and 1995 the EPA's National Institute of Environmental Analysis carried out the "Asia Pacific Area Shellfish Testing Plan," and in 1997 the "Taiwan Area Shellfish Chlorinated Organic Pesticides Quantity Study - Keelung River and Coastal Shellfish Monitoring Plan." Analysis done in these studies all showed DDT quantities much lower than those reported in *Environmental Pollution*.

The EPA expressed that from the Taiwan area

marine water monitoring plans it is clear that Taiwan's marine water quality is still quite good. However, to get a better understanding of water quality around Taiwan's coastal aquaculture, on January 12 the Coast Guard Administration and the EPA's Investigation Team took samples from water around related coastal aquaculture. Test results showed that levels of heavy metals, phenols, arsenic, mercury, and colin bacillus were all below standards. The only exception was copper levels in the surface waters of Taiwan's western coast, which were slightly higher than water quality standards for Class A marine or surface water bodies.

Finding the reason copper levels in this area would exceed water quality standards for Class A water bodies will be the future focus of EPA investigations. The EPA emphasized that they will pay close attention to water quality in that region, and will ask for stronger enforcement against land based activities that may be polluting marine water quality.

The EPA stated that from the overall test results it clear that marine water quality near coastal aquaculture is quite normal, with only one exception on the western coast.

The EPA emphasized that the EPA takes protection of the marine environment very seriously and is working actively to complete relevant regulations under the *Marine Pollution Control Act* as the means for effectively controlling marine environmental pollution in the future. Article 9 of the *Marine Pollution Control Act* stipulates that all competent authorities should post regular marine monitoring results and take appropriate pollution prevention measures. When necessary the competent authority for the industry in question can restrict use of marine areas. If civil authority can be thoroughly implemented, and manpower and budget permit, complete protection of the marine environment will soon be a reality. 

Feature Article

EPA Aims to Inspire a Green Consumer Trend Through Government Procurement

Green consumer behavior is a major trend in modern society. With the goal of promoting this trend, the EPA has presented to the Executive Yuan the draft of its *Program for the Promotion of Green Procurement by Government Organizations*. This program aims to use the power of government procurement in order to promote the production of environmentally friendly goods. It also hopes to encourage consumers to purchase these green products. The first stages of this program will focus on the procurement of office supplies, paper and office equipment. The program sets the target for green procurement at 30% of total procurements for 2001 and then raises this target to 50% for 2002.

Green Procurement is a Worldwide Trend

The exhaustion of natural resources and the pollution of the environment are causing an ever growing number of people to become conscious of the importance of the green consumer movement. The EPA recently presented its draft of the *Program for the Promotion of Green Procurement by Government Organizations* (機關綠色採購推動方案) to the Executive Yuan for approval. In this draft, the EPA stresses that green consumption is an integral element of mainstream environmentalism in the 21st century.

The EPA notes that the promotion of green procurement by government organizations is the most important of the many policies adopted in advanced nations with the aim of encouraging green consumption. A 1996 survey of gross domestic product among Organization for Economic Co-operation and Development member nations indicated that government spending accounted for approximately 10-15% of total GDP. Of this government consumption, 30% came from national governmental organizations and 70% came from regional governmental organizations. These figures indicate that the successful implementation of green procurement systems would have a profound effect on our environment. This is the EPA's primary reason for drawing up the *Program for the Promotion of Green Procurement by Government Organizations*.

International Examples of the Promotion of Green Procurement

There are in fact many countries that have implemented governmental green procurement programs. The US issued an executive order requiring

government organizations to grant priority to the procurement of eco-friendly products in 1991. US government organizations are encouraged to use recycled paper under the Waste Wise program. The US also published its Final Guidance on Environmentally Preferable Purchasing for Executive Agencies on August 20, 1999. Canada's Environmentally Responsible Procurement program requires that the government use products certified as environmentally friendly. The Danish government, in its Strategy for the Promotion of Sustainable Procurement Policy, also requires that government organizations grant priority to the use of green products.

By implementing green procurement policies, these governments intend to use their massive purchasing power to buy products that have a less negative impact on the environment. These policies allow governments to directly achieve their environmental protection goals and encourage manufacturers to produce recyclable, low-pollution and resource-saving products. And by serving as models of environmentally conscious consumption, these policies accomplish their goal of consumer education.

Conditions for the Promotion of Green Procurement in Taiwan have Come into Being

In terms of the promotion of green procurement, Taiwan promulgated the *Government Procurement Act* in 1998. Article 96 of this law, the green procurement clause, provides specific economic incentives for the procurement of environmentally friendly products. Following the implementation of this law, the Public Construction Commission and the EPA jointly formulated the *Regulations for the Priority Procurement of Eco-Products by Government Organizations*. These regulations clearly define the various categories of green products, how to calculate price advantages for green products during government bidding and priority procurement methods. They also include rewards for organizations with exemplary green procurement records.

A steady succession of enterprises has submitted green certification applications for products as the EPA has gradually completed the establishment of its green procurement regulatory system. This progress, combined with the gradual heighten-

ing of environmental consciousness among consumers, has brought the conditions for the systematic promotion of green procurement to maturation.

Goals and Implementation of the Green Procurement Program

The EPA states that the goal of the *Program for the Promotion of Green Procurement by Government Organizations* is to achieve environmental protection objectives by using the purchasing power of the government in order to purchase products that are more environmentally friendly. The EPA has chosen to focus on the procurement of office supplies, paper and office equipment in the initial stages of this program. This focus was adopted because these early stages are intended to publicize the program and encourage participation and because there is a relatively wide range of these types of products that meet EPA standards. The EPA has set its target for green procurement at 30% for 2001 and 50% for 2002. It will set future targets after evaluating the implementation of the program and conferring with each government organization.

The EPA will take the following steps in order to achieve the goals of this program:

1. Train procurement personnel: Conduct periodical green procurement training seminars for the procurement personnel of each government organization. The aim of these seminars is to heighten awareness of environmentally friendly products.
2. Gather statistics on the results of the green procurement system: Establish a system for collecting statistics on green procurement at each government organization in order to facilitate the

evaluation of the system.

3. Provide green procurement information: The EPA will publish a green procurement guide, provide a special telephone service and set up a website in order to facilitate the implementation of this program at each government organization.

The EPA Will Introduce its Green Procurement Program in Stages and Continue to Promote its Development

The draft calls for applying green procurement regulations to all of the organizations of the Executive Yuan, the Taipei City Government and the Kaohsiung City Government (including all of the organizations, enterprises and schools under these municipal governments) beginning in 2001 and then expanding this system to include all organizations (including enterprises and schools) under all local, city and county governments in 2002.

The draft also calls for the EPA to establish a Green Procurement Performance Evaluation Task Force in order to ensure effective implementation of these regulations. This task force will be comprised of representatives from government organizations, scholars and specialists and representatives of non-governmental organizations. The task force will conduct an evaluation of the green procurement system within 3 months after the end of each year.

The EPA believes that the presentation of the *Program for the Promotion of Green Procurement by Government Organizations* marks the beginning of the systematic promotion of green procurement in Taiwan. It looks forward to the profound impact this program will have on the promotion of environmental protection in Taiwan. ♻️

Fine Guidelines Set for Violations of the Air Pollution Control Act

To insure consistent and reasonable fine judgments under the *Air Pollution Control Act*, the EPA has issued the *Fine Calculation Guidelines for Violations of the Air Pollution Control Act by Public or Private Facilities*. The guidelines provide for the calculation of fine amounts based on the level of pollution, level of hazard, and pollution characteristics when stationary pollution sources violate the *Air Pollution Control Act*.

The EPA's recently announced *Fine Calculation Guidelines for Violations of the Air Pollution Control Act by Public or Private Facilities* (公私場所違反空氣污染防治法處罰緩額度裁罰準則) provides unified *Air Pollution Control Act* violation fine standards for the first time. The *Air Pollution Control Act* currently specifies a maximum fine of NT\$1 million and a minimum fine

of NT\$100,000 for violations by industrial and commercial facilities, which allows the amount of fines to differ by a factor of ten. Prior to the announcement of the Fine Calculation Guidelines, environmental protection authorities had complete leeway in setting fines, and fines for similar pollution incidents in different counties and cities were invariably inconsistent. Now the issue of these guidelines provides environmental protection authorities with a unified standard for the calculation of fines.

The most notable feature of the Fine Calculation Guidelines is the formulization of fine standards. As an example, industrial or commercial facilities could previously be fined NT\$100,000~NT\$1 mil-

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tion for pollutant emissions not in compliance with specified cuts, and the exact amount was determined at the administrative discretion of environmental protection authorities. In contrast, the new guidelines tie level of pollution (A) to proportional noncompliance with specified pollution cut targets as follows: A = 3.0 when compliance is less than 30%; A = 2.0 when compliance is greater than 30% but less than 60%; and A = 1.0 when compliance is greater than 60%. Level of hazard (B) is 1.5 when the emitted pollutant is toxic and 1.0 when the pollutant is non-toxic. As for pollution characteristics (C), C is taken to be the cumulative violations of identical statutes during the year prior to the day of the enactment of the *Air Pollution Control Act*. The formula $A \times B \times C \times \text{NT\$}100,000$ is then used to calculate the

fine.

Although the guidelines provide a clear formula for the calculation of fines, they also stipulate that the responsible authorities may impose the highest allowable fine under Article 75 *Air Pollution Control Act* for severe violations of air pollution regulations. In the case of ongoing daily fines, the fine amount shall be the amount of the most recent fine.

The Fine Calculation Guidelines are applicable to violations of the *Air Pollution Control Act* by both stationary pollution sources and inspection and testing organizations. The EPA has expressed that the requirements of the Fine Calculation Guidelines will provide unified standards for pollution audits and fines by environmental protection authorities, and so will lessen disputes with firms and the public concerning the amount of fines. ◉

EPA Greets the Millennium with New Air Pollution Policies

The new millennium is upon us, and the EPA, in addition to continuing to offer subsidies for the purchase of electric scooters, has begun providing NT\$3,000 subsidies for the purchase of electric bicycles this year. The EPA has also started providing subsidies that help the owners of gas and diesel automobiles 10 or more years old and motorbikes 7 or more years old to purchase new vehicles. On another front, the EPA has begun increasing the number of emissions inspection stations for motorbikes in order to provide greater convenience for these owners.

The 21st century has arrived. To greet the new millennium the EPA introduced a number of new air pollution control measures, including both subsidies and rewards, at the beginning of 2001 in order to prevent the generation of air pollution and improve air quality. The EPA hopes that these new programs will allow the people in Taiwan to enjoy cleaner air.

As part of its effort to encourage the use of low-pollution vehicles, the EPA began offering subsidies for the purchase of electric bicycles this year. Electric bicycles are equipped with a battery and motor which help power the bicycle. These bikes still possess the agility, lightness and convenience of traditional bicycles, but require less physical energy due to their electric motors. These low-pollution vehicles are perfect for short-distance transportation, especially in urban areas. The EPA asserts that, as electric bicycles emit no pollution, increasing their popular use would contribute to the improvement of urban air quality. Current retail sales prices for electric bicycles are around NT\$18,000 to NT\$20,000. The EPA is offering subsidies of

NT\$3,000 for the purchase of an electric bicycle in order to encourage the public to adopt this form of low-pollution transportation. These subsidies are limited to just one per person.


In addition to these new subsidies for electric bicycles, the EPA will continue to provide subsidies for the purchase of electric scooters. Manufacturers have gradually improved the performance of electric scooters in recent years. Also, domestically made parts, including batteries and drive and control systems, have already replaced imported parts in Taiwan. This has resulted in better performance and lower costs for electric scooters. Due to these advancements, the EPA has decided to lower subsidies for electric scooters, which currently average NT\$25,000 to NT\$17,000 per vehicle.

The EPA will also be providing subsidies aimed at helping the owners of old vehicles purchase new vehicles beginning this year. Old vehicles account for just one-third of all the vehicles on the road in Taiwan. However, as these old vehicles generate upwards of two-thirds of all automobile pollution, facilitating the retirement of these old vehicles is the most cost effective way of addressing urban air pollution. Therefore, beginning this year, the EPA will provide subsidies with the aim of encouraging vehicle owners to get rid of their old vehicles and buy new ones. These subsidies will be extended to the owners of gasoline and diesel automobiles 10 or more years old and motorbikes 7 or more years old. For owners that qualify, the EPA provides subsidies of NT\$13,000 for the replacement of gasoline

automobiles, NT\$50,000 for the replacement of 3.5-ton to 20-ton diesel trucks or passenger vehicles that carry up to 25 persons and NT\$100,000 for the replacement of 20-ton and over diesel trucks or passenger vehicles that carry over 25 persons. Subsidies of NT\$3,000 are offered for the replacement of scooters that qualify.

The government began permitting the importation of used vehicles, including gasoline and diesel automobiles and motorbikes, on January 1, 2001. The EPA has chosen to subject these imported used vehicles to the same regulatory standards that are currently applied to new vehicles. This is aimed at preventing the importation of high-pollution import vehicles from creating an air pollution problem in Taiwan. The importation of foreign used vehicles will only be permitted for those vehicles that meet Taiwan's current air pollution emissions and noise control standards.

The EPA aims to provide more convenient emissions inspection services for motorbike owners by establishing over 1,000 additional emissions inspection stations around Taiwan beginning this year.

This is one way of dealing with air pollution emitted by vehicles already on the road. As part of this plan, the EPA decided to completely halt emissions inspections at Chinese Petroleum Corp. filling stations and instead entrust all emissions inspection work to private motorbike repair shops beginning on January 1, 2001. There were already a great number of private motorbike repair shops providing these inspection services even before this new program. The EPA has adopted this policy because it will be more cost effective, save government funds and provide better service to the public. Therefore, following the implementation of this program on January 1, motorbike owners are now able to bring their vehicles by EPA authorized motorbike repair shops in their neighborhoods in order to undergo emissions inspections. Motorbike owners can obtain the addresses of inspection shops in their areas by making a phone call to their local environmental protection bureau or by visiting the EPA's motorbike inspection information management system website at <http://210.244.104.28/epa>. 

Regulations Governing Joint Disposal Organizations for Educational Institutions Announced

To promote a joint disposal system for waste generated by educational organizations, the EPA and Ministry of Education jointly released the *Regulations Governing Management and Assistance for Joint Disposal Organizations of Waste Generated by Educational Organizations*. The regulations stipulate that permits for such organizations will be issued by the Ministry of Education and that management regulations will be similar to those governing other industrial waste disposal organizations.

Each year Taiwan generates close to 1.7 million liters of waste liquids and 250,000 kilograms of solid waste from school laboratories and workshops around the country. Without proper treatment these wastes can have serious effects on the health of teachers, students and the campus environment, as well as posing a potential threat to overall environmental quality.

However, the amount of waste generated by one campus is very limited, making individual treatment uneconomical. The Ministry of Education (MOE) thus is promoting a regionally organized joint treatment system to resolve the problem of waste generated by educational institutions. To provide guidelines for a future joint treatment system, the MOE and EPA announced

on January 20 the *Regulations Governing Management and Assistance for Joint Disposal Organizations of Waste Generated by Educational Organizations*.

In terms of permitting, as in regulations governing other types of industrial waste disposal organizations, the permit process is divided into two phases, one for establishment and one for operation. However, permits will be approved and issued through application to the MOE, unlike most other organizations which must apply with environmental agencies.


Additionally, to better follow their operating conditions, the regulations stipulate that joint treatment organizations for waste generated by educational institutions must keep operating records just as other waste treatment organizations are required to do. The only difference being that joint treatment organizations for waste generated by educational institutions must report to the MOE regarding the previous quarters operating circumstances.

In terms of personnel requirements, such joint clearance organizations must have one dedi-

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cated Class A waste clearance technician. Joint treatment organizations for waste generated by

educational organizations must have two dedicated Class B or above treatment technicians, at least one of which must be a Class A treatment technician. 

Resource Reuse: Taiwan's Roads are Beginning to Sparkle with Waste Glass


Taiwan's first colored-glass asphalt surface was laid in a Chiayi City park in late December 2000. Construction of this 105-square meter recreational area, laid in the form of a music staff, follows the laying of Taiwan's first glass asphalt test road, which was laid in the Tungshih Township of Yunlin County in September 2000. Not only has this colored-glass area beautified Chia Hsing Park, it also highlights the new availability of an additional channel for the use of the approximately 500,000-600,000 kilotons of waste glass generated in Taiwan each year.

Glass, compared to other materials, is a material that can be completely recycled and reused. An international competitiveness ranking has even included the percentage of waste glass recycling as an indicator of a country's global competitiveness. The characteristics of glass are highly similar to those of sand. Also, the US, Japan and Germany, through years of practical experience, have produced highly developed technologies for the use of waste glass as a construction material. Therefore, the Public Construction Commission and the EPA are aggressively promoting the use of waste glass as a substitute for sand in construction projects. The *Glass Asphalt Test Road Surfacing Plan* is one of the most important projects in accomplishing this goal.

The Taiwan Construction Research Institute is conducting the *Glass Asphalt Test Road Surfacing Plan* with the assistance of National Yunlin University of Science and Technology and National Taipei University of Technology. In the first stage of this project, a 200-meter glass asphalt test road was laid near the 7-kilometer marker on county road 158 in the Tungshih Township of Yunlin County on September 15, 2000. The researchers selected four glass-for-sand sub-

stitution ratios of 0%, 5%, 10% and 15% for this test road. This substitution can improve traffic safety by increasing road friction and reflectivity. Researchers will continue to study this waste glass test road.

In the project's second stage, a 105-square meter recreational area was laid of imported Japanese colored glass road surfacing material in a Chiayi City park at the end of December 2000. The researchers chose to use the Japanese glass rather than domestic waste glass because of concerns about sharp edges and because domestic technology is still in its developmental stage. This recreational area is a fine example of the beautiful visual effect that can be achieved by separating waste glass into its different colors for construction purposes. This is also a true meeting of environmental protection and environmental beautification.

Based on the findings of these tests researchers drafted the temporary technical standards and trial guidelines for glass asphalt cement mix, temporary technical standards for glass cement products and trial guidelines for the reuse of waste glass in cement products. The Public Construction Commission will use these drafts in drawing up related construction regulations. In the future, the EPA will work towards reclaiming glass according to color, expanding compulsory glass recycling categories and encouraging enterprises and organizations to use recycled glass. These efforts will create a greater diversity of sources for the supply of recycled glass, will reduce the demand for sand for public construction projects and will improve the glass recycling and reuse system. 

A Successful Building Waste Recycling Case

The great 921 Earthquake of 1999 caused the collapse of many buildings, and it is estimated that more than 10 million cubic meters of structural materials have been demolished and removed. Facing this situation, the EPA has successfully implemented structural waste recycling

work with the assistance of the 921 Earthquake Post-Disaster Recovery Commission, and has used recycled wastes in the construction of interchange embankments on the Second Central Taiwan Freeway. Besides providing a means of structural waste disposal, this effort also

helps reduce the burden on Taiwan's increasingly scarce earthworks materials.

The 921 Earthquake caused the widespread collapse of buildings throughout affected areas, and it is estimated that more than 10 million cubic meters of structural materials have been demolished and removed. To resolve waste processing problems, the EPA and the Executive Yuan 921 Earthquake Post-Disaster Recovery Commission have cooperated in implementing waste recycling work. Under this project, structural wastes are subjected to initial screening, fine screening, magnetic selection, pneumatic selection, manual sorting, and crushing, etc. The clean reinforcing material and fine fill resulting from this process are being used as an alternative material in roadbeds, road embankments, river/sea dikes, and backfill applications.

Because of Taiwan's limited supply of natural resources, the EPA is committed to the principle of sustainable development. Despite the fact that funding for the project was limited, many parties saw the effort as unpromising, and government construction units were unwilling to use recycled waste, the EPA went ahead and commissioned the Taiwan Construction Research Institute to perform research and actively coordinated the implementation of on-site tests with public construction authorities in central Taiwan. Finally, with the timely assistance of the 921 Earthquake Post-Disaster Recovery Commission, consent was given to use recycled materials at the Port of Taichung Phase II project of the Export Processing Zone Administration, MOEA, and the Second Central Taiwan Freeway project of the Taiwan Area National Expressway Engineering Bureau, MOTC.

The use of recycled materials in the con-

struction of embankments at the Wujih Interchange of the Second Central Taiwan Freeway is a good example of inter-agency and central-local cooperation. Through the joint efforts of the Taiwan Area National Expressway Engineering Bureau, Export Processing Zone Administration, Construction & Planning Administration Reclaimed Land Development Bureau, Taichung County government, Tali public office, and Wujih Township public office, 65,000 cubic meters of structural waste have been processed and used in construction work. Besides helping build a useful road, the project has provided a fine demonstration of how the country can simultaneously solve public construction and environmental protection problems.

As for the further recycling of waste resources from the 921 Earthquake, the EPA has indicated that it will recycle 600,000 cubic meters of material for use as fill in the Port of Taichung Phase II project and will use 100,000 cubic meters of recycled material from Puli in Nantou County in the construction of dikes along the Mei River. In addition, the special earthquake reconstruction budget provides close to NT\$100 million for a storage depot for processed structural waste. It is hoped that these efforts will enhance the value of land use and provide employment opportunities for earthquake victims. When the time comes, the model used for processing waste from buildings damaged in the 921 Earthquake will enable the establishment of a system for the reuse of excess construction earth and stone, resolving both the long-term construction waste storage problem and insufficient earth and stone processing capacity, while also serving as an important guide for earthquake reconstruction work around the world.



News Briefs

Reorganization of the EPA Website

The recent reorganization of the EPA website incorporates flash technology to enhance dynamic performance. The website now consists of "Environmental Family," "Environmental Store," "Environmental Topics," "Environmental Moodscares," "Environmental Exchanges," and "Environmental Global Village" areas. To strengthen the website's service function as a gateway for environmental protection professionals, the EPA has updated search hardware and software, and provides classified search services addressing domestic and foreign environmental protection websites in the six categories of pollution control, policies and laws, R&D and

technology, agencies and organizations, sustainable development, and environmental movements.

Announcement of Severe Water Pollution Guidelines

The EPA recently announced the guidelines for determining severe violations of the *Water Pollution Control Act*, under which 13 types of behavior, including incurring fines for more than 30 consecutive days, are considered severe violations. In the future environmental agencies may immediately order any enterprises responsible for these violations to shut down, revoke their license, or issue an injunction forcing them to cease operations.

Government Policy EIA Regulations Set

The EPA recently announced *Regulations Governing Environmental Impact Assessment of Government Policy* to bring policy EIAs into accordance with the new *Administrative Procedures Act*. The regulations stipulate nine types of government policies for which environmental impact assessment must be carried out. The proposing agency must also include analysis of alternative policy plans in their EIA.


Article 26 of the *Environmental Impact Assessment Act* (EIA Act) stipulates that EIAs must be carried out for government policies that may affect the environment. Stemming from this article the EPA recently announced *Regulations Governing Environmental Impact Assessment of Government Policy*, which will be the new basis for carrying out all future EIA of government policies.

The EPA stated that a set of guidelines for government policy EIAs had previously been announced on September 20, 1997. While similar, the recently announced regulations include adjustments to the content of these earlier policy EIA guidelines, mainly with the intention of bringing them in line with the recently implemented *Administrative Procedures Act*. After their announcement the *Regulations Governing Environmental Impact Assessment of Government Policy* replaced the earlier guidelines as the framework for EIAs of government policy.

Similar to the past guidelines, the regulations stipulate that EIAs must be performed on the following government policy areas:

1. industry;
2. mining development;
3. waterworks development;
4. land use;
5. energy;
6. livestock;
7. transportation;
8. waste treatment;
9. radioactive nuclear waste treatment;
10. other policies.

In the future, besides regular EIA documentation government agencies that are proposing policies will also be required to analyze alternative policy options and include the results in the EIA report.

The regulations stipulate that after a policy passes the EPA EIA review process, the forwarding agency must make changes to the EIA report according to the review conclusions. Similarly, the EIA report must be included with the original policy when it is sent to the Executive Yuan for review. With this pre-assessment model in place important environmental considerations will be included into the earliest stages of policy formulation. 

Environmental Policy Monthly, Taiwan, R.O.C.

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Editorial and translation support provided by:

Hui-kuo Consulting, Ltd., Productivity Asia, Ltd.

The EPM has been published monthly since July 1997. The current issue was published in July 2001. The EPM is available in electronic form free of charge on the EPA website (www.epa.gov.tw). For inquiries or subscriptions to the printed version, please contact:

Environmental Policy Monthly

Environmental Protection Administration

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GPN: 2008600068

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中華郵政北台字第6128號執照登記為雜誌交寄