

November 30, 2010



Environmental Policy Monthly

Environmental Protection Administration, R.O.C. (Taiwan)

Feature Article

Current Status of Clean Air Zones

In order to improve air quality in Taiwan's densely-populated metropolitan areas, the government has been drawing upon the Air Pollution Control Fund to subsidize the greening of major cities and the establishment of Clean Air Zones (air quality purification zones). Over the last decade, 1,722 hectares of greenery have been planted and 293 kilometers of bicycle paths have been laid.

Rapid economic development has led to a high degree of urbanization in Taiwan. But being able to enjoy the amenities and comforts of a modern lifestyle inevitably results in environmental pollution. Controlling air pollution has thus become an important part of environmental protection policy. In order to make full use of the Air Pollution Control Fund, in 1995 the EPA divided its air pollution control work into three main categories, one of which includes the establishment of Clean Air Zones.

Landscaping Started at Retired Landfills and Refuse Dumps

Since 1996 the EPA has been using a part of the Air Pollution Control Fund to promote urban landscaping and air quality improvement efforts. These subsidies have been mostly given to municipalities around the

nation in order for them to establish Clean Air Zones on public land directly under their jurisdiction or on other public land that they have the right to use. This is done by planting native or adapted foreign varieties of trees that are able to remove dust and pollutants from the air.

In 1996 the EPA started assisting in the laying out of environmental parks downwind from pollution sources, for which EPA tree-planting subsidies were provided in order to encourage as much vegetation cover as possible. By the same principle, subsidies were not made available for the building of platforms, pavilions, or other facilities that are not directly related to air purification. However, considering the Ministry of Interior's Construction and Planning Agency is the competent authority for the parks, the EPA started to focus on the greening of disused landfills and refuse

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dumps to improve the surrounding environment and air quality since 1997.

Clean Air Bike Paths Attract Tourism Opportunities

The EPA has also been promoting the use of bicycles for commuting and shopping as another way of reducing air pollution. As part of this campaign, since 1998 a proportion of the Air Pollution Control Fund has been allocated annually to laying down bicycle paths that are lined on both sides with native or adapted foreign varieties of trees that excel at purifying the air. Offering alternatives to vehicular transportation is all part of the government's goal of reducing air pollution and raising the quality of the living environment of the nation's residents.

The first dedicated cycle path laid down in Taiwan was a 2-kilometer stretch in the Taitung Guanshan Environmental Park, a 29-hectare park established by the Taitung County government with the aid of EPA subsidies. This park eventually took top place in the Ministry of Interior's Construction and Planning Agency's First Attractive City and Township Awards, and also won an Excellent Landscaping Award. The Guanshan Bicycle Ring Path was also designated an excellent Clean Air Zone by the EPA. A 12-kilometer length of cycle path which rings the town of Guanshan and connects the park with the rest of the town, was built in 1998 by the county government with the aid of EPA subsidies. The park and the path have subsequently attracted large numbers of tourists to the town, creating commercial opportunities for local businesses.

Since 1996, the EPA policy of granting funds to municipalities around Taiwan to establish Clean Air Zones has been very successful. Some of the achievements to date include:

- The establishment of 202 hectares of environmental park area and 388 hectares of environmental forest recreation area trails. These recreational areas are helping to improve air quality and also offer opportunities for ecological education.
- The landscaping of 276 hectares of landfills and refuse dumps, which has not only resulted in a cleaner environment and a reversal of the negative perceptions about such sites, but also achieves the

goal of sustainable use of land resources.

- The greening of 856 hectares of bare land, which is helping to reduce dust in the air.
- Encouraging the public to use bicycles, thereby reducing vehicle emissions.
- Planting a total of 1,722 hectares of trees and other plants, and laying 293 kilometers of cycle paths (with an average width of 5 meters).

It is estimated that the tree planting and laying of cycle paths described above will result in annual reductions of 18,680 tonnes of ozone (10 tonnes per hectare per year), 13,972 tonnes of SO₂, (7.48 tonnes per hectare per year), 4,109 tonnes of CO₂ (2.2 tonnes per hectare per year), 709 tonnes of NO₂ (0.38 tonnes per hectare per year), 934 tonnes of dust (0.5 tonnes per hectare per year) and the absorption of 42,964 tonnes of CO₂ (23 tonnes per hectare per year).

Strengthening Interagency Communication and Cultivating Professionalism at the Local Level

The EPA is keen to stress that the establishment of Clean Air Zones is an ongoing operation that is now showing positive results and is ripe for further expansion. The main thrust of future efforts will be directed towards expanding the types of Clean Air Zones and increasing the vegetation cover in areas already established. Secondary to this will be the work of increasing the greening of heavily-populated urban areas.

In the long term, the formulation of land use policy will see more discussion among relevant agencies concerning the establishment of interagency communication mechanisms. Successful projects in other countries will also be studied when researching and planning projects aimed at raising environmental quality in Taiwan. Such projects include promoting urban renewal, reducing the total area covered with concrete, and allowing for more greenery and vegetative cover in urban areas.

In terms of planning and design, in the past the design, construction, and ongoing maintenance of the Clean Air Zones was left to local governments. However, it was often the case that the designers and builders had widely disparate technical skills, which

resulted in some aspects of the Clean Air Zones unable to match actual environmental requirements or, unable to fulfill the original intention behind the establishment of the zones. In order to raise the quality of Taiwan's managed green spaces, the EPA is thus actively working with local governments to educate Clean Air Zone design teams in the areas of plant selection, distribution of green areas, ecological conservation, and specialist design skills. The EPA is also pushing for more professionalism and creativity in designs so that future Clean Air Zones will not only help to purify the air but will also create interesting spaces unique to each location.

Tree Planting Movement to Reduce Carbon and Increase Quality of Life

Planting trees to reduce greenhouse gas emissions has become a popular trend internationally. Trees selected for planting should be suitable for the environment in which they will grow. Trees not only sequester carbon from the atmosphere but they also purify the air in their immediate environment, which is fully in keeping with the goal of protecting the environment and providing the people of Taiwan with a satisfactory living environment. The EPA will thus continue its work in the following areas:

1. Promoting the landscaping of landfills and bare land, and the establishment of more Clean Air Zones: The EPA will also continue to take into account the environment to be vegetated, the overall ecology, and biodiversity in general when selecting trees to be planted so that maximum benefits are obtained. Post-planting management and tree adoption schemes will also be reinforced.

2. Expanding the selection and promotion of trees that are particularly good at absorbing pollutants and sequestering carbon: The EPA is working on categorizing such trees and has conducted research on which species are suitable for planting on different types of polluted sites to give maximum integration of air purification and carbon sequestration benefits. The EPA also encourages the general public to plant more trees and would like to see tree planting become a national pastime that improves the everyday environment for the benefit of all.

3. Promoting the greening of bare land along rivers by using existing resources – existing vegetation, potential vegetation, flood defense forests, landforms, recreational facilities, and unique local features – to create green corridors at estuaries. Such corridors could include parks, constructed wetlands,

空氣品質淨化區及環境綠化育苗計畫
申報及查詢系統

空氣品質淨化區

- 空品淨化區定義
- 新提報空品淨化區
- 已核定空品淨化區
- 已設置空品淨化區
- 各縣市自行考評辦理情形
- 各縣市說明會辦理情形
- 承辦人員連絡資料
- 環保局申報登入
- 網路票選"優良空品淨化區活動"

環境綠化育苗計畫

- 苗木查詢
- 核定樹種介紹

已核定空品淨化區 (·共15處)
(·已發包10處·施工8處·完工4處)

現勘文號	行政區域	基地名稱	類別	面積(公頃)	長度(公里)	基地執行狀況	詳細資料
1	宜蘭縣 三星鄉	自行車道設置計畫	都會區自行車道	0	3.02	<input checked="" type="checkbox"/> 發包 <input checked="" type="checkbox"/> 施工55% <input type="checkbox"/> 完工	查看
2	台中市 南屯區	賣文段0651地號廢棄物棄置場綠化計畫	廢棄物棄(堆)置等污染場址綠化	0.97	0	<input type="checkbox"/> 發包 <input type="checkbox"/> 施工0% <input type="checkbox"/> 完工	查看
		大甲東段62				<input checked="" type="checkbox"/> 發包	

▶ A screenshot of the Web site dealing with Clean Air Zones and the Environmental Landscaping Nursery Plan

and planted forests. A good example of this is the proposed Zhuoshui River Bicycle Path that would link both banks of the river and encompass local sites of cultural interest and natural beauty. Laying down the path would not only provide Taiwan's residents with another excellent eco-leisure destination but would also go a long way to solving the problem that local people have with dust blowing up from the riverbed. This project will add value both in terms of ecological conservation and ecological education.

Tree planting is a no-regrets policy, and is all the more effective when the general public is involved at the grassroots level. If the trees planted are the

most suitable species for the site, and are watered and fertilized regularly, then their ability to sequester carbon and purify the air will be greatly enhanced.

Note: The 23rd full committee meeting of the 4th period of the 7th term of the Legislative Yuan's Social Welfare, Health and Environment Committee decided that the future budget for constructing bicycle paths will be equally allocated among the Ministry of Transport, the Sports Affairs Council, and the Ministry of Interior's Construction and Planning Agency. Hence, from 2011 the EPA will no longer be allocated a budget for bike paths and so will no longer be involved in their promotion or construction.

▶ *Table: Statistics for Established Clean Air Zones in Taiwan (to the end of October 2010)*

Established Clean Air Zones	Number
Landscaping and rehabilitation of landfills	20
Landscaping of bare land	96
Landscaping of refuse dumps and other polluted sites	87
Landscaping of vacant lots	80
Creation of urban bicycle paths	52
Landscaping of urban roads	75
Creation of environmental parks	77
Total	487

**Not including school dust control areas or environmental forest trails*

Feature Article

National Environmental Education Evaluation Committee to Be Established in June 2011

Environmental education is about to enter a new phase, with widespread implementation of related policies from the top levels of government down. On 5 June 2011, the first cross-ministerial National Environmental Education Evaluation Committee will be convened by the EPA Minister, with committee members including deputy ministers of the Ministry of Education, Ministry of the Interior, Ministry of Economic Affairs, National Science Council, Council of Agricultural Affairs, and the Research, Development and Evaluation Commission, as well as experts and scholars in relevant fields.

In accordance with Article 11 of the Environmental Education Act (環境教育法) the EPA will, on 5 June 2011, convene the first cross-ministerial National Environmental Education Evaluation Committee. On 5 October 2010 the EPA announced details of the guidelines for establishing the committee. The main tasks facing the committee will be:

1. Evaluate, coordinate, and gather information on the National Environmental Education Framework.
2. Evaluate, coordinate, and gather information on the National Environmental Education Action Project.
3. Evaluate annual progress reports on the National

Environmental Education Action Project.

4. Carry out other relevant evaluations.

There are 25 members on the committee, with the EPA minister serving as committee convener and the EPA deputy minister serving as vice-convener. Six of the members are from relevant government agencies, including the deputy ministers of the Ministry of Education, Ministry of the Interior, Ministry of Economic Affairs, National Science Council, Council of Agricultural Affairs, and the Research, Development and Evaluation Commission. The other 17 members are academics, technical experts, experienced field managers, and representatives of citizen groups chosen by the convener based upon their expertise in the field of environmental education. The term of service will be two years, and the 17 non-governmental representatives

may be invited to serve a second term.

The committee will convene twice a year, and the Director of the EPA Department of Planning will serve as its executive secretary, with the following duties:

1. Handling administrative duties for the conference.
2. Studying and collating information and policies relevant to environmental education.
3. Executing the committee's resolutions and action plans, and keeping account of progress reports.
4. Assisting local governments in the promotion of environmental education action projects.
5. Handling other matters that may arise between meetings.

Soil & Groundwater

Cooperating with Other Asian Countries on Soil and Groundwater Remediation

Complementing the tenth anniversary of the promulgation of the Soil and Groundwater Pollution Remediation Act (土壤及地下水污染整治法) the EPA launched a week-long series of exhibitions on 25 October 2010 to share some of the environmental achievements attained during this decade. First was the 2010 Taipei Soil and Groundwater Environment Exhibition, which used an array of interactive multimedia to show the positive results gained from the last ten years of hard work.

In order to give the international community a chance to learn from Taiwan's experience with soil and groundwater inspections and remediation, on 27 October the EPA held the 2010 Taipei International Conference on the Inspection, Remediation and Management of Soil and Groundwater Contaminated Sites. The main topics discussed at the conference were agricultural land pollution, brownfields, health risk assessment, sustainable management of sediment, and the latest remediation techniques. The representatives from Taiwan talked about the development of remediation in Taiwan using the China Petroleum Anshun pollution incident as a case study of Taiwan's experiences with inspection and remediation of polluted farmland and the management of agricultural produce.

Over 500 local and 50 foreign experts and scholars from 15 different countries attended

the conference. A special roundtable discussion was held with 22 government officials from 8 Asian nations to draw lessons from Taiwan's experience over the last 10 years with soil and groundwater remediation. Conference participants reached consensus on a number of points:

1. To facilitate remediation work, an agreement was reached to establish an Asian soil and groundwater pollution remediation working team. All Asian nations are welcome to participate.
2. The team will be charged with planning and sponsoring soil and groundwater pollution symposiums, lectures, and training programs in Asia. It will engage in technical exchanges that will mainly cover inspection methods, risk assessment, remediation techniques, and applied models.

3. The team will establish its own Web site on which news reports and information on successful soil and groundwater remediation cases from each country will be published. The Web site will also act as a platform for exchanging techniques and experiences.

4. The US EPA has also agreed to join up with the working team and assist the Taiwan EPA Soil and Groundwater Remediation Fund Management Board with its Asian soil and groundwater remediation work. Working together, it is expected they will be a powerful force behind the spread of soil and groundwater remediation techniques in Asia.

Taiwan became the first nation in Asia to enforce regulations pertaining to soil and groundwater remediation with the promulgation of the Soil and Groundwater Pollution Remediation Act in 2000. Over the last decade the Act has become even more comprehensive and far-reaching following the addition of a number of bylaws, regulations, and guidelines.

In addition, thorough inspection and remediation of farmland, gas station storage tanks, abandoned factories, and illegal dumps over the last decade have yielded a wealth of experience regarding remediation techniques. Extensive work has also been done on setting the parameters for health risk assessments and brownfield redevelopment. Taiwan has been leading the way in Asia in all of these areas. Many of Taiwan's achievements in these areas were shown in the interactive multimedia exhibitions that were open to the public from October 25.

The EPA will continue to deepen its cooperation with the US EPA in the joint lecture programs on soil and groundwater remediation techniques. As evidence of Taiwan's sincerity to develop cooperation with nations in Southeast Asia on environmental issues, the lecture programs will now be open for the first time to personnel from these nations. Taiwan is more than willing to become the Southeast Asian hub for international environmental exchanges.

Environmental Monitoring

Water Quality of Spratly Islands' Ban Than Reef Measured for the First Time

During 2010 the EPA sent an environmental quality sample collection team to Taiping (太平島, Itu Aba) Island, one of the Nansha (南沙群島, Spratly) Islands, to conduct water and air quality monitoring. As the weather conditions were favorable at the time, the team was also able to sail up to Ban Than Reef (中洲礁) to conduct water quality monitoring. Analysis of the samples has recently been completed and the data shows that both water and air quality in the vicinity of the reef are good.

From 6~11 September 2010 an EPA environmental quality sample collection team sailed from Kaohsiung with the assistance of the Coast Guard Administration to Taiping Island, one of the Nansha Islands, to conduct water and air quality monitoring. This was the first time that samples were collected from Ban Than Reef, marking an expansion of Taiwan's environmental monitoring capabilities as well as providing valuable environmental quality data from the South China Sea.

Ban Than Reef barely rises above sea level and is therefore regularly submerged by sea tides, making sample collection particularly difficult. The EPA's 2009 attempt to reach the reef was met with inclement weather conditions, including strong winds and large waves. For the safety of the crew, the task

of collecting samples has to be abandoned. This year's voyage had a better-trained team using more advanced techniques and equipment. The successful collection of air and water samples from Ban Than Reef was a major breakthrough in Taiwan's marine environment monitoring program.

A total of seven seawater test sites were set up around the reef. Analysis of the results show that nitrate nitrogen was not detected (detection limit 0.01mg/L), nitrite nitrogen was present in quantities of less than 0.002mg/L, phosphate was present in quantities of less than 0.015mg/L. A number of heavy metals - cadmium, total chromium, copper, lead, zinc, mercury – were also tested for and were found to be present in low concentrations (ranging from undetectable to 0.028mg/L). The results from the Ban

Than Reef and Taiping Island test sites - with uniform ratings of "Good" for all of the samples - show that sea water quality in the area reaches national standards for first class unpolluted marine environments.

Air samples were also collected at 12 locations during the voyage to Taiping Island after setting sail from Kaohsiung. Pollutants that were tested for included VOCs, CO₂, and atmospheric mercury. The VOCs included propane, propylene, and hexane, and were present in average concentrations of 1.14, 0.38, and 0.37 ppb, respectively. The average concentration

of CO₂ was found to be 338 ppm, and atmospheric mercury was detected at an average concentration of 1.74 nanograms per cubic meter. The average concentrations for all of the above pollutants were found to be lower than in all areas of Taiwan.

Details of this year's Nansha sample-collecting plan and full results of the analyses of all of the samples taken are now available on two EPA Web sites: <http://taqm.epa.gov.tw/taqm> (air quality) and <http://wqshow.epa.gov.tw/> (water quality).



▶ Air sampling on Taiping Island, part of the Nansha Islands

Environmental Inspection

Rigorous Inspections to Stamp Out Illegal Discharges of Wastewater

A number of guileful business operators have developed methods to cleverly cover up their illegal discharges of effluent. In order to stamp out these practices, the EPA is currently putting into action its Comprehensive Pollution Source Inspection Plan. Instead of inspecting a number of factories on the same day, the new inspection regime will involve multiple inspections of one factory over a number of days. The emphasis of the inspections will also change from end-of-pipe testing to pollution causes. Operators discovered to have profited from illegal discharges of wastewater will be fined more than their profits and the upper limit of NT\$600,000 laid out in the Water Pollution Control Act will not apply.

One aspect that makes the new inspection regime more rigorous is that, in order to stamp out illegal activities, EPA inspectors are now carefully examining

and auditing "the 3 flows" of everyday operations of suspected enterprises. "The 3 flows" refers to the flow of information, the flow of materials, and

the flow of money. Known violators will be fined an amount greater than the profits they have reaped from violating the law. Fines will be calculated according to "degree of responsibility," "degree of impact," and "profits obtained from violating administrative law obligations" occurring from the violation. Financial resources of the offending enterprise will also be taken into account when levying the fine.

EPA inspection procedures are divided into three stages:

1. Examine core information concerning the enterprise to be inspected, and draw up worksheets.
2. Onsite inspection of facilities operations, including volumes of wastewater entering and leaving the premises, electricity consumption, amounts of chemicals added to wastewater, and wastewater treatment. Inspectors observe factory staff at work and also compare their on-site measurements with the enterprise's own records.
3. Should an inspector discover an anomaly in the operation of the facilities as detailed above they will immediately conduct the relevant function check by going through a list of inspection items.

The Bureau of Environmental Inspection recently dispatched a team to a tannery in Yunlin County for one week as part of the Comprehensive Pollution Source Inspection Plan. The team discovered that the tannery had been improperly operating wastewater treatment facilities over a long period of time and had

even been employing foreign laborers to manually open and close effluent discharge pipes in order to deceive EPA inspectors. The discharged effluent was later discovered to contain high levels of pollutants, and the EPA estimated the tannery's annual savings on wastewater treatment costs to be about NT\$4 million. The EPA is currently assessing the degree of responsibility, degree of environmental impact, size of illegal profits, and the financial resources of the firm. The fine to be levied will be higher than the profit made from the improper management of the firm's wastewater facilities and will not be limited to the maximum of NT\$600,000 laid out in the Water Pollution Control Act (水污染防治法).

There are a small number of unscrupulous enterprises not properly dealing with wastewater in order to reap profits that exceed the maximum fines laid out in the Water Pollution Control Act. Some of these businesspeople are fully aware of the heavy fines for installing hidden drainage pipes and so prefer to instead tinker with their wastewater treatment systems. Wastewater is still seen to be entering the treatment facilities but leaves through the outlets as polluted as when it entered. This kind of illegal behavior is not only highly damaging to the environment but also hinders the healthy development of industry as a whole, particularly the spirit of fair competition. This is why Articles 18 and 20 of the Administrative Penalty Act, promulgated on 5 February 2006, allow for fines above the upper limit of NT\$600,000 laid out in the Water Pollution Control Act for these types of "smart" violations.

Air Quality

EPA and Bus Companies Cooperate to Promote Eco-friendly Driving

During 2010 the EPA started to work with a privately-run transport company to promote a more eco-friendly approach to bus driving. The company - Ho-Hsin Bus Traffic Company – provided the EPA with data on fuel consumption and their drivers' eco-friendly driving techniques. The EPA was able to verify that their driving techniques do indeed save energy and reduce carbon emissions. A press conference was also held to explain the scheme and to present the company with Eco-Driving stickers that will be displayed on their fleet of buses.

The EPA would like to point out that Ho-Hsin Bus Traffic Co. has been working on improving their staff's driving techniques for many years. The company has set up a traffic control center and has installed high-tech monitoring cameras in their buses.

Through training and encouraging their drivers with bonuses the company has managed to increase - from 3.7 km to 4.2 km - the average distance per liter of fuel that their buses achieve, an improvement of 13.5%. This is a win-win situation all round: the company

reduces its fuel bill by a considerable amount and increases its competitive edge; passengers get a safer and more comfortable ride; and the reduction in CO₂ emissions helps the national campaign to save energy and reduce carbon emissions.

Eco-driving schemes have been in operation overseas for a number of years and focus on training drivers in correct driving techniques such as avoiding idling, reducing vehicle loads, and using air conditioning appropriately. Together with a schedule of regular vehicle maintenance, these methods can directly cut fuel consumption and help in the national goal of saving energy and reducing carbon emissions.

In order to share the positive aspects of Eco-Driving with all drivers of motor vehicles, in 2010 the EPA ran three eco-driving training courses in northern, central, and southern Taiwan. Both professional and non-professional drivers participated in learning about Eco-Driving concepts and were given tips about how to change poor driving habits. Representatives from Ho-Hsin were also invited to share their experience of promoting Eco-Driving in-house. Their experience will be a valuable reference for other companies with bus

fleets interested in running Eco-Driving programs.

The EPA has calculated that if all of the approximate one million bus and truck drivers in Taiwan received Eco-Driving training, short-term savings of 1.18 million kilolitres of fossil fuel could be saved, which would result in 3.186 million fewer tonnes of CO₂ being emitted. Besides saving money the drivers and their companies would also have the satisfaction of knowing that they were taking part in the national energy conservation and carbon reduction campaign. If the nation's 6.5 million car drivers also joined the Eco-Driving program then further savings of 1.74 million kilolitres of fossil fuels could be made, which is equivalent to reducing 4.176 million tonnes of CO₂ emissions.

Anyone interested in learning more about the Eco-Driving scheme can view or download full details from the Eco-Driving Information Network page of the EPA Web site: <http://www.epa.gov.tw>. There is also information on self-taught eco-driving available on the Web site for drivers who wish to participate in this most worthy of environmental schemes.

Air Quality

Gas Flare Management Strengthened to Benefit Air Quality of Southern Taiwan

Following a recent overall inspection of the 6th naphtha cracker plant, most of the participating academics unanimously concluded that management of gas flares needs to be strengthened. In December 2008, a serious pollution incident at the plant affected air quality in the neighboring Mailiao area, and since then the EPA has been conducting research into gas flare operating practices in order to formulate more stringent controls over their management.

According to regulations laid out in the Air Pollution Control Act (空氣污染防治法), the most feasible and effective technologies for use in oil refinery gas flares in Taiwan are steam-assisted burning, tempering towers, and pressurized condensation. The regulations also state that the total number of hours per year that the gas flares are used for burning off unrefined raw materials released during emergency situations should not exceed 100.

There are currently 44 gas flares installed at the 6th naphtha cracker plant. Following the last inspection the plant sent a report of related operating procedures – including sources of the waste gas that is burned

in flares – to the Yunlin County Environmental Protection Bureau (EPB), as required by law. In 2008 the EPB requested the plant to install gas flow meters inside all of the flares as well as real-time monitoring instruments connected to the bureau via the Internet. During the meeting following the overall inspection, some academics and experts raised doubts about the lengths of time that gas flares were in use, as reported by the plant's management. However, as current regulations are not specific about non-emergency gas flare operational procedures, it is currently not possible to conduct inspections to clarify the issue.

In order to ensure that the gas flares are used only for

the purpose of burning off excess gas in emergency situations, the EPA has tightened controls on VOC emissions and revised the relevant regulatory standards. The revisions have already been pre-announced and a public hearing has been held. The draft of the revisions clearly states that gas flares cannot be used for treating waste gas produced from the everyday operations of public or private premises. The only times that gas flares can be employed is during emergencies, start-up and shut-down operations, annual maintenance check-ups, or other occasions sanctioned by the local competent authority.

The EPA will also be requiring the plant to submit operation plans to the local competent authority for evaluation and to install gas analysis and heat value monitoring instruments in the flares that are connected to the Internet. The plant will also be required to set up a 24-hour manned hotline in order to immediately answer queries from the general public concerning gas flare operations. During accidents at the plant when the flares have to burn off large quantities of waste gas, the hotline staff will then be able to explain to callers the reason for the increased activity, the types of gases being burned, and the emergency response measures that are being implemented to control the situation. The Yunlin County EPB is particularly concerned about the composition of gases entering the gas flares and so has asked the 6th naphtha cracker plant's management to install Internet-connected gas analyzers. So far three have been installed, and inspection of their management is being tightened.

Since 1998 the EPA has been working closely with the Yunlin, Chiayi, and Tainan County Environmental

Protection Bureaus to implement air pollution control measures. The environmental impact of the 6th naphtha cracker plant also continues to be closely monitored, and each of the counties has been implementing air quality improvement plans. The EPA also holds regular air quality meetings with the local bureaus in order to supervise their work and assist them wherever possible. According to EPA statistics, for the first nine months of 2010 the percentage of days when air quality in the area was recorded as "Poor" (PSI>100) was 2.4 %. This is an improvement on the figure of 2.61% for 2009, and 3.33% for 2008. The EPA will continue to reinforce its inspection of the 6th naphtha cracker plant and other major pollution sources through the use of monitoring equipment and modeling software. The EPA firmly believes that these efforts will lead to an improvement in air quality in the Yunlin-Chiayi-Tainan area.

Note: The 6th Naphtha Cracker Plant has been in operation for over ten years. For the purpose of gaining a better understanding of the environmental impact of the plant's operations, between 27~29 October 2010, the EPA held the 6th Naphtha Cracker Plant Overall Evaluation Symposium. In preparation for the symposium, 20 of Taiwan's leading experts and scholars began in May to conduct an overall evaluation of the positive and negative impacts of the plan on the economy, environment, society, and public health. The preliminary evaluation covers a total of 20 topics, with 374 different sets of relevant data analyzed. Joining in the discussions at the symposium were representatives from government, industry, academia, civil groups, and members of the public.

Control & Evaluation

15 Enterprises Awarded for Outstanding Environmental Protection

On 26 October 2010, this year's recipients of the most prestigious prize for environmental protection in Taiwan were announced at the ceremony for the 19th Annual Enterprises Environmental Protection Award (AEEPA). Fifteen enterprises won awards, including AU Optronics Corporation (Plant L6A), which gained the distinction of receiving an AEEPA for a third consecutive year. Given by the EPA, the awards recognize enterprises in Taiwan for outstanding achievements in environmental protection, and serve to encourage others to follow suit.

The EPA stated that since the inception of the AEEPA in 1992, recipients have been

mainly evaluated on concrete achievements in environmental management, pollution prevention,

and pollution treatment; disclosure of environmental data; energy conservation and carbon reduction measures; provision of green products and services; implementation of environmental protection concepts both within and outside the organization; and education and publicity. In the past 19 years there have been a total of 207 different award winners, including 21 recipients that have achieved the distinction of winning the award in 3 consecutive years.

To handle the widely diverse characteristics of entities eligible for the prize, this year for the first time award candidates were divided into six different categories: science and technology industries, traditional manufacturers, professional and technical services, general services, small and medium enterprises (SMEs), and previous commercial AEEPA winners. Selected from this year's 38 applicants were 15 award winners: 2 from the science and technology industry, 3 traditional manufacturers, 2 from the professional and technical services category, 2 from the general services category, 1 SME, and 5 from the previous commercial winner category.

The EPA said this year's candidates demonstrated an awareness of the interdependence between production and environment in the implementation and expansion of their environmental protection work. Candidates were willing to proactively invest in environmental protection tasks, sustainable resource use, cleaner industrial processes, and research and development of environmentally friendly products, becoming greener by gradually integrating environmental protection strategies and actions into their operations. Following globalization trends, enterprises are also complying with international environmental protection standards and regulations, and all award recipients are moving towards development of green industry. Making operations more sustainable not only lowers production costs and improves competitive advantages, it helps enterprises meet their corporate social responsibilities and increase their international competitiveness.

For more information about award recipients readers may go to the EPA Web site <http://www.epa.gov.tw>, or call (02)2311-7722 ext. 2944.

 2010 Annual Enterprises Environmental Protection Award Winners

Previous Award Recipients	Rexchip Electronics Corp.	United Microelectronics Corp. (Plant Fab 12A)	Corning Inc., Taiwan	Taiwan Mobile Co., Ltd.	AU Optronics Corp. (Plant L6A)
Small and Medium Enterprises	Epoch Energy Technology Corporation				
General Services	President Chain Store Corp. (7-11)	Chunghwa Telecom, Taipei City West Operations District			
Professional and Technical Services	Changhua Christian Hospital	St. Martin de Porres Hospital			
Traditional Manufacturers	CAPCO Co., Ltd. (Taichung Plant)	Cheng Loong Corporation (Dayuan Plant)	Uni-President Co. (Yangmei Plant)		
Science and Technology Industries	Taiwan Semiconductor Manufacturing Company, Ltd. (12 Plants)	Corning Inc., Taiwan., Southern Taiwan Science Division, Tainan Plant			

News Briefs

Five Metropolitan Rivers Brought Back to Life

In the past, metropolitan rivers in Taiwan have had to bear large volumes of household effluent and refuse. Consequently, the rivers were turned into dirty and foul-smelling blights on the environment. The start of the urban regeneration process has seen many of the smaller tributaries being routed through underground pipes. Cement and asphalt layers are then used to cover the pipes and create surfaces that can be used as roads or car parks. The EPA has been particularly active in recent years in promoting the remediation and revitalization of 5 metropolitan rivers including Tianliao River in Keelung; the Zhonggang Drainage Canal in Taipei County; Fengshan River in Kaohsiung County; Wannian River in Pingtung County; and Liu River in Taichung City. The methods employed include diverting rainless day effluent to natural purification areas or to nearby wastewater treatment plants. River bank beautification has also been undertaken to achieve the goals of removing refuse and improving water quality in the immediate environment. It is estimated that completion of the work will benefit 1.37 million local residents. (For more details please refer to Volume 13, Issue 10 of this publication.)

Online Reporting Period for Waste Disposal Vehicles to be Defined

The EPA recently pre-announced a revision to the Industrial Waste Disposal Machinery GPS Specifications and Operating Procedures, adding new regulations for online registration. The purpose of the revision is to tighten controls on the disposal of industrial waste nationwide by simplifying the online registration procedure. Raising administrative efficiency in this way will benefit both the government and the public. The main item in the revision is a new regulation stating that if waste disposal machinery is put into use while registration details for it are missing or out of date, then the operator will be given until the Friday of the following week to update the information online.

Details of the pre-announcement have been published on the Web page dealing with drafts and pre-announcements of legislation, which is part of the EPA Web site: <http://ivy5.epa.gov.tw/epalaw/index.aspx>. A toll-free line - 0800-059-777 – has also been set up to answer enquiries from waste disposal enterprises.

EPA Plans for Local Governments to Take Over Toxic Substances Registration

The EPA will soon be revising the Toxic Chemical Substances Permit Registration and Approval Regulations (毒性化學物質許可登記核可管理辦法). In future, registration for toxic substances and the associated paperwork for registration and permits will all be handled by local Environmental Protection Bureaus (EPBs), which are already handling most of the administrative duties associated with toxic substance registration, including permits to store, sell, and use toxic substances. The only two kinds of permits for which local EPBs conduct preliminary evaluations before passing the cases onto the EPA for issuance are manufacturing and import permits. The upcoming amendment to the Toxic Chemical Substances Permit Registration and Approval Regulations will simplify overall administration for everyone's benefit and will devolve power to local authorities.

Applications for Waste Disposal Control Codes to be Handled by Local Governments

Pursuant to Waste Disposal Act (廢棄物清理法) regulations, newly-listed enterprises that wish to submit industrial waste disposal plans for review or that wish to report waste disposal details online, should now apply to local Environmental Protection Bureaus (EPBs) for control codes and submit documentation for review and evaluation online.

Industrial enterprises and agencies involved in waste clearance, disposal and recycling that wish to apply for control numbers can download the relevant application form from the environmental protection permit management system section of the EPA's Environmental Management System (EMS) Web site (<http://ems.epa.gov.tw/>). The same form is also available from the information download section of the EPA's Industrial Waste Reporting System (IWRS) Web site (<http://waste.epa.gov.tw/>). Applications should then be sent to local EPBs for processing. A toll-free hotline (0800-059-777) has also been set up to answer any questions that applicants might have concerning the application process and to provide guidance where needed.

Environmental Policy Monthly
R.O.C. (Taiwan)

Publisher
Stephen Shu-hung Shen, Minister

Editor-in-Chief
Tsung Yung Liu

Executive Editors
Y. F. Liang; Yu-ling Yang; Li-kuo Hsiao;
Shao-wen Chang

Translator
Peter Morehead

Editorial and translation support
provided by:
Hui-kuo Consulting, Ltd.,
The EPM is available on the EPA Web
site at http://english.epa.gov.tw/en/File-DownloadPage_EN.aspx?path=420

For inquiries or subscriptions to the
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ISSN: 1811-4008
GPN: 2008600068
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