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Feature Column

Environmental Aid Provided to Sao Tome and Principe

In December 2005, the EPA coordinated with the Taiwan IHA Team for Cholera Control, a relief team dispatched to help combat a cholera outbreak in Sao Tome and Principe, one of Taiwan's allies in Africa. In the two-week-long mission the team successfully provided foreign aid in the fields of environmental protection and public health.

In recent years cholera has prevailed in Democratic Republic of Sao Tome and Principe. In October 2005 an outbreak hit several areas including the capital city and its off-shore island Principe. According to the Taiwan Medical Team stationed in Sao Tome and Principe, there were almost one thousand infected persons and twenty deaths. President of Sao Tome and Principe, Fradique Bandeira Melo de Menezes, pleaded for help during his trip to Taiwan from 21 to 24 November 2005.

Based on the long-term friendship between the two countries as well as humanitarian concerns, the Ministry of Foreign Affairs (MOFA) immediately allocated US$100,000 from its Emergency Relief Fund and organized the Taiwan IHA Team for Cholera Control, followed by two meetings on 25 and 30 November, to assist disease control work in Sao Tome and Principe.

Cholera is an infectious disease transmitted by fecal-oral contamination through unclean water and food. From a public health point of view, cholera is an indication of problems with environmental hygiene, public health awareness and basic infrastructure. For this reason, Director Chen Chih-ming (陳志銘) of the EPA Department of Environmental Sanitation and Toxic Substance Management was included in the task force, in addition to three medical doctors.

Inadequate Infrastructure Caused Epidemic

As the only environmental health expert in the team, Mr. Chen did his best to prepare himself mentally and bring along all the necessary materials for the trip. “We have had experience dealing with cholera in Taiwan in the past, so we fully

Director Chen (right) with local citizens participating in disinfection work.

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understand the correlation between epidemic prevalence and environmental sanitation," said Mr. Chen. "Drinking water, in particular, is the key to the spread of disease if it is unclean. Having this in mind, I brought along ceramic water disinfectors for preliminary disinfection."

Nevertheless, Mr. Chen was shocked upon his arrival to realize how badly the country was short of basic infrastructure services. The only water company could supply about 60% of the residents on the islands of Sao Tome and Principe, but only 60% of the water it supplies undergoes treatment, meaning only 36% of the water is safe. Two thirds of the water supplied to the people on the island is not properly treated. Mr. Chen pointed out, "Before going there I thought that I could disinfect their public water system, but in reality I found few facilities, even reservoirs or water storages." Most people are not in the habit of using lavatories, and let their livestock roam around leaving animal waste where people live. During the rainy season, livestock waste washes into the rivers allowing disease-bearing germs to spread.

Although the government of Sao Tome and Principe originally stated they were able to provide clinical treatment and asked for only equipment and materials without additional medical assistance, the team noticed that patients died in hospitals and that there was still much to improve in the wards. After a few days' investigation and assessment, the advisory team concluded that standard operating procedures should first be established in a priority area as a reference model for local health providers before a national cholera control initiative could be successfully implemented.

Taiwan advisory team interviewed by Sao Tome and Principe media.

Improved Environmental Sanitation to Combat Spread of Disease

"With permission from the Sao Tome and Principe government we selected Gomboa, a place in a grave situation, as the model working area and started disease control," said Mr. Chen. At first, the team had to win trust and obtain authorization from the health department, so they took an aggressive approach by drawing a three-phase strategy. Phase 1: mobilize community members to clean up and disinfect entire area; Phase 2: supply sufficient safe drinking water for the whole community; Phase 3: carry out public health activities, such as teach the public to wash hands, add fluorine to the water, boil water before drinking, encourage them to use latrines and lessen environmental pollution.

The following objectives were identified:

1.Medical Treatment: to achieve the goal of zero-death, doctors are required to make rounds every morning and afternoon, perform bedside teaching and improve quality of medical treatment; organize lectures for all hospital staff.

2.Laboratory: strengthen bacteriology testing capacity in the Sao Tome Central Hospital laboratory by working with staff and providing reagent.

3.Water Quality Testing: suggest that clinic run by Taiwan Medical Team install E. coli testing equipment, test water quality on a regular basis and establish a water monitoring and testing system.

4.Water Supply: to ensure a supply of safe drinking water, teach local health providers to test level of fluorine in water and use earthenware disinfectors in places where there is no tap water or where water-borne diseases prevail.

5.Waste Management: encourage the people to build latrines and make latrine-use a habit.

Taiwan's Advisors Solve Problems as They Go

The advisory team's epidemic control strategy, urgently drawn up yet well-planned, has seen positive results. A few days before the team left the country, the number of cholera cases reported in Gomboa declined and the situation was under control. The team experienced great challenges in the process. For instance, the local health department revealed a lack of disinfectant just when disinfection work was about to start. Mr. Chen told the story, "I went to buy household bleach in local shops as an alternative for disinfectant, but found it very costly. The local income level is scarcely comparable to the price of goods. Suddenly, I realized

the water company should have enough sodium hypochlorite for me to make disinfectant." Thanks to Director Chen's resourcefulness, the first round of disinfection work was carried out without a hitch.

The team also tried to address the latrine issue. First they offered a simple design and wished to provide some funds to encourage people to build on their own. However, the quotation presented by villagers turned out to be US$500 per unit and eventually the idea didn't work out. During their brain-storming process to improve local environmental sanitation, other ideas came about, including "garbage buy-back" or "stool buy-back." Mr. Chen pointed out, "To deal with cholera, the national water supply system as well as water quality must be improved, a disease surveillance and environmental monitoring system should be set up, health education programs carried out and waste properly managed. At this moment, the best we can do is to provide knowledge on disease control and sanitation."

A New Model of Cross-Ministerial Cooperation

The medical aid and relief mission was completed with contributions from various agencies in Taiwan, WHO consultants, health officials and experts in Sao Tome and Principe. It took a multilateral effort to combat the spread of cholera. The performance of the Taiwan team was impressive, winning recognition from both the local government and society as well as several local media groups. During the 20-day battle against Cholera, mutual trust and friendship grew among the team and the society including local health units and its people. Mr. Chen made the following remark, "Working in a poor country is certainly different from working in an advanced one. However, whatever you do, even providing relief, you need to know well the local situation and their demands to make your efforts worthwhile. To begin with, a consensus must be achieved between the relief team and the local players before you can proceed."

With this experience, the government of Taiwan has gained more confidence in dealing with major international health issues in terms of sending mobile medical teams and effectively coordinating cross-ministerial affairs and experts. In the future, Taiwan will continue to dedicate efforts toward improving public health around the globe.

Waste Management

Second Stage Mandatory Garbage Sorting Policy Launched

The mandatory garbage sorting policy was launched nationwide from 1 January 2006. Taiwan's 25 county and municipal governments began enforcing inspections at all government agencies, schools and communities. By 2 January 2006, already 125,900 inspections were made with 105,487 passing cases for a pass rate of over 80%. A total of 32 penalties and 20,381 notices were passed out. Overall, citizen cooperation so far has been quite good.

The second stage of the mandatory garbage sorting policy took effect as of 1 January 2006. From 1 April 2006, those in violation of the policy will be fined NT$1,200 to NT$6,000. Before 1 April 2006, inspectors will make spot-checks and request citizens who fail to separate garbage into the three categories of resources, food waste and general garbage to re-sort their garbage before throwing it into garbage trucks. For the few citizens willing to comply, inspectors will resort to penalization to ensure compliance with garbage sorting rules.

Taiwan's 25 municipalities and counties pledge support for the mandatory garbage sorting policy.

The first stage of this policy was implemented in ten cities and municipalities of Keelung City, Taipei City, Hsinchu City, Taichung City, Chiayi City, Tainan City, Kaohsiung City, Yilan County, Taichung County and Kaohsiung County. Out of a total of 47,610 inspected cases, 46,189 cases passed inspections for a pass rate of 97%. Tickets were issued in 32 instances where sanitation crews' instructions failed to yield compliance. The 3% of cases failing inspections occurred in Kaohsiung County (21%) and Kaohsiung City (11%).

The second stage was extended to the remaining 15 counties: Taipei County, Taoyuan County, Hsinchu County, Miaoli County, Changhua County, Nantou County, Yunlin County, Chiayi County, Tainan County, Pingtung County, Hualien County, Taitung County, Penghu County, Kinmen County, and Lianchiang County. Out of a total of 78,290 inspected cases, 59,298 cases passed inspections for a pass rate of 76%. Sanitation crews had to give instructions in 18,992 cases for a rate of 24%.

The EPA emphasized that similar "complete sorting, zero waste" policies have already become a trend in other advanced nations. The mandatory garbage sorting policy not only saves on social costs but also prevents secondary pollution. Successful implementation of this policy relies on full support from county and municipality leaders and dedicated implementation and inspection work by county and city environmental protection bureaus (EPBs). Active cooperation from citizens is also a key component to carrying out recycling work.

General Policy

New Environmental Regulations in 2006

From 1 January 2006, the EPA will unfold numerous new policies and measures including mandatory garbage sorting, changes to the motorbike regular testing system and subsidies for environmentally preferable vehicles. Enterprises will face revisions to *Regulations on Levying Soil and Groundwater Pollution Remediation Fees*, and two types of flame retardants used in electronic equipment will be listed as controlled substances.

New environmental policies and measures in 2006

Policy	Content
Second Stage of Mandatory Garbage Sorting Policy	From 1 January 2006, garbage will be treated in three categories: resources, food waste, and general waste. Sanitation crew workers will inspect for broken bags and provide instruction for three months. From 1 April 2006, violators will be fined from NT$1,200 to NT$6,000.
Vehicles failing to undergo regular testing prohibited from changing licenses	From 1 January 2006, motorbikes that have not yet undergone regular testing will be prohibited from changing licenses, subject to a fine of NT$2,000.
Regulation on Subsidies to Reduce Price of LPG for Use in Vehicles (降低車用液化石油氣售價補助辦法)	Subsidy period will be extended three more years until 31 December 2008, with NT$2.5/liter subsidy in 2006 and NT$2/liter subsidy in 2007 and 2008.
Regulation on Subsidies for Newly Purchased Low Polluting Motorbikes (新購電動輔助自行車補助辦法)	Subsidy period will be extended two more years until 30 November 2007. Applications will be accepted until 31 December 2007, with NT$3,000 subsidy per motorbike.
Regulation for Subsidizing Purchases of New Low-Polluting Motorbikes to Replace Old High-Polluting Motorbikes (高污染老舊機器腳踏車汰舊換新購買低污染機器腳踏車補助辦法)	Subsidy period shall terminate on 30 June 2007. Applications will be accepted until 31 July 2007, with NT$3,000 subsidy per vehicle.
Regulations on Levying Soil and Groundwater Pollution Remediation Fees (土壤及地下水污染整治費收費辦法)	Revisions: Upon export of chemical substances for which remediation fees have already been collected, those responsible for payment must apply for export refund based on actual exported amounts in the previous quarter. Applications should be turned in before the end of January, April, July or October. Applications must be turned in before the end of the rainy season and adjustments should be made to the application deadline for related construction refunds and guarantee refunds. The application period has been changed from [1 February ~ 31 March] to [1 June ~ 31 July].
Measures on Transport and Management of PCB and other Listed Toxic Chemical Substances (多氯聯苯等列管毒性化學物質及其運作管理事項)	Revisions: Stricter measures will be promulgated in the *Toxic Chemical Substances Management Act* concerning the use of octa-BDE and penta-BDE flame retardants in electric and electronic products.

Air Quality

Recommended Standards for Indoor Air Quality Released

The EPA released the recommended standards for indoor air quality on the first day of 2006. The new measure covers CO_2, CO, HCHO, TVOC, bacteria, fungi, PM_{10}, $PM_{2.5}$, O_3 and temperature, with two different sets of indicated values applying to two categories of indoor spaces.

The EPA has recommended indoor air quality standards for two categories of indoor spaces. The first category of space concerns areas with a demand for better air quality. Strict levels are adopted for this category. The second category of space refers to public places and office buildings, where relatively loose standards are followed. From 2006 the agency will begin environmental testing in both categories of indoor spaces and publicize the results. Based on the testing results, places that accommodate vulnerable people will receive prioritized assistance to improve indoor air quality.

According to the EPA, current indoor air quality control work in other countries around the world commonly starts by setting recommended reference values for air quality. These values are then adopted by concerned agencies in their respective fields of authority to effectively control indoor air quality. Critical indoor air quality problems in Taiwan at present include high concentrations of CO_2 caused by poor ventilation and high concentrations of VOCs caused by overuse of organic solvents on furniture. Moreover, the subtropical climate on this island induces an average relative humidity of 80%, which gives rise to biological pollutants such as high bacterial and fungal concentrations.

EPA Minister Kow-lung Chang said improvement of indoor air quality should start from certain areas such as air flow patterns in buildings, architectural planning and design, maintenance, materials used for interior decoration as well as man-made pollution. The EPA has invited all concerned authorities to work on an indoor air quality control program. The concerned agencies may refer to the recommendations provided by the EPA and include relevant ones in the fields they govern. For instance, building laws can stipulate that indoor air quality of a newly constructed building must meet an appropriate level before a usage certificate can be issued.

Recommended values for indoor air quality

Item	Recommended value			Units
CO_2	8 hour average	Category I	600	ppm
		Category II	1000	
CO	8 hour average	Category I	2	ppm
		Category II	9	
HCHO	1 hour average		0.1	ppm
Total VOCs (TVOCs)	1 hour average		3	ppm
Bacteria	Maximum value	Category I	500	CFU/m^3
		Category II	1000	
Fungi	Maximum value		1000	CFU/m^3
PM_{10}	24 hour average	Category I	60	$\mu g/m^3$
		Category II	150	
$PM_{2.5}$	24 hour average		100	$\mu g/m^3$
O_3	8 hour average	Category I	0.03	ppm
		Category II	0.05	
Temperature	1 hour average	Category I	15~28	℃

Air Quality

Dioxin Emission Standards Set for Stationary Pollution Sources

The EPA promulgated the *Stationary Pollution Source Dioxin Emission Standards* on 2 January 2006. These new standards ensure controls over all dioxin emissions from new and existing stationary pollution sources.

To strengthen the effectiveness of controls over dioxin emissions from stationary pollution sources, Taiwan has already established *Municipal Waste Incinerator Dioxin Controls and Emission Standards* (廢棄物焚化爐戴奧辛管制及排放標準), *Small and Medium-Scale Waste Incinerator Dioxin Controls and Emission Standards* (中小型廢棄物焚化爐戴奧辛管制及排放標準), *Steelmaking Electric Arc Furnace Dioxin Controls and Emission Standards* (煉鋼業電弧爐戴奧辛管制及排放標準), *Steel Sintering Plant Dioxin Controls and Emission Standards* (鋼鐵業燒結工場戴奧辛管制及排放標準), and *Steelmaking High Temperature Facility Dust and Ash Dioxin Controls and Emission Standards* (鋼鐵業集塵灰高溫冶煉設施戴奧辛管制及排放標準). A new standard has been added this year to ensure regulatory control over all dioxin emissions from all of the nation's stationary pollution sources with the promulgation of the *Stationary Pollution Source Dioxin Emission Standards* (固定污染源戴奧辛排放標準) on 2 January 2006.

The new dioxin emission standards for stationary pollution sources place controls over both new and existing pollution sources. The standard for newly built pollution sources is 0.5ng-TEQ/Nm3 effective from day of promulgation. Existing pollution sources are subject to two stages of implementation with an initial standard of 2ng-TEQ/Nm3 effective from 1 January 2007, and further tightened to 1ng-TEQ/Nm3 effective from 1 January 2008.

The EPA explains that by setting a general dioxin control standard for all types of industries, stationary pollution sources with lower concentrations of dioxin emissions and lower emission volumes are now also obligated to ensure cleaner emissions. In the future stricter, if investigation results deem necessary, emission standards can be set for individual industries as in the abovementioned existing standards targeting municipal, medium and small-scale incinerators, steelmaking electric arc furnaces, steel sintering plants, and dust and ash from high temperature smelting facilities. This measure is expected to effectively control dioxin emissions from all stationary pollution sources.

Waste Management

Zero Waste Policy Prioritizes Large State-run Enterprises

Source reductions and resource recycling are the main direction of industry zero waste plans. A survey taken in 2005 shows large state-run enterprises have demonstrated outstanding performance in waste reuse and treatment. All large state-run enterprises will therefore be prioritized in future promotion of the zero industrial waste policy.

Keeping up with the trends of other advanced nations' "zero waste" initiatives, the EPA is actively promoting related zero waste plans targeting industrial waste, primarily through source reductions and resource recycling. The goals of complete sorting and zero generation of industrial waste will be pursued by advancing the concept of sustainable resources, and promoting green production, green consumption, source reductions, and recovery, recycling and reuse of resources.

The EPA held two regional seminars in Kaohsiung and Taichung on 12 and 15 December 2005 regarding waste clearance and disposal of large-scale, state-run enterprises. The seminars discussed in detail the results of an investigation and evaluation plan for large-scale, state-run industrial waste clearance and disposal technology, as well as the results and regulations concerning existing industrial waste clearance and disposal technology. The seminars also emphasized important principles regarding reuse technology, ways to turn waste into resources, and implications of zero industrial waste. Lectures were arranged and there were many chances for exchange and bilateral discussion between participating industry representatives. These seminars facilitated the promotion of the zero industrial waste concept by familiarizing staff with the focus of environmental regulations and controls.

Taiwan's major large-scale, state-run enterprises all actively partook in these two seminars. All parties actively participated in discussions regarding the current state of waste clearance and disposal, recommendations for improvements, clearance technology, treatment results, and zero industrial waste principles. The enterprises also engaged in mutual exchanges with the EPA and specialists regarding new technology and regulations for waste clearance and treatment.

Based on a survey taken in 2005, the EPA indicates that among large-scale, state-run enterprises, Taiwan Sugar Corp. and Taiwan Water Corp. have already made great strides toward total waste recovery. All other enterprises apart from Chinese Petroleum Corp. are already recovering nearly half of their industrial waste. By targeting these large-scale, state-run enterprises and gradually reducing the amount of industrial waste generated or entrusted for treatment, they will be the forerunners in attaining zero industrial waste goals.

Environmental Inspection

Taiwan's First Extensive Study on Hair Mercury Levels

The EPA conducted a one-year study to examine the mercury levels of residents' hair. Results indicate that the average hair mercury levels of the nation's males and females are similar with just slightly higher levels than the results of studies conducted by Japan on its residents, though considerably higher than U.S. residents.

In this study to examine mercury levels of resident's hair, local environmental protection bureaus collected samples of resident's hair and for the first time used the internet to seek out participants, making the study's sample distribution much more representative. A total of 1,066 valid samples were examined indicating an average of 2.40 mg/kg and a mercury content statistical range of 0.012 mg/kg to 18.9 mg/kg (ppm). Based on gender, males averaged 2.92 mg/kg and women averaged 1.84 mg/kg, similar to the results of Japan's study on its residents with males averaging 2.5 mg/kg and women averaging 1.6 mg/kg. These results were significantly higher than studies conducted in the U.S. with only 20% of the samples examined having levels higher than the 1 mg/kg reference dose.

The study revealed the following relevant factors for mercury levels in hair. The older the person the higher the mercury content; those 60 years old and above (averaging 3.17 mg/kg) had levels 1.5 times higher than people 20 years old and under (averaging 2.07 mg/kg). People who frequently ate large-sized fish had higher mercury contents (averaging 3.68 mg/kg), at levels 6 times higher than those who didn't eat fish (averaging 0.55 mg/kg). The biggest discrepancy was between meat-eaters and vegetarians, indicating that meat-eaters recorded average mercury levels of 2.54 mg/kg, levels 8 times higher than vegetarians who averaged 0.32 mg/kg.

Results did not indicate a relationship between mercury levels in hair and the varying urban, suburban and mountain living environments of residents. Although some residents express concern about living in the vicinity of incinerators, waste landfills, waste recycling plants and industrial parks, results did not indicate any relationship between mercury content levels of hair and their living environment. In addition, there were no significant differences in the mercury levels of hair between those conducting experimental work and environmental studies and those working in administrative capacities. This study clearly revealed a significant difference in mercury levels of hair in those samples exposed and not exposed in the work environment, such as dentists (3.94 mg/kg) who averaged 1.6 times higher levels than those not exposed in their work environments (2.40 mg/kg).

Mercury is a persistent bioaccumulative toxin (PBT). If excessive levels of mercury accumulate in the body, nervous system disorders will manifest causing permanent injury or even death. The most commonly seen symptoms are eye diseases, fatigue, hearing damage, motor skill impairment, difficulty walking, and memory loss. Eating seafood with high mercury levels during pregnancy can impair development of the fetal brain.

The EPA is aggressively working to reduce mercury levels in the environment and thus alleviate the dangers of this substance. In step with international trends to gradually restrict and ultimately ban mercury, plans have already been drafted calling for an all-out ban on the production of mercury thermometers starting on 1 January 2008. The preliminary announcement, discussions, and public hearings for this ban have already taken place and the ban will be officially announced after administrative procedures are finalized.

Waste Management

Regional Waste Treatment to Optimize Environmental Facilities

The EPA is now planning to take greater advantage of the treatment capacity of existing waste incinerators and landfills. Rather than having each locality dispose and treat its own household waste, long-term and short-term regional cooperation will be the new direction for waste treatment.

The successive completion of waste incinerators in each county and municipality has led to an increase in the waste treatment capacity of several counties and municipalities. During the construction of these incinerators, the EPA attained outstanding results after several years of intense promotion to increase garbage sorting, recycling and reuse, and after two years of assistance to local governments to implement recycling systems for household food waste and discarded furniture. These factors have freed up space at certain existing county/municipal waste treatment plants, allowing them to assist other counties and municipalities with waste treatment.

The EPA has two strategies to promote a comprehensive system for regional waste treatment. The first is to encourage county and municipal governments to consult with each other and sign regional waste treatment cooperation contracts among each other. The contracts should be witnessed by the EPA to guarantee the rights and obligations of both parties. Contracts should clearly state the volume of garbage to be treated, as well as the amount and type of compensation for the county/municipality that agrees to treat the waste. The goal of these contracts is to stabilize long term partnerships between both parties.

The second method of cooperation is to set up agreements between the EPA and county/municipal governments. Those counties/municipalities with extra waste treatment capacity provide a quota for the extra volume of waste they are able to treat. The EPA then coordinates regional cooperation, by ensuring that able counties/municipalities respond to areas with waste treatment crises or during temporary periods when large quantities of waste require treatment, for example, due to natural disasters or annual renovation, termination or transfer of incinerators. Methods of reciprocal cooperation are flexible and diverse, and may involve rewards, exchange for treatment of an appropriate ratio of incinerator ash, or even sharing of cultural, educational or welfare facilities.

The EPA believes that integration of cross-regional treatment facilities and reciprocal cooperation in waste treatment promotes sharing and efficient use of resources. Regional cooperation also allows the government to reduce spending on the establishment of new treatment facilities. Centralized treatment can help reduce environmental impacts and provide an effective response to natural disasters or emergency and short-term demands during annual maintenance of incineration plants.

Air Quality

Taiwan Active in International GHG Reduction Events

A Taiwan delegation participated in the 11th Meeting of the Parties to the UN FCCC in Montreal, Canada in December 2005. The delegation took the opportunity to discuss related matters with seven allied nations in Central America. Taiwan presented its accomplishments in carrying out greenhouse gas inventories and voluntary reductions in the interest of promoting international exchanges in environmental protection.

The 11th Conference of the Parties to the UN Framework Convention on Climate Change (COP11) was the first such meeting since the Kyoto Protocol came into effect, and over 10,000 people from about 190 countries participated. The Canadian Environment Minister hosted the event and highlighted the "3I" strategy of "implementation, improvement and innovation" as the core focus of the meeting.

During the meeting, The EPA expressed its outlook for strengthened cooperation on environmental issues between Taiwan and nations in Central America that have diplomatic ties with Taiwan. Specific areas of cooperation include greenhouse gas reductions, adjusting to impacts from climate change, and development of biomass energy. Taiwan will also actively arrange ministerial level environmental meetings with these nations to establish closer and longer-lasting partnerships.

On the afternoon of 5 December 2005, the world's first organization

to establish a system for trading greenhouse gas reductions, the Chicago Climate Exchange (CCX), invited the Taiwan delegation to discuss carbon emissions trading systems. CCX also invited Taiwan's government and industry to join their system, the first such international invitation for years, attesting to Taiwan's important role in this international issue.

During peripheral meetings on 5 December, the EPA delegation spoke to over 60 representatives of various nations regarding Taiwan's progress and experience in promoting the establishment of a voluntary system to inventory, record and verify greenhouse gases. The EPA also took the opportunity on 7 December to recapitulate the success of Taiwan's electronics industry in making voluntary greenhouse gas reductions. This report met the approval of many attending international friends.

The EPA indicated that the meeting shed light on progressively stringent controls in the international arena. In response, domestic industry should make greater efforts to understand international information, join the world in making an early response to climate change, and take concerted action to reduce greenhouse gases in Taiwan.

Climate Change

EPA Extends Subsidies to Cut Cost of Vehicle LPG Fuel

The EPA continues to encourage the public to use LPG vehicles. An existing subsidy measure to reduce the price of LPG for vehicles will be extended for three years up until 2008 December 31. LPG will be subsidized NT$2.5/liter in 2006, gradually decreasing to NT$2/liter in 2007 and 2008. An estimated NT$650 million will be spent over this three-year period to provide economic incentives that help balance the price disparity between gasoline and LPG.

The EPA has been implementing a subsidy policy to reduce the price of LPG fuel since 2001. Legally certified LPG vehicles and registered filling stations have been allotted subsidies as high as NT$3/liter to help balance the price disparity between gasoline and LPG fuel, and present the public with a viable economic incentive. Public response has grown immensely and the amount of LPG dispensed at filling stations has risen sharply, propelling a revival in the LPG vehicle and filling station market.

In 2000, there were six filling stations offering LPG fuel. Since the implementation of this subsidy policy now there are 15. Meanwhile, both numbers and quality of LPG vehicles have steadily grown. Currently, there are about 9,000 vehicles with an average of 200 new vehicles on the streets each month. The fuel subsidy policy has been in effect for five years now and an estimated 147 million liters have been subsidized with over NT$437 million in subsidies issued.

In 2005, the monthly dispensation of LPG fuel sharply rose. From January to May, the average monthly amount dispensed reached 3.58 million liters, and from January to October, it had already reached 4.47 million liters. This marks a growth of 43% compared to the 2004 figure of 3.12 million liters, far exceeding the goals forecasted, and the market continues to rapidly expand.

Considering the price disparity between gasoline and automotive LPG fuel it is increasingly evident that an economic benefit has already been achieved. The fuel price subsidy policy is a temporary, incremental incentive measure, and ultimately prices must return to the control of market mechanisms. Based on the above considerations, flexible regulation of subsidy funding for automotive LPG fuel will be applied at NT$2.5/liter in 2006 and NT$2/liter in 2007-2008.

In response to rising oil prices, preliminary estimates for 2006 subsidies have been lowered by NT$0.5/liter to NT$2.5/liter. The LPG fuel market has been relatively unaffected with dispensation still achieving 30% annual growth rates. The EPA has already drafted plans to intensify countermeasures for the lowered NT$2/liter subsidy coming into effect in 2007 and 2008. In addition to making the necessary subsidy adjustments based on the gasoline price disparity and air pollution control fees, the EPA will also set lower emission standards for motor vehicles to improve air quality in urban environments. Aggressive efforts will focus on promoting LPG fuel vehicles in the three major metropolises of Taipei, Taichung and Kaohsiung. The goal is to increase the number of LPG vehicles to 18,000 within three years and add 12 new filling stations. In addition, the Bureau of Energy, Ministry of Economics Affairs, the governing authority overseeing filling stations held discussions with China Petroleum Corp. and Formosa Petrochemical Corp. on upgrading equipment at filling stations to make it more convenient for consumers to fill up with LPG fuel.

News Briefs

2005 Environmental White Paper Published

The EPA published the 2005 Environmental White Paper on 12 December 2005. The White Paper includes environmental policy and the current state of the environment, discussions on strategies and measures to protect the environment, complementary plans, and prospects for the future. In addition to covering the area of public nuisance control, content also covers trends in nature conservation and global environmental protection.

The EPA indicates that environmental protection is an important focus of the government at present. To keep citizens updated on the status of environmental protection in Taiwan and the government's achievements, the EPA began annually compiling the "Environmental Protection Almanac" and the "Taiwan Region Environmental Data" since 1997 as reference materials. As of 1997 the EPA began compiling the work of relevant government agencies into the Environmental White Paper. The White Paper provides citizens with information on the current status of environmental protection work in Taiwan as well as a review of issues and policies, current work focus and future prospects. The aim of the White Paper is to increase citizen understanding and support, and encourage others to work together with the EPA to protect the environment.

In addition to publishing hardcopies of the 2005 Environmental White Paper, the EPA has made the entire text available for Internet users to download from the EPA's website. It can be found under environmental policy on the EPA's homepage at www.epa.gov.tw.

Industry Categories Updated in Water Pollution Control Act

On 6 December 2005, the EPA promulgated the *of Water Pollution Control Act Industry Categories and Definitions* (水污染防治法事業分類及定義) based on Article 2.7 of the *Water Pollution Control Act* (水污染防治法). The industry categories and definitions were made with reference to the new industry category definitions outlined by the Directorate-General of Budget, Accounting and Statistics, Executive Yuan. As for whether different identification standards are established for specially designated industries located within tap water Water Quality Protection Areas, it is stressed that industries are categorized and controls are determined based on wastewater generation. The criteria for determining whether enterprises are located inside or outside of tap water Water Quality Protection Areas is based on where the discharge point is located. In cases where an industry fits two or more definitions, they will be subject to regulations in both the Water Pollution Control Act and other relevant regulations toward that particular industry. In addition, the new categories and definitions include for the first time: storage facilities for specially designated substances, petroleum product storage facilities, dredged substances (silty water) from water quality purification treatment plants, and retail vendors.

Green Mark Product Inspection Results Released

To guarantee consumers and protect product quality, the EPA conducts strict reviews and validation of all Green Mark products. Each year, the EPA conducts tracking and investigation of factories and markets of approbated products. This year a total of 476 products from 34 companies underwent tracking and investigation at the manufacture site. In addition, 22 stores were investigated in Taipei, Hsinchu, Toufen, Taichung, Kaohsiung and Pingtung cities to check for proper use of the Green Mark logo. Five illegal cases were found in all.

As for inspections of manufacturing sites, it was found that one company that had transferred its factory had not yet made the necessary changes. The company has already been asked to carry out the necessary procedures. As for inspections of retail shops, four shops were found illegally using the Green Mark logo. Two of the shops have already made the necessary improvements and the other two have submitted their plans for improvement. On 9 January 2005, the EPA mandated that improvements should be made within one month, and will conduct follow up tracking to ensure this is carried out.

To strengthen management of the Green Mark, the EPA asks consumers to report suspicious products. In the case of infringements, the product and company will be announced publicly and given a limited time period to make improvements. If improvements are not made, the EPA will appeal for damage compensation and the company will be prosecuted for criminal liability according to the *Trademark Law* (商標法) and the *Fair Trade Law* (公平交易法). Related information can be found at the Green Mark website (http://greenmark.epa.gov.tw/) or through the EPA website.

Products with expired Green Mark sold illegally on the market.

Activities

World Water Monitoring Event

The EPA invited the people of Taiwan to participate in the "3rd World Water Monitoring Day" activities from 18 September to 18 October 2005. Over 400 teams were formed nationwide with more than 2,800 people taking part in this water quality monitoring activity. To share the results with all participants, on 17 December 2005 from 9:00am to 12:00pm, the EPA exhibited results and held an awarding ceremony at the National Taiwan University Water Resources Research Center. EPA Deputy Minister Tsay Ting-kuei explained that Taiwan has been participating in this event since 2003 when the first World Water Monitoring Day was held. Of the 24 participating countries, Taiwan ranks at the forefront in numbers of participants. Over 2,500 people helped monitor Taiwan's waters in 2004, marking the second highest number of participants behind the U.S. Over 2,800 participants were registered in this year's "3rd World Water Monitoring Day," helping to bolster Taiwan's environmental protection image among the international community.

This year contests for lesson plans, poster designs, and outstanding team participation to encourage greater teacher involvement in this activity and further expand the activity's popularity. Contests for teacher's lesson plans encourage the creation of better lesson plan models that integrate water monitoring and environmental education concepts into educational activities. The EPA specially honored the winning teams and other teams that made exceptional contributions in monitoring and providing data.

The EPA has posted the test results of this activity on the World Water Monitoring Day website, allowing people concerned about water quality around the world to see Taiwan's efforts. It also conveys the message that Taiwan is keeping in step with the rest of the world to protect water resources. All are welcome to visit the website about Taiwan's participation in World Water Monitoring Day activities (http://www.epa.gov.tw/wwmd).

EPA Deputy Minister (right) attends the event to display World Water Monitoring Day efforts.

2006 National Sustainable Development Conference

The 2006 National Sustainable Development Conference will take place on 21 and 22 April 2006 at the Civil Service Human Resources Development Center. The EPA is putting on this year's meeting, which comprises several separate meetings including the "25 County/Municipality Forum," the "NGO Forum," the "Regional Forum," the "Preparatory Meeting," and the main assembly.

To implement bottom-up citizen participation and extensively discuss sustainable development issues, this year the EPA will collect information on relevant issues by: 1) arranging meetings between government departments and counties/municipalities, 2) arranging NGOs meetings for regional discussion, 3) drawing from recommended topics by the National Council for Sustainable Development's eight working groups, and 4) setting up a webpage on special cases in sustainable development on the EPA website to solicit citizen feedback.

From 24 November 2005 to 29 December 2005, the EPA successively convened meetings to gather topics for the National Sustainable Development Meeting. During these meetings, county and municipal governments collected over 900 topics. Then NGOs held six "2006 National Sustainable Development Meeting - Environmental Protection Regional Forums" from 9 to 19 January 2006 in northern, central, southern, and eastern Taiwan as well as outlying islands. Information on the meeting can be found at http://cozycabin.so-buy.com/index.phtml. Those unable to attend these meetings yet still wish to voice their opinions about sustainable development issues are encouraged to send an email to chenhw@sun.epa.gov.tw at the EPA to make sure local opinions are included in the forum.

Activities

Used Computer Donation Drive

The EPA is promoting reuse of resources as a progressive means of reducing the heavy environmental impact of discarded computers, and balancing the information technology disparity between urban and rural areas. Enthusiastic response and participation from all sectors of society enabled the donation drive to successfully meet its goals in 2005. Second-hand computers were assembled and donated to 1,600 children from low-income families living in mountainous areas. In addition to providing computers, engineers made the trip out into the remote mountainous countryside to personally assist each child to set up their computers and make sure everything was operating correctly. They also taught the kids simple computer maintenance to add the final touches on a successful mission.

In total the drive collected over 10,000 second-hand computers as 514 organizations provided donations with government agencies constituting 59% and private enterprises 17%. The EPA called on all sectors of community, both private enterprise and government agencies, to continue their active cooperation and enthusiastic support in working together for this great second-hand computer recycling donation drive.

The EPA held the “Second-hand Computer Donation Drive Ceremony” on the morning of 22 December 2005 at the Sheraton Hotel Taipei to extend gratitude to all those who generously responded with their support and to display the results of this activity. Appreciation awards were also given to acknowledge and honor those who donated and provided support in helping to make this drive a complete success.

Recycling Fund Management Board Secretary Cheng Shean-rong (鄭顯榮) delivers speech at donation drive ceremony.

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