



### Feature Column

## Promoting Cleaner Vehicles in Response to the Kyoto Protocol

With the *Kyoto Protocol* in effect, the world is placing more importance on the greenhouse effect and its implications. Working to decrease greenhouse gas emissions in the domestic transportation sector, the EPA has referred to international developments in clean vehicles in laying down a timeline for promoting HEVs (hybrid electric vehicles). The EPA also coordinates with the Ministry of Finance and Directorate General of Customs to lower the price of HEVs so that they receive more widespread support and use by the public.

The *Kyoto Protocol* went into effect on 16 February 2005, prompting related departments to enact greenhouse gas emission reduction measures. For years, the EPA has worked hard to build the nation's capacity to respond to

the climate change convention, compiling national greenhouse gas emission records, inventories and assessments; popularising the use of clean energy; and expanding cooperation channels with other countries.

According to EPA statistics, the transportation sector accounted for 14% of energy-related carbon dioxide emissions in 2002. Through successful implementation of measures such as improved fuel efficiency for cars, trucks, busses, and motorcycles and enhanced efficiency of electric trains, it is estimated that from 2000 to 2020 the nation can decrease carbon dioxide by 85.21 million tonnes.

### HEVs Introduced to Conserve Energy

The EPA aims to decrease carbon dioxide emissions in the transportation sector by popularising clean vehicles. The following four key strategic goals will be adopted: improve air quality in urban areas; coordinate with the global implementation of the *Kyoto Protocol* by promoting carbon dioxide reductions in the transportation sector; declare the government's determination to develop clean vehicles and create a domestic environment for using clean vehicles; and complement the 2008 Taiwan

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		95	96	97	98	99
Number of vehicles (1)	Year	600	1,600	2,900	3,600	4,400
	Total	600	2,200	5,100	8,700	13,100
Cumulative emission reductions (tonnes)	CO	27.1	99.5	234.1	401.3	605.6
	HC	3.8	14.0	19.8	27.1	36.0
	NOx	2.3	8.4	12.5	17.6	23.8
	CO2	5,168	18,948	43,924	74,929	112,824
	Grand Total	5,201	19,070	44,190	75,375	113,489
Cumulative fuel savings (kl)		2,210	8,105	18,788	32,051	48,260

(1) Vehicle numbers estimated based on promotion of HEVs in other countries

Expo based on the themes of "Frontier Technology" and "Sustainable Technology," by displaying the progress in promoting clean vehicles. Taiwan will refer to international trends and status in the development of clean vehicles, and will develop a strategy that suits domestic needs. A comprehensive plan will be submitted to the Executive Yuan in the near future.

In responding to energy conservation and environmental protection demands, progressive nations are taking the first step to gradually implement stricter environmental regulations on gas powered vehicles and diesel cars, stipulating certain vehicle emission concentrations and finding cleaner vehicles to replace current ones. Although electric vehicles are regarded as the best modes of transportation in terms of environmental protection and energy efficiency, research and development of this technology has yet to mature. Keeping in mind industrial development and market demand, some nations are focusing on the development of hybrid electric vehicles (HEVs). The strategy is to gradually link with the even more efficient fuel cell vehicles; this technology has been piloted since

2004 and is expected to be commoditized after 2010.

Currently, hybrid power systems that integrate internal combustion engines with batteries and electric power systems involve highly complex technology. While standards are high and manufacture costs are rising, this technology greatly conserves energy and reduces pollution. Given the same fuel, this technology already achieves the same product requirements as internal combustion engines in terms of function, endurance and power supply. HEVs have enormous development potential as mainstream technology and products in the short and intermediate range.

HEVs can run at 35 km/l of gasoline, while average cars only get 12 to 15 km/l. Energy consumption and exhaust emissions are far less than traditional automobiles. Moreover, as HEVs are fuelled by gasoline they will not have an impact on existing gas filling station facilities.

### International Trends Guide Domestic Policy

Japan's Toyota took the lead in 1997 with the launch of Prius

HEV on the market. Owing to the high quality of this product, already over 100,000 of the cars have sold in Japan and the U.S., surpassing the total sales of electric vehicles (EVs) over past years. Following Toyota's lead, Honda, Nissan, three U.S. car manufacturers, and leading European carmakers have successively come out with HEV products.

As cost and price remain high in the initial development stage of HEVs, many nations' governments introduce awards and subsidy measures as incentives to encourage purchase and use by consumers. Award measures include income tax reductions or exemptions on car prices, subsidies for car purchases, permission to use carpool lanes, free entry to urban areas during traffic control periods, and reduced parking fees.

Seeking optimal benefits, the EPA refers to international trends and response measures and solicits the opinions and views of domestic manufacturers. Industry leaders believe that the year 2006 is the most favourable time to introduce HEVs and the EPA's explicit policy announcement helps industry persuade original manufacturers to prioritize Taiwan as a sales region for HEVs. Based on development trends and market ratios in the US and Japan, a realistic goal for the first year in

		Car	Bus	Notes
Technology	Emissions	O	O	
	Fuel efficiency	O	O	
	Testing equipment	O	△	Bus: Complete vehicle pollution and fuel efficiency testing equipment still unavailable in Taiwan Car: A small number of cars have already been introduced in Taiwan
Product	Already in mass production	△	△	Bus: So far no firms or agents have introduced models in Taiwan Car: Firms have already promised to introduce models for mass production
	Fuel supply system	O	O	
	Maintenance system	△	△	Bus: Taiwan still lacks experience Car: Firms have already promised to establish systems
Policy	Price difference	△	△	
	Quota	△	—	Cars are mainly from Japan with limited quotas
	Supply	△	△	Busses & Cars: Demand already exceeds supply Cars: Firms have already promised to secure orders from original manufacturers
	Demand	△	△	

*Environmental Status of Domestic HEVs*

Taiwan's market is about 600 cars. The industry has expressed determination and willingness to invest in establishment of infrastructure, so once mechanisms are in place, the operation of such infrastructure can be relegated to the private sector.

key tasks are to 1) establish incentives such as announcing HEV incentive regulations and working with the Ministry of Finance or the Directorate General of Customs to help reduce taxes or tariffs of goods; and 2) overcome barriers such as coordinating with the Min

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## The EPA forecasts that the popularity of HEVs will reach to 13,100 cars within five years, which will help reduce air pollution and greenhouse gas emissions by over 110,000 tonnes.

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### Establishing Mechanisms to Promote Cleaner Cars

At the present stage, the EPA is coordinating with the Ministry of Finance by classifying HEVs as electric cars according to Article 12 of the "Commodity Tax Statutes" and collecting only half of commodity taxes. The EPA also coordinates with the Directorate General of Customs to follow the model of promoting compressed natural gas (CNG) busses by reducing import tariffs on HEVs and working to decrease the sale price of HEVs with hopes of marking prices down by 10%. The EPA is also considering using the Air Pollution Control Fund to subsidize purchases of HEVs by NT\$30,000 to 50,000 per vehicle. Moreover the EPA will prioritize use by public agencies and gradually increase numbers in use every year. The EPA is also drawing up a five-year plan to create an environment for using HEVs and create government determination to promote HEVs by first reviewing factors such as cost and price difference, taxes, market price and sale volume, and then proposing suggestions for revising strategies.

The EPA has set an implementation timeline for promoting HEV sedans. This year has been set as the year for establishing an environment for promoting HEVs. The

istry of Economic Affairs to ensure that HEVs are not listed among sales quota of import cars, and announcing regulations on pollution, noise, fuel efficiency, and safety of HEVs. In the future, the EPA will coordinate with the Ministry of Economic Affairs' Bureau of Energy to jointly subsidize HEV consumers, and after the technology becomes more widespread, will consider stipulating car manufacturers to sell a certain percentage of HEVs.

The EPA forecasts that the popularity of HEVs will reach to 13,100 cars within five years, which will help reduce air pollution and greenhouse gas emissions by over 110,000 tonnes. This will result in cost benefits by around NT\$4,420 per tonne and is seen as an effective strategy to decrease air pollution. In terms of energy conservation, the new cars could save over 48,000 kiloliters of gasoline over the next five years. Meanwhile, the EPA will coordinate with urban areas in counties and cities with high vehicle densities, with the launch of an HEV bus pilot project that will introduce 604 HEV busses. The project is expected to reduce over 120,000 tonnes of air pollution and greenhouse gas emissions.

### Recycling

## Over-Packaging Restriction Announced Globally

**To avoid potential trade conflicts, the EPA has notified all WTO member nations of the new draft "Restrictions on Products with Excessive Packaging," in compliance with WTO protocol. Other nations' views on the subject have been referred to in the formulation of this restriction measure. This is the first time for Taiwan to notify other nations of a proposed environmental protection statute.**

Looking to minimize potential trade disputes that may arise due to the "Restrictions on Products with Excessive Packaging (draft)," the EPA has abided by the World Trade Organization's Technology Barrier Treaty by submitting the draft legislation to the WTO Office of the Secretary. This will ensure that all WTO member nations are notified of the restriction well in advance, and allows time to gather the views of other nations regarding this measure, to serve as a reference. The restriction measure was posted on the TBT website in late February ([http://www.wto.org/english/tratop\\_e/tbt\\_e/tbt\\_e.htm#enquiry\\_points](http://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm#enquiry_points)). This marks the first time for Taiwan to notify the WTO of a draft environmental protection statute.

Working to lay down a reasonably feasible regulation to restrict excessive packaging, the EPA has referred to views from all circles and officially announced the draft legislation on 18 January 2005. According to the draft regulation, the space volume ratio of "gift box" products shall not exceed

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25%. To encourage single-material packaging, which would facilitate recycling work, a space volume ratio of 35% is allowed for products packaged with a single material. The number of packaging layers shall be no more than two for gift boxes containing cosmetics, alcoholic products, and/or processed foods. The number of packaging layers shall be no more than three for disks of computer programs and gift boxes containing pastries.

The EPA has indicated that each nation's environmental regulations inevitably have an impact on free trade. As Taiwan is now a WTO member, under the WTO framework of trade liberalization, Taiwan will give priority consideration to the adoption of international standards in its own environmental regulations. Where there are no international standards, as is the case in the proposed restrictions on excessive packaging of products, or where international standards cannot be applied in the domestic environment, Taiwan will formulate its own standards and notify WTO member countries according to TBT regulations. This helps balance potential conflicts of interest between environmental pro-

tection and free trade.

The “*Restrictions on Products with Excessive Packaging (draft)*,” has been drawn up according to Articles 13 and 14 of the *Resource Recycling Act* (資源回收再利用法), and will be implemented in two stages. The first stage of the regulation will be effective starting 1 July 2006, covering pastries, cosmetics, alcoholic products and computer program CDs. The second stage, set for 1 July 2007, will cover processed foods. As per Article 21 of the *Resource Recycling Act*, this regulation also requires the manufacturers, importers and sellers of the regulated products to offer products for packaging inspection without compensation. In addition, the designated industries shall offer catalogues of products, information about the buyers, sale dates to the buyers, suppliers, and sale dates of the suppliers of designated products. Violators could face penalties of NT\$30,000 to 150,000 in fines and will be required to make improvements before a certain deadline.

The EPA points out that following advancements in packaging technology and an increase in GDP,

gift box packaging has become increasingly elaborate and complex in recent years. However, citizens are becoming increasingly vexed at recycling and disposal problems associated with the waste generated by gift box packaging. According to public opinion surveys carried out by the EPA in 2000 and 2003, 60.9% of respondents in 2000 were of the opinion that gift products are excessively packaged to a serious degree; this ratio increased to 68.9% in 2003. As for the government's packaging reduction and control policy, the public support rate has increased from 82.4% in 2000 up to 91.4% in 2003, and attests to overall public support of government control measures.

The EPA stresses that after the implementation of the “*Restrictions on Products with Excessive Packaging*,” it is anticipated that consumer products' packaging design will tend to conserve resources, facilitate recycling work, and minimize the amount of packaging used and wasted. The EPA esti-



*Gift box packaging has become increasingly elaborate and complex.*

## News Brief

### *Taiwan Appeals to Higher Court for Amorgos Compensation*

The local court in Arendal, Norway announced its verdict on 10 January 2005 concerning the oil spill caused by the grounding of Greek cargo ship Amorgos in the Longkeng coastal waters in Kenting. It was deemed that the ship owner and its insurance agency, Gard, are liable to pay only NT\$9,530,000 in compensation to Taiwan. Moreover, Taiwan must bear the NT\$16,700,000 in litigation fees of Gard and the ship owner. After considering the counsel of its lawyers and after thorough discussion with related departments, the EPA has decided to appeal to a higher court to demand compensation for restoration of coral reefs and tourism income losses.

mates that around 26,600 tonnes of packaging is used on regulated products per year. The first stage of implementation should result in the reduction of 3,700 tonnes of packaging. The second stage is

expected to cut back on 3,200 tonnes of packaging per year. The two stages together will help reduce 6,900 tonnes of packaging per year, for a reduction rate of 26%.

produce voluntary reductions of perfluorinated compounds (PFC) emissions.

According to the EPA's statistical data, manufacture industry, residential and commercial, and transportation sectors in Taiwan accounted for 55%, 18% and 14% of the nation's energy-source (including electricity usage) emissions of carbon dioxide respectively. It is estimated that by 2020, the electricity, industry, residential and commercial, and transportation sectors can reach a combined annual reduction of over 35.66 million tonnes of carbon dioxide, or 9.17% of all emissions in 2020.

However, only after the national energy conference this June can exact reduction targets and adjustments in energy use structure be decided. In the future the EPA will hold a series of forum discussions on greenhouse gas reductions, to instill the correct concepts in the public mind and help put greenhouse gas reductions into practice in people's everyday lives.

#### Waste Management

## EPA Promotes Zero Industrial Waste

**The EPA is currently drafting short-, mid-, and long-term plans for the Zero Industrial Waste policy. The plans will coordinate related departments to work together over the next 15 years toward green production, source waste reduction, resource recycling and reuse to attain specific goals for minimizing industrial waste and maximizing reuse.**

Source reduction, reuse and appropriate disposal have always

#### Climate Change

## EPA Drafts Greenhouse Gas Control Act

**All government departments have proposed strategies in response to the enactment of the *Kyoto Protocol* on 16 February 2005. The EPA has already made greenhouse gas reductions this year's primary focus, beginning with the legislation of the *Greenhouse Gas Control Act*.**

After nearly eight years of coordination, Russia decided to sign the *Kyoto Protocol*, which finally went into effect on February 16 as a measure to control industrial nations' greenhouse gas emissions. Chief Executive Officer Yeh Jiunn-rong (葉俊榮) of the National Council for Sustainable Development, Executive Yuan points out that the Executive Yuan has set reduction goals for a target period from 2012 to 2020. This goal considered the 1998 International Energy Conference proposal that by the year 2020, we need to cut back to the standard level set for the year 2000. The Executive Yuan will establish a cross-ministerial response taskforce and the EPA will begin legislation of the *Greenhouse Gas Control Act* (溫室氣體管制法).

EPA Minister Chang Juu-en (張祖恩) indicates that formulation of the *Greenhouse Gas Control Act* first calls for the EPA to draft a "Basic Plan for Controlling National Greenhouse Gas" (全國溫室氣體防制基本方案). It also calls for establishing cooperation and division of work among government agencies, private enterprises and citizens toward greenhouse gas reductions. The Act will regulate the establishment

of national greenhouse gas inspections, reports and emission inventories, and it will give authority to formulate emission controls, financial and tax incentives and an emissions trading system. The Act will also call for research and development of greenhouse gas reduction technology while also seeing to educational outreach and encouraging the use of energy efficient products and adoption of energy conserving lifestyles.

Chang points out last year marked the first time for the EPA to integrate manufacture, transportation, and residential and commercial sectors to carry out greenhouse gas inventory management work. The EPA also established an inventory standard registration platform and actively promoted the ISO14064 certification system, selecting 12 pilot businesses to carry out six kinds of greenhouse gas inventorying and reduction work. Among the twelve businesses are three of Taiwan's biggest emitters: Taipower, China Steel Corporation and China Petroleum Corporation. In addition the EPA has signed a memorandum of cooperation with the Taiwan TFT-LCD Association (TTLA) to in-

been at the forefront of government waste management efforts. Due to the many factors involved in industrial waste such as different types of materials, limited reuse technology, high pollution control costs, low acceptance of the recycling industry, and insufficient market competition, the reuse rate of most types of industrial waste still remains quite low.

In the interest of promoting resource conservation and sustainable cycling of resources, the EPA has targeted industrial waste from industry (including science industrial parks), medical, construction, agriculture, education and defense sectors in setting short-range (2007), mid-range (2011) and long-range (2020) target reuse rates and has already held discussions with respective government agencies. Based on the target values, 93% of agricultural waste will be reused by 2020, and 85% of industry and construction waste will be reused. A 45% target reuse rate has been set for waste with lower reuse value such as that from medical and educational institutions.

The EPA is now working for the establishment of Reuse and Recycling Promotion Committees within each ministry, as well as overall planning, division of labor and adjustments within each industry authority to facilitate the formulation of concrete measures for reducing industrial waste and recycling resources. Using both reward and enforcement methods, the EPA will provide economic incentives and financial and tax deductions, as well as work for legislation that compels industry to cooperate with the Zero Industrial Waste policy.

The Construction and Planning Administration, Ministry of the

Interior, has set out to establish comprehensive resource reuse channels by laying down standards on the reuse of waste materials in wave-breaking concrete blocks and sewer caps. The Ministry of Economic Affairs has already drafted numerous national standards for using waste resources in face bricks for building exteriors and in permeable bricks. These methods will go a long way toward raising the reuse rates of industrial waste.

The EPA states that industrial waste management has already shifted from pipe-end management

and strict penalties to a new era marked by sustainable use of resources. This means that apart from continuing to strengthen the tracking of waste disposal, the EPA now places equal emphasis on the establishment of resource recycling channels through the adoption of guidance, control and reward measures to create a favorable environment for attaining "zero waste" goals. Meanwhile, the EPA also appeals to industry to bear full responsibility and cooperate with efforts to reduce, recycle and reuse industrial waste.

### Waste Management

## Compulsory Sorting of Garbage Brings Good Results

**The new policy of compulsory garbage sorting has seen excellent results. The amount of garbage collected has been curbed by 4.44%, the volume of resources recycled has increased by 18.38%, and kitchen waste recycling has grown by 46.74%.**

Entering the second month of implementation of the compulsory garbage sorting policy, the ten counties and cities included in the first stage released preliminary statistics from January through February 2005. The average monthly volume of garbage collected has dropped to 197,861 tonnes from 207,045 tonnes in 2004, showing a

difference of 9,184 tonnes and reaching an average reduction rate of 4.44%. The average monthly volume of material collected for recycling amounts to 75,500 tonnes, showing an increase of 18.38% compared with 63,776 tonnes in 2004. Lastly, 18,841 tonnes of food waste have been

### Activity

#### **EPA Sends Books to Indonesia**

The EPA has played an active part in relief efforts in response to the recent tsunami in South Asia. In addition to supporting decontamination work in disaster areas, the EPA coordinated with the National Clean-up Week at the end of the lunar year, calling on all EPA colleagues to collect readable books during their annual household cleanup. The books were then donated to elementary and junior high schools in disaster areas in Medan,

Indonesia. EPA Minister Chang Juuen, and deputy ministers Tsai Ding-guei and Lin Da-hsiung took the lead by collecting several hundred books for donation. Book content includes environmental protection, science education, and inspirational topics. The EPA has sent the books to disaster areas, with hopes that this small move will provide nourishment for the mind to students facing the aftermath of the tsunami.

recycled per month, 46.74% greater than the 12,844 tonnes per month the previous year. All figures indicate that recycling practices have been greatly improved as a result of effective law enforcement and public cooperation.

To further understand public opinion, perception and degree of cooperation in the "compulsory garbage sorting" policy in the phase-one 10 counties and cities, the EPA conducted a survey during 15-18 March 2005 in the targeted areas and concluded that

sorting of garbage has been acknowledged and integrated in people's daily lives.

Effective from 1 April 2005, these 10 counties and cities will take extra efforts to monitor and advise during garbage collection times. Inspections will be carried out to ensure garbage is properly sorted before it is handed to cleaning personnel or thrown onto the truck. Those who do not follow instructions will be penalized, with fines ranging from NT\$1,200 to 6,000.

standard from 638.156 ODP tonnes to 414.801 ODP tonnes.

To reach the targeted reductions for 2004, the EPA began instructing related industries in 2002 and coordinated with the Industry Development Bureau, Ministry of Economic Affairs, to educate about HCFC reductions and popularize alternative technology. In 2003, the EPA took a more active role by visiting domestic HCFC importers and users, and letting the world know the EPA's management measures and determination in this area.

Considering the degree of development and maturation of domestic alternative technology and products, the EPA prioritized HCFC-141b as a control target due to its greater potential to destroy the ozone layer. From 2004, five types of industry manufactured HCFC-141b products were restricted from use, including cleaning agents of electronic information products, cleaning agents for non-electronic products, soft/semi-hard PU foam, semi-hard PU foam for non-insulating purposes, and semi-hard PU foam for insulating room temperatures.

In the future, related government agencies will continue to actively counsel domestic household electronics industries and aim for the next target to reduce HCFC consumption 65% by 2010. This includes prohibiting Green Mark products from using ozone depleting substances (ODS), setting industry categories and respective control timelines for production bans, and carrying out industry education, technical assistance, and reward measures. Reduction targets will be reached by extending maximum effort with minimum impact on industry.

## Climate Change

# 35% HCFC Reduction Target Reached

**In response to the *Montreal Protocol*, Taiwan has successfully attained its 2004 goal to reduce HCFC consumption by 35%. The EPA is now actively assisting the domestic household electronics industry to reach the 2010 goal of reducing HCFC consumption by 65%.**

Through mutual cooperation between the EPA, domestic trade, technology and research and development organizations, and domestic industry, Taiwan has successfully reached the 2004 objective to reduce HCFC consumption by 35%. This complies with the control regulations set in related international agreements and attests to Taiwan's efforts to bear responsibility for protecting the ozone layer.

The EPA explains that HCFCs are the primary CFC substitute contributing to the destruction of the ozone layer and are also one of the regulated chemical substances listed in the *Montreal Protocol*, the key international agreement designed to protect the ozone layer. HCFCs are in widespread use in air conditioning, insulating foam, industrial manufacture applications such as cleaning of electronic components, as refrigerants,

foaming agents, and cleaning agents.

The stage in which HCFCs have served as an alternative product for CFCs is gradually coming to a close as development of long-term alternative technology and substitute products reaches maturation. The *Montreal Protocol* stipulates that industrialized nations need to cut HCFC consumption 35% by 2004 and 65% by 2010.

Taiwan's HCFC control work follows the *Montreal Protocol* and the *Regulations Governing HCFC Consumption* (氫氣消耗量管理辦法) promulgated by the EPA, by stipulating maximum limits for Taiwan's annual HCFC consumption, and adopting an audit system to manage Taiwan's production, import and use of HCFCs. The 2004 target to reduce HCFC consumption by 35% reduces Taiwan's control

## Noise Control

# Third Stage Vehicle Noise Control Standards Effective from July

**The EPA has announced implementation of the third stage of vehicle noise control standards will take effect from 1 July 2005. This will place stricter limits on existing control standards by four decibels. The fourth stage of control standards will take effect on 1 January 2007, tightening the limit by six decibels compared to the current standard. This will put Taiwan in step with the current standards upheld by the EU.**

The EPA will implement the third stage of vehicle noise control standards from 1 July 2005. Working in a series of stages to give car manufacturers a sufficient buffer period, the third stage sets stricter noise control standards by four decibels. The limit set in the fourth stage will be six decibels lower than the current standard and will take effect on 1 January 2007, keeping Taiwan in step with current control standards in the EU. This measure will press vehicle makers to research, develop and produce quieter cars, eventually to improve traffic noise levels and maintain a peaceful environment.

Article 9 of the *Noise Pollution Control Act* stipulates all domestic and import vehicles must conform

to Taiwan's vehicle noise control standards, and must obtain certification from the EPA to show that they have passed vehicle model noise examinations before they can import, manufacture, use, or apply for a license from road authorities. Thus each year carmakers or importers of new models are required to submit vehicle noise examination records to the EPA for approval. The EPA then creates data files on each vehicle model for which examinations have been approved, to help with follow-up tracking and control. This system ensures that all cars sold in Taiwan comply with control standards.

EPA statistics show that 831 noise examination certifications for new vehicle models were is-

sued in 2004, of which only two cases exceeded existing noise control standards upon first examination. After improvements were made, these two cases complied with standards. This shows that vehicle noise is already kept well under control at present. Taiwan opened up to imports of 150CC heavy motorbikes on 1 July 2002. Apart from increasing average scores on idle noise tests (noise readings are taken 50 cm from exhaust pipes), there is little discrepancy in acceleration noise test results for heavy motorbikes, and manufacturers have already complied with EPA demands to carry out related noise controls.

## Water Quality

# 99.47% of Nation's Tap Water Quality Meets Standards in 2004

**The EPA has announced the results of a full year of random testing carried out last year on the nation's tap water quality. Apart from Taitung County, Taoyuan County and seven other counties and cities which showed substandard results in some test categories, all other counties and cities reached 100% pass rates.**

The EPA has announced the results of random tests on tap water quality carried out nationwide (including Kinmen and Matzu islands) in 2004. Out of a total of 12,755 tap water samples taken, only 67 samples showed substandard results. A total of 99.47% of samples met the standards, while 0.53% of samples produced substandard test results.

Of the 67 samples that failed to meet standards, those pollution cat-



*New standards will place stricter limits on existing control standards by four to six decibels.*



egories that affect drinking water quality include ammonia nitrogen, manganese, total dissolved solids and chloride. Other categories that have less of an impact on health include available residual chlorine, turbidity, color, pH and bacteria such as colon bacillus and total bacteria counts. Other substances that may affect health include nitrate nitrogen and total trihalomethanes. Substandard results in the above categories were found in 92 instances. In terms of health risks associated with these types of pollution, on the whole, there is little reason for worry about the safety of Taiwan's tap water quality.

The nine counties and cities and their respective percentage of substandard results were Kinmen County (3.44%), Taitung County (0.37%), Taoyuan County (0.21%), Taichung County (0.09%), Taipei City (0.08%), Hsinchu City (0.04%), Kaohsiung County (0.03%), Pingtung County (0.02%), and Miaoli County (0.01%). Water quality in all other counties and cities was 100% up to standard. The EPA indicates that the environmental protection bureaus in the areas in which substandard results were found have already asked their tap water providers to make improvements. Local environmental protection bureaus will also continue reinforcing random testing of tap water quality. Currently 99.47% of tap water meets the standards set for drinking water quality.

The EPA will ensure safe drinking water for citizens by continuing to strengthen tap water quality monitoring and seeing to it that local environmental agencies reinforce random testing of tap water quality. Tap water providers of those counties and cities with substandard tap water quality must pay a NT\$60,000 fine for each

substandard finding. Tap water providers are required to make improvements before a certain deadline, effectively pressuring them to strengthen water quality monitoring and enhance water treatment management technology.

The EPA calls for all tap water to

meet drinking water quality standards before it leaves tap water companies for peoples' homes. Citizens should inspect their own cisterns and water towers once every six months and should see to regular cleaning and maintenance. All water should be emptied after flooding caused by typhoons to ensure safe tap water.

#### Noise Control

## Low Frequency Noise Controls Take Effect in July

**The EPA will implement controls on low frequency noise from 1 July 2005, becoming the first nation to implement rigorous controls on low frequency noise. Low frequency noise may not exceed 40 decibels in residential and commercial mixed zones and industrial zones, and may not exceed 30 decibels in residential housing zones.**

Low frequency noise emitted by water cooling towers and air conditioners has become the main cause for low frequency noise complaints by citizens. To extend controls over disturbing low frequency noise, the EPA promulgated the *Low Frequency Noise Control Standards* (低頻噪音管制標準) on 31 January 2005, which is slated to take effect on 1 July 2005. In the future, low frequency noise from facilities such as water cooling towers, exhaust fans or air conditioners in businesses, entertainment venues and residential areas must comply with low frequency noise control standards. Violators will be subject to penalties ranging from NT\$3,000 to 30,000, and could face further punishment measures including suspension of business or orders to quit using the facility making the noise.

This control measure leads the forefront of world trends. Currently many advanced nations such as Germany, Denmark and Japan have only set advisory measures to control low frequency

noise. Taiwan is the first nation to develop rigorous controls on low frequency noise.

Low frequency noise is defined as sounds with average frequencies below 200Hz and is commonly emitted by machines such as water cooling towers, exhaust fans, and air conditioners. EPA findings indicate that although the direct effect of such noise on physiology is uncertain, it clearly causes tension in the human body and has a considerable effect on sleep and psyche. It could even lead to nervous debility and depression, and elderly people are especially prone to such effects.

The new regulation stipulates a limit of 40 decibels in the third and fourth noise control zones (residential and commercial mixed zones and industrial zones) during daytime and nighttime periods, and a limit of 35 decibels during morning and late evening periods. As for the second noise control zone (solely residential zones), the morning and daytime limits are the same as for the third noise control zone, that is, 35 and 40

decibels, respectively. However, nighttime and late evening limits are five decibels less than those for the third noise control zone, and are set at 35 and 30, respectively.

The new standards were formulated after first analyzing the low

frequency noise values of water cooling towers, exhaust fans, and air conditioning units involved in 100 domestic citizen complaint cases, and then comparing with other nations' relative advisory values.

performance has been poor, and this has negatively influenced overall results.

The appraisal of river cleaning efforts included the following five main categories: river (lake) surface cleanliness, river (lake) shore cleanliness, river (lake) patrol volunteer organization, whether hidden pipes or diversion pipes discharging effluent have been located, and the status of subsidized construction and maintenance operations. Due to the difficulties involved for each county and city in carrying out river remediation, the EPA has solicited the opinions of environmental groups, experts and scholars regarding the future of environmental remediation, and these views have been included among assessment categories.

County and city governments with outstanding performance in this area will receive from NT\$500,000 to NT\$1,500,000 for river cleaning and maintenance fees, to be ap-

## Water Quality

# River Cleaning Efforts Appraised

**River pollution remediation is regarded as one of the most important aspects of the national development plan. The EPA has announced the results of this year's nationwide appraisal of river cleaning efforts, commending outstanding progress made by Chiayi, Taoyuan, Hualien, Yilan and Penghu counties. To encourage county and city governments, the EPA has withheld the names of those counties and cities showing poor performance.**

## News Brief

### Full Scale Ban on TBTO Ship Paint

Keeping with international trends, the EPA has announced a full scale ban on the use of tributyl tin oxide (TBTO) in anti-fouling paint for ship hulls as a measure to prevent potential harm to the environment and human health due to this toxic chemical substance. The EPA calls on industries to use appropriate alternative methods or products such as copper based pollution resistant paints, non-tin pollution resistant paints, manual cleaning of ship hulls, natural blocking agents or biocides, electrification, or bristly coatings. As the International Maritime Organization (IMO) is actively promoting policies to ban TBTO use in ship hull paint and the EU has decided to prohibit ships with TBTO paints from entering EU waters in 2008, the EPA has gone a step further by announcing a full scale ban on TBTO in ship anti-fouling paint. It is anticipated that this measure will control pollution at its source and help preserve the maritime environment and ecology, as well as raise the quality of aquaculture breeding grounds in coastal waters.

The EPA has announced the results of the nationwide appraisal of river cleaning efforts, commending the hard work of five counties: Chiayi, Taoyuan, Hualien, Yilan, and Penghu. Due to the difficulty of finding volunteers in urban areas, river patrol



*EPA's appraisal of river cleaning efforts is for encouraging localities to implement river remediation work.*

plied toward water quality inspection and monitoring equipment, information equipment, and education and activities to improve water environments in Taiwan. The EPA indicates that some local governments have lower levels of river cleanliness or are slower in getting started on river remediation. Thus more concerted effort is required

of county and city mayors and chiefs to organize manpower and resources in carrying out river pollution remediation work.

As this is the first nationwide appraisal of river cleaning efforts, the EPA hopes encouragement measures can be used to get county and city governments to implement

river remediation work.

Therefore, the EPA has pledged not to announce the names of those counties and cities with the worst performance and will not deliver penalties. However, strict measures will be taken against those localities if no improvements are made in the future.

## News Briefs

### Construction Site Waste to Be Controlled from August

Working to strengthen the management of construction waste and reduce the incidence of careless dumping or illegal landfilling, the EPA will set controls in stages on construction sites from 1 August 2005. The EPA requests contracted construction firms to submit industrial waste clearance and disposal plans, and report construction waste clearance and disposal information through the online reporting service, including type and amount of waste, and data on clearance vehicles, and disposal or recycling organizations. Environmental protection agencies will continue to discuss details of this policy with related agencies and industries, and will hold a public hearing and a series of briefings to officially bring this new policy on the management of construction waste into play.

### Home Environment Information e-Easy to Find

The EPA's new environmental database website has added many data inquiry services regarding residential environments. Users need only enter key words to search the current status of air quality, UV risk, river water quality and other aspects of environmental quality. The website has also added the following search functions: environmental sanitation agents, groundwater quality data, maps showing motorbike regular test stations, and non-ionizing radiation. These allow users to search for names and functions of environmental sanitation agents approved for sale on the market, neighborhood groundwater quality, locations of motorbike regular test stations and locations of cell phone stations, transformer stations, high voltage electricity towers, radio stations, radar stations as well as records on their non-ionizing radiation values. Want to get a better understanding of your living environment? Get online at the EPA's environmental database website: <http://edb.epa.gov.tw>

The screenshot shows the EPA's Environmental Database website. The header includes the URL <http://edb.epa.gov.tw> and the title "行政院環境保護署 環境資料庫". The left sidebar contains a navigation menu with categories: 空氣 (Air), 噪音 (Noise), 水 (Water), 土壤 (Soil), 廢棄物 (Waste), 毒化物 (Toxic substances), 資源回收 (Resource recycling), 環境用藥 (Environmental drugs), 非離子平能 (Non-ionizing radiation), 游離輻射 (Ionizing radiation), 環境統計 (Environmental statistics), 環境資料庫 (Environmental database), 地圖服務 (Map services), 回首頁 (Home), and 回報錯誤 (Report error). The main content area has a search bar and a "全部資料類型" (All data types) button. Below the search bar, there are sections for "環保新聞" (Environmental news) and "最新消息" (Latest news). The "環保新聞" section lists several items, including "低頻噪音七月納管 違者最高可處三萬元重罰" (Low frequency noise to be regulated in July, violators may face up to 300,000 NT dollar fine) and "七月一號起，環保署將管制低頻噪音" (Starting July 1st, the EPA will regulate low frequency noise). The "最新消息" section includes "2月24日日本署辦理台美合作「環境資訊系統建置與管理」研討會簡報下載" (Download the report of the 2005-02-24 EPA-US cooperation symposium on "Environmental Information System Construction and Management"). The page also shows a "參觀人數: 54345" (Number of visitors: 54345) and a "環境明鏡" (Environmental Mirror) logo.

*Citizens can get better understanding of neighborhood environmental quality via this website.*

## Activity

### *Environmental Lantern Contest Glows with Creativity*

The Taiwan Lantern Festival was held in the Gangbin Historic Park in Anping, Tainan this year. Not only did the occasion have a strong cultural feel with authentic traditional lanterns, but also was imbued with a special new feeling as organizers planned an "Environmental Lantern Area" to display all sorts of creative, environmentally friendly lanterns. One lantern depicted a phoenix with spread wings made of 100,000 plastic bottles, while others took on themes such as the ocean, the year of the chicken, and fish jumping in a brook. A total of 50 environmental lanterns were on display. EPA Minister Chang Juu-en personally visited southern Taiwan to trial the lanterns and expressed hope that this kind of activity will encourage citizens to bring their creativity into full play and give a new life to used resources. The EPA hopes the lantern festival will attract millions of people to see the environmental lanterns, so as to spread concepts and hands-on techniques of recycling resources. The EPA plans to hold a resource recycling contest to encourage creative input from more people toward effective reuse of resources and waste reduction so that Taiwan can reach its ultimate goal of "zero waste."



*EPA Minister Chang Juu-en (the third one from left) lightened the main lantern for Taiwan Lantern Festival.*

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